SUTTON CONSERVATION COMMISSION
October 21, 2015
MINUTES

Approved: _____

Present: Joyce Smith Chair, Lauren Rothermich, Daniel Moroney, Robert Tefft, and William Wence
Staff: Wanda M. Bien, Secretary
Brandon Faneuf, Consultant

**Public Hearing (New)**
**7:00pm** 9 Harback Road
DEP#303-0820

The Public Hearing was opened at 7:00pm. J. Smith read the hearing notice as it appeared in the Millbury Sutton Chronicle.

The project consists of redevelopment of existing Commercial/Industrial property, demolition of two buildings, and hazardous waste and debris removal.

Present: Gary Magnusson, & Michael Zorena, New Covenant Partners, LLC

D. Moroney stepped down.

G. Magnusson explained the redevelopment of this limited project that had hazardous materials that were removed from the property. They will be saving the back building but razing the front and middle buildings to be returned to a parking area and storage. He also gave the board some past background about the facility.

DEP Attachment #1
CMG Env. Inc. Attachment #2

B. Faneuf agreed that this was a limited project and the clean-up was a good thing, then he summarized his site visit report. He stated that this is a commercial site subject to stormwater management, and asked if the Board wanted a third party to review this.

The board and Mr. Magnusson decided a third party review was not necessary with a complromise of a swale and oil containment.

Abutter:
Robert Miller, 5 Harback Road supports what they want to do on this property. He told the board that DEP put two test wells on this property, and he is concerned about his well and would like his tested when they do the other wells.

B. Tefft said that they need to put the erosion control protection in before they demolish the buildings. He wants to see a grass swale and something to prevent oil from trucks from entering the wetland.

Motion: To continue, with the applicant's permission, to November 4, 2016 at 7:40pm by W. Wence
2nd: L. Rothermich
Vote: 4-0-0

**Project Update**
**7:15pm** Route 146/Boston Road
DEP#303-0814
Present: William Clougherty, MassDOT, Phil Fusco

W. Clougherty reviewed the Aldrich Pond siltation issue with the new head wall installed using 18" pipes that they would be changing to 24 " pipes. He reviewed their new plan showing how they would be using the 24" pipes to remedy the problem.

B. Faneuf summarized his site visit showing that this appears as a minor field change instead of a new NOI, if the Board agrees.

Motion: To approve this as a minor field change, by D. Moroney
2nd: W. Wence
Vote: 5-0-0

**Project Update**
**7:20pm** 44 Marble Road
DEP#303-0741
Unavailable: Cindy Campbell, potential owner

Ms. Campbell was unavailable. This was continued, with the applicant's permission, to November 4, 2015 at 8:00pm.

**Project Update**
**7:20pm** 65 Century Farm Road
DEP#303-0743
Margaret Bacon, Civil Site Engineering

Email from M. Bacon stating they will be trying other options and will contact us when they are ready to come to another meeting with updates.

Discussions:
**8:30pm**
**125 Central Turnpike - enforcement order update**
Present: Seth Enos

S. Enos told the Board that as soon as he can get in the resource area to be fixed, he would call the office when he was finished.

B. Faneuf told Mr. Enos to try to push the materials in as far as he could, as soon as he could.

**297 Manchaug Road/**M. Hester

The C of C As-Built was received from Tracy Sharkey.

B. Faneuf summarized his report information as to the outstanding issues that still need to be addressed before the certificate could be issued.

**277 Central Turnpike**/C. Murray – D. Moroney has attempted to access this area, he left a message but has not received a call back as to when he can do the site visit.

**34 Bond Hollow Road**/D. Marois – no As-Built is needed, however, a letter would be sent to the owner with the outstanding issues to be taken care of before a COC can be issued.

**BOARD BUSINESS**

The Board approved the Minutes of September 23, 2015.

Motion: To accept the minutes of September 23, 2015, by D. Moroney
2nd: W. Wence
Vote: 5-0-0

Complaints at **90 McClellan Road** possibility of filling in the BVW and putting a shed at that location.

The Board signed a routing slip for Planning Board/Earth Removal for Aggregate #2 Routing Slip.

Site Visits to be done for a Certificate of Compliance:
* **182 Manchaug Road**/Tom Berkowitz/Request C of C – SFHome – this has not been completed yet.

* **33 W. Sutton Road**/D. Chevaliers #303-0733/Request C of C – tight tank Site visit by J. Smith.
Motion: To issue a Complete Certificate of Compliance, by D. Moroney'
2nd: W. Wence
Vote: 5-0-0

* **282 Manchaug Road**/T. Sharkey - Received As-Built – Septic installed
Motion: To issue a Complete Certificate of Compliance, by D. Moroney'
2nd: L. Rothermich
Vote: 5-0-0

The Correspondence and Track Sheets were reviewed.

The Board reviewed the Letters sent out to the list below.
Sent on 08-19-15:
**9:00pm**
***383 Boston Road**/School/07-10-15 Elem. School/Early Learning Center/Dump in Wetlands. A site visit would be set up before the next meeting.

No information received yet on these letters sent out:
First letters sent to:
**11 Carr Street**/B. Garrett/7-10-15 – letter returned mailed to old address/re-mailed on 8-4-15. A Letter was sent to explain what is still needed for them to receive their Certificate of Compliance.
**6R Torrey Road** - #303-0737/M. Flagg, 08-07-15 to come in to explain Plan changes. Letter to owner who

needs a Certificate of Compliance to close out the Lien on this property.
**11 Dudley Lane -**

Anyone interested in purchasing the DVD for any public hearing at this meeting, please contact Pam Nichols in the Cable office or you can view the minutes and video at www.suttonma.org.

Motion: To adjourn, by L. Rothermich
2nd: W. Wence
Vote: 5-0-0
Adjourned at 9:10pm.

Attachment #1

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

Central Regional Office • 627 Main Street, Worcester MA 01608 • 508-792-7650

DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

Estate of Aharon Hersch
27 Winfred Avenue
Worcester MA 01602

Attention: Reus Chaya Hersch

RE: CRWSC- Sutton
Former Master Metals, Inc.
9 Harback Road
RTNs 2-0011136, 2-0012143
& 2-0015941

Dear Reus Chaya Hersch:

On October 25, 2013, The Estate of Aharon Hersch (hereafter referred to as you/your) was notified that the Massachusetts Department of Environmental Protection (MassDEP, the Department) began auditing response actions conducted to address the release of oil and/or hazardous material at the location identified above. This Notice informs you of the results of MassDEP's audit.

An audit site inspection was conducted on October 31, 2013 by Amy Sullivan of MassDEP's Central Regional Office with Gary Magnuson of CMG Environmental, Inc. In particular, the audit focused on the Class C-2 Response Action Outcome (RAO) Statement dated January 22, 2010, prepared by CMG Environmental. In addition, subsequent Post-Response Action Outcome Operation, Maintenance, and Monitoring reports were reviewed, as well as other reports available in Department records for the site, and subsequent RAO Status reports. Historical response actions conducted at the site have included soil excavation, boring/monitoring well installation, and assessment/monitoring.

## VIOLATIONS IDENTIFIED

MassDEP has determined that response actions were not performed in compliance with the requirements of the Massachusetts Contingency Plan (MCP). The enclosed Notice of Audit Findings and Notice of Noncompliance lists the violations and those actions that are required to achieve compliance. Specifically, the Notice of Audit Findings and Notice of Noncompliance contains: (1) the requirement violated, (2) the date and place that MassDEP asserts the requirement was violated, (3) either the specific actions which must be taken in order to return to compliance or direction to submit a written proposal describing how and when you plan to return to compliance and (4) the deadline for taking such actions or submitting such a proposal.

## LICENSED SITE PROFESSIONAL (LSP)

A copy of this notice has been sent to Benson Gould, the current LSP-of-Record for the disposal site. However, you, not your LSP, are responsible for responding to this Notice of Noncompliance and correcting the violations identified therein.

## LIMITATIONS

MassDEP's findings were based on the certainty of the information reviewed during the audit. These findings do not: (1) apply to actions or other aspects of the site that were not reviewed in the audit, (2) preclude future audits of past, current, or future actions at the site, (3) in any way constitute a release from any liability, obligation, action or penalty under M.G.L. c. 21E, 310 CMR 40.0000, or any other law, regulation, or requirement, or (4) limit MassDEP's authority to take or arrange, or to require any Responsible Party or Potentially Responsible Party to perform, any response action authorized by M.G.L. c. 21E which MassDEP deems necessary to protect health, safety, public welfare, or the environment.

If you have any questions regarding this Notice, please contact Amy Sullivan at (508) 767-2821. Please reference the Release Tracking Number, RTN 2-0011136, and Enforcement Tracking Number, NON-CE-14-3A016, in any future correspondence to MassDEP regarding the site.

Sincerely,

Date: March 17, 2014

Mark E. Baldi
Section Chief
Audits/Data Management
Bureau of Waste Site Cleanup

MEB/als

Enc. Notice of Audit Findings and Notice of Noncompliance

cc: Sutton Board of Health, 4 Uxbridge Road, Sutton, MA 01590
Ben Gould, LSP, CMG Environmental, 67 Hall Road, Sturbridge, MA 01566
CERO: file, database [RAO/ACTAUD AUDCOM/NAFNON]

ec: Enforcement Tracking, BWSC, DEP-CERO
Denise Child, Regional Enforcement Coordinator, DEP-CERO
Audit Coordinator, DEP-Boston

# NOTICE OF AUDIT FINDINGS AND NOTICE OF NONCOMPLIANCE

**NON- CE-14-3A016**
**RTNs 2-0011136, 2-0012143, 2-0015941**

**THIS IS AN IMPORTANT LEGAL NOTICE.**
**FAILURE TO RESPOND COULD RESULT IN SERIOUS LEGAL CONSEQUENCES.**

## NAME OF ENTITY IN NONCOMPLIANCE:

Estate of Aharon Hersch
27 Winfred Avenue
Worcester MA 01602

## LOCATION WHERE NONCOMPLIANCE OCCURRED OR WAS OBSERVED:

Former Master Metals, Inc.
9 Harback Road
Sutton, MA

## DATES WHEN NONCOMPLIANCE OCCURRED OR WAS OBSERVED:

January 22, 2010

## DESCRIPTION OF REQUIREMENT (S) NOT COMPLIED WITH:

310 CMR 40.1004: Performance Standards for Response Action Outcomes

"(1) A Response Action Outcome shall be supported by assessments and evaluations conducted pursuant to 310 CMR 40.0000 which:

(a) are of sufficient scope, detail, and level of effort to characterize the risk of harm to health, safety, public welfare and the environment posed by the site or disposal site pursuant to 310 CMR 40.0900;

(b) are consistent with the Response Action Performance Standard described in 310 CMR 40.0191;

(c) are commensurate with the nature and extent of the release or threat of release and complexity of site conditions;

(d) demonstrate that all requirements of the applicable class of Response Action Outcome pursuant to 310 CMR 40.1000 have been met; and

(e) conform with all applicable requirements and procedures for conducting response actions specified in 310 CMR 40.0000."

The Class C-2 RAO, received by MassDEP on January 22, 2010, does not meet the Performance Standards for Response Action Outcomes, specifically:

a. The Class C-2 RAO, received by MassDEP on January 22, 2010, states that Contaminants of Concern (COCs) in site soil are limited to lead, cadmium, zinc, chromium and Extractable Petroleum Hydrocarbons (EPH). Soil samples collected in November 2001 from the "machine pit" area revealed Tetrachloroethene (PCE) at a concentration of 33.8 mg/kg and trichloroethene (TCE) at 299.6 mg/kg. These samples were collected from beneath "Pit 2" at a depth of 9-10' by Lessard Environmental. The 2001 soil samples from "Pit 1" revealed PCE at 10.7 mg/kg and TCE at 0.86 mg/kg at a depth of 9-15'. According to the Phase II Report submitted in December 2002, soil samples collected from "Pit-2" in 1997 revealed 15.8 mg/kg of PCE and 380.1 mg/kg of TCE, both reportedly collected at a depth of 6" below grade. Chlorinated volatile organic compounds (CVOCs), including TCE and PCE, must be considered site COCs in soil for purposes of risk characterization, in accordance with 310 CMR 40.0904(3).

   Although an in-situ remediation program was conducted in the pit area by Corporate Environmental Advisors, Inc. (CEA) in April 2004, it was not proven to be successful. Table 1 of the January 2010 Class C-2 RAO, "Soil Data for Soil Remaining at the Site," indicates that the soil in the machine pit area (Pit-1, Pit-2, and Pit-3) has been removed, and is not included in soil Exposure Point Concentrations (EPCs). No other documentation of soil removal or remediation in the area of the machine pits has been provided to MassDEP. Post-excavation confirmatory soil samples do not appear to have been collected. No soil borings or groundwater monitoring wells have been installed beneath the site buildings and machine pits to assess the nature and extent of contamination, as required by 310 CMR 40.0904(2). If residual concentrations of site COCs remain in soil in the machine pit areas then conservative EPCs have not been calculated, in violation of 310 CMR 40.0924(1). In addition, limited groundwater data downgradient of the pits make it difficult to determine if the soil in "Pit 2" may be acting as a continuing source of groundwater contamination.

b. Lead concentrations remaining in site soil range from 1.83 milligrams per kilogram (mg/kg) to 4,330 mg/kg. The 2010 RAO concludes that the appropriate measure of the average concentration of total lead at the Site is the geometric mean rather than the arithmetic mean. According to MassDEP's Office of Research and Standards (ORS) the average concentration (arithmetic mean) is the best way to estimate the average concentration contacted by a receptor at the exposure point over time, and that the geometric mean is likely to underestimate the average concentration contacted over time. Based on this determination, it is MassDEP's position that the use of a geometric mean to calculate an EPC of lead in soil is not a conservative estimate of the concentration contacted by a receptor over time, in violation of 310 CMR 40.0926(3)(b).

c. The RAO Statement states that arsenic is not considered a Contaminant of Concern, based on it being "consistently present and naturally occurring." However, it is possible that arsenic was used during on-site operations, as arsenic was commonly

used to alloy with lead. Table 1-A of the RAO, "Data for Soil Remaining at Site," indicates that arsenic was detected in all locations where lead, cadmium, and chromium were also detected. Although the EPC for arsenic in soil approaches the S-1/GW-1 Method 1 Risk Characterization Standard of 20 mg/kg, the only soil sample ("Background Lessard") collected outside of the release areas where other COCs were not detected found arsenic at a concentration of 6.91 mg/kg. Additional sampling for arsenic outside of the smelting waste release areas is needed to further eliminate arsenic from consideration as a COC within the release areas. Although the EPC for arsenic in soil remaining at the site is 20.5 mg/kg, only slightly above the S-1/GW-1 concentration of 20 mg/kg (background is also 20 mg/kg), arsenic should be included as a site COC, or more conclusively shown or technically justified to be background. Therefore, background concentrations of arsenic have not been established at the site, as required by 310 CMR 40.0904(3).

d. TCE and PCE trends in select groundwater monitoring wells have fluctuated significantly from initial detections in 1998 through 2003, with PCE ranging from <1.0 to 35 ug/L and TCE ranging from 3.8 to 420 ug/L in MW LEI-3, located directly downgradient of the former pit area. PCE concentrations in MW OT-6D have ranged from <1.0 ug/L to 10.5 ug/L. TCE concentrations have ranged from <1.0 ug/L to 191 ug/L. Monitoring wells MW-104, MW-105, and MW-106, located hydraulically downgradient of MW LEI- 3 were only sampled once, in May 2008. Shallow groundwater monitoring wells located hydraulically downgradient of the chlorinated solvent-impacted area have not been sampled to adequately characterize the effects of seasonal variation on groundwater contaminant concentrations and determine a conservative Exposure Point Concentration for a GW-1 drinking water area, as required by 310 CMR 926(3)(a)(3).

e. Sampling of groundwater monitoring well OT-5, located approximately 50' from the on-site stream, revealed cadmium exceeding Method 1, GW-1 and GW-3 standards. The surface water was not sampled for cadmium, or any other site COC, with the exception of lead. The nature and extent of contamination in site surface water may not be defined per 310 CMR 40.0904(2)(c)(1).

f. Historic sediment sampling detected lead and EPH in sediment from the on-site intermittent stream. Concentrations of lead appear to be higher in the upstream and downstream sampling locations (Lessard samples 11-2001). Sediment sampling in December 1997 identifies lead exceeding benchmark levels in upstream and downstream sediment, and concludes that this lead is naturally occurring. However, no other metals were analyzed. The Nature and Extent of impact to site sediment may not be defined per 310 CMR 40.0904(2)(c), given the identification of cadmium and chromium as other contaminants of concern at the site.

g. The 2010 Class C-2 RAO does not consider drinking water wells in the area as receptors of site contamination. Although overburden groundwater has been determined to flow in a generally easterly direction across the site, the depth and

construction of private wells in the area have not been determined. Bedrock assessment, including fracture trace analysis, pump tests, or borehole logging has not been conducted to further characterize the bedrock aquifer and hydraulic conductivity of the potable water supply to the site groundwater. Therefore, the private drinking water wells within 500 feet are considered to be potential exposure points that have not been adequately assessed for purposes of risk characterization to demonstrate that a condition of No Substantial Hazard exists as required for Class C RAO by 310 CMR 40.1050; and to continually assess and evaluate for a condition requiring an Immediate Response Action as per 310 CMR 40.0411(7); and to ultimately demonstrate that groundwater Exposure Point Concentrations (EPCs) everywhere within 500 feet of potable wells meet applicable GW-1 Method 1 Risk Characterization standards to demonstrate a Condition of No Significant Risk to achieve a Permanent Solution for the site.

h. According to the 2010 Class C-2 RAO, the plan to achieve a Permanent Solution at the site includes ongoing groundwater monitoring for chlorinated volatile organic carbons (CVOCs). The selected remedial alternative for cadmium in site groundwater includes Monitored Natural Attenuation (MNA) through dispersion. The Class C-2 RAO states that the US EPA definition of MNA: "reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods" will be followed. MNA parameters, such as dissolved oxygen, pH, temperature, oxidation-reduction potential (ORP), dissolved organic carbon, dissolved iron or sulfate, etc. have not been monitored, as recommended by USEPA guidance (see *Monitored Natural Attenuation of Inorganic Contaminants in Groundwater*, Vol. 1 and 2, October 2007, EPA/600/R-07/139 & 140), to demonstrate that MNA is occurring primarily as a destructive and/or detoxifying processes such as adsorption and precipitation, to minimize long-term management of groundwater contamination in accordance with the Response Action Performance Standard (RAPS), in accordance with 310 CMR 40.0191(2)(a), (b) and (3)(a). Dispersion of groundwater contamination, by itself, is not considered to meet the requirements of RAPS, as per 310 CMR 40.0191(3)(c).

i. Monitoring well LEI-1, which is the most downgradient monitoring well (located on the northeasterly abutting property (15 Harback Road) revealed TCE at 3.2 ug/L in March 2003. This well was not sampled again. Based on this data, MW LEI-1 being located at the leading edge of the plume, and the TCE in MW LEI-1 approaching the applicable GW-1 Method 1 Risk Characterization Standards of 5 ug/L, the monitoring well LEI-1 should be monitored periodically to demonstrate that the plume is not expanding or increasing in concentration to show that the source is controlled to the extent feasible, in violation of 310 CMR 40.1003(5)(B).

## ACTIONS TO BE TAKEN AND THE DEADLINES FOR TAKING SUCH ACTIONS:

Within **180 days** of the date of this Notice you must submit a Post-Audit Completion Statement (BWSC-111) prepared in accordance with 310 CMR 40.1170, accompanied by either:

A. A revised Response Action Outcome (RAO) Statement, that addresses the violations identified and complies with the requirements of the MCP; or

B. Retract the existing RAO Statement, and submit a Tier Classification Submittal pursuant to 310 CMR 40.0500, and, if applicable, a Tier I permit application.

If you fail to revise the RAO Statement within the specified deadline, MassDEP can continue to treat this site as a Tier IB disposal site and require you to pay compliance fees until an RAO in compliance with the MCP has been achieved. Should you fail to comply with the requirements contained in this notice, MassDEP will invalidate the RAO submittal and will amend its records to indicate that an invalid RAO has been filed.

Complete the actions specified above and submit a Post-Audit Completion Statement in accordance with 310 CMR 40.1170 on the form established by MassDEP. It should be sent to the attention of Amy Sullivan within**180 days** of the date of this Notice. A copy of the Post-Audit Completion Statement form (BWSC111) can be located on MassDEP's web site at the following address: http://www.mass.gov/dep/cleanup/approvals/bwsc-111.pdf.

If the required actions are not completed by the deadlines specified, an administrative penalty may be assessed for every day after the date of this Notice that the noncompliance occurs or continues. MassDEP reserves its rights to exercise the full extent of its legal authority in order to obtain full compliance with all applicable requirements, including, but not limited to, criminal prosecution, civil action including court-imposed civil penalties, or administrative action, including administrative penalties imposed by MassDEP.

For the Massachusetts Department of Environmental Protection:

Date: March 17, 2014

By: _____

Mark E. Baldi
Section Chief
Audits/Data Management
Bureau of Waste Site Cleanup

ATTACHMENT #2



CMG Environmental, Inc. (CMG) prepared this Post-Audit Completion Statement (PACS) for the former Master Metals Industries, Inc. (MMI) property located at 9 Harback Road in Sutton, Massachusetts (the Property).

The Massachusetts Department of Environmental Protection (DEP) has issued several release tracking numbers (RTNs) to the Property over the years. Three of these currently remain open (primary RTN 2-11136 and linked RTNs 2-12143 & 2-15941). DEP conducted a comprehensive audit of response actions for these three RTNs beginning in October in 2013 and issued "Notice of Audit Findings and Notice of Noncompliance" NON-CE-14-3A016 to The Estate of Aharon Hersh (The Estate, successor to MMI) on March 17, 2014. This Notice required that by September 13, 2014 The Estate either:

A. Submit a revised RAO Statement "that addresses the violations identified and complies with the requirements of the MCP," or

B. Retract the Class C-2 RAO Statement and submit a Tier Classification submittal (and a Tier I Permit application if applicable).

CMG prepared a Temporary Solution (TS) Statement for RTN 2-11136 dated September 10, 2014 in lieu of a "revised RAO Statement" (since the 4/25/14 MCP revisions eliminated the terms "Response Action Outcome" & "RAO"), which The Estate is concurrently submitting via eDEP. CMG presumes that persons interested in this PACS will also have access to this document, and where possible we cite section numbers of the TS Report rather than reprinting the same information herein.

DEP lists nine specific deficiencies in response actions conducted for RTNs 2-11136, 2-12143 & 2-15941 as paragraphs (a) through (i) of NON-CE-14-3A016. This PACS quotes each of these paragraphs in turn, followed by an explanation of how The Estate has addressed them.

## PARAGRAPH (a): MACHINE PITS

a. The Class C-2 RAO, received by MassDEP on January 22, 2010, states that Contaminants of Concern (COCs) in site soil are limited to lead, cadmium, zinc, chromium and Extractable Petroleum Hydrocarbons (EPH). Soil samples collected in November 2001 from the "machine pit" area revealed Tetrachloroethene (PCE) at a concentration of 33.8 mg/kg and trichloroethene (TCE) at 299.6 mg/kg. These samples were collected from beneath "Pit 2" at a depth of 9-10' by Lessard Environmental. The 2001 soil samples from "Pit 1" revealed PCE at 10.7 mg/kg and TCE at 0.86 mg/kg at a depth of 9-15'. According to the Phase II Report submitted in December 2002, soil samples collected from "Pit-2" in 1997 revealed 15.8 mg/kg of PCE and 380.1 mg/kg of TCE, both reportedly collected at a depth of 6" below grade. Chlorinated volatile organic compounds (CVOCs), including TCE and PCE, must be considered site COCs in soil for purposes of risk characterization, in accordance with 310 CMR 40.0904(3).

   Although an in-situ remediation program was conducted in the pit area by Corporate Environmental Advisors, Inc. (CEA) in April 2004, it was not proven to be successful. Table I of the January 2010 Class C-2 RAO, "Soil Data for Soil Remaining at the Site," indicates that the soil in the machine pit area (Pit-1, Pit-2, and Pit-3) has been removed, and is not included in soil Exposure Point Concentrations.

(EPCs). No other documentation of soil removal or remediation in the area of the machine pits has been provided to MassDEP. Post-excavation confirmatory soil samples do not appear to have been collected. No soil borings or groundwater monitoring wells have been installed beneath the site buildings and machine pits to assess the nature and extent of contamination, as required by 310 CMR 40.0904(2). If residual concentrations of site COCs remain in soil in the machine pit areas then conservative EPCs have not been calculated, in violation of 310 CMR 40.0924(1). In addition, limited groundwater data downgradient of the pits make it difficult to determine if the soil in "Pit 2" may be acting as a continuing source of groundwater contamination.

RESPONSE:
CMG and The Estate agree with DEP that the set of contaminants of concern in soil at the Property should include the chlorinated VOCs TCE and PCE. To that end, Section 2.1 of the TS Report includes TCE and PCE as "contaminants detected in soil remaining at the Property" and subsection 2.1.1 provides a detailed discussion of chlorinated VOC testing in soil. Section 4.4 of the TS Report presents the Substantial Hazard evaluation CMG conducted [as appropriate for a Temporary Solution pursuant to 310 CMR 40.1050(1)] and subsection 4.4.1 discusses how CMG addressed TCE and PCE in soil in our Substantial Hazard evaluation.

CMG and The Estate also agree with DEP that the soil sampled by Lessard Pit-1 and Pit-2 still remains at the Property. CMG has removed the cross-hatching over these samples in Table 1 of the TS Report (Soil Quality Data), and we have included these samples in Table 1A (Soil Remaining at Property).

Lessard Environmental, Inc. (Lessard) initially reported the results from their November 30, 2001 sampling of the three machine pits within Property Buildings 2 & 3 in the Immediate Response Action Status Report #5 they prepared for MMI dated February 9, 2002. This report indicates that Lessard collected soil samples for field screening at depths ranging from 0 to 28 inches "within the pits." CMG interprets this to mean depth below the bottom surface of the machine pits (presumably poured concrete, but not definitively stated in any of the numerous reports we have reviewed for the Property). On March 18, 2013 CMG measured the depth of the machine pit in Building 3 (Pit 3) as approximately 6'. We were unable to measure the depth of machine pits in Building 2 at that time (due to the collapsed Quonset hut structure and presence of rolling mills) but these pits appear to be of similar construction. Therefore CMG presumes the 9-15" soil sample Lessard collected under Pit 1 was from a depth of approximately 6½-7' below grade, and the 9-10" sample under Pit 2 was from about 6-7' below grade. Therefore CMG considers this soil to be category S-3 for the purposes of risk characterization (see Section 4.3.2 of the TS Report).

CMG concurs with DEP that machine pit remediation efforts Corporate Environmental Advisors, Inc. (CEA) conducted in April 2004 were not confirmed through follow-up soil sampling. However we note that the reported depths to groundwater gauged in adjacent monitoring wells OT-8, LEI-3, MW-2, and MW-4 have ranged from 5.92-8.07' below grade, which suggests that Lessard collected the Pit-1 and Pit-2 soil samples from below the seasonal high water table elevation. Therefore one would expect that groundwater concentrations of TCE and PCE in down-gradient wells LEI-3 and MW-4 would be strongly influenced by their concentration in soil in the interval that Lessard sampled. Well LEI-3 (located hydraulically downgradient of Pit 1 and Pit 2) exhibited a 94% reduction in chlorinated VOC concentrations in April 2004 as compared

to previous (March 2003) sampling (see Table 2 and Chart G of the TS Report); CEA sampled well MW-4 only once (on 10/5/05), when it exhibited only 1.5 µg/L of TCE. CMG interprets this as indication that CEA's remediation efforts were reasonably successful.

CMG conducted Substantial Hazard evaluation of S-2 soils because these are the only soils that current or reasonably foreseeable human receptors would be exposed to. We believe it is not appropriate to use measured concentrations of TCE and PCE in the Pit-1 and Pit-2 samples (which are category S-3 due to depth and inaccessible location beneath Property Building 2) for this Substantial Hazard evaluation. Nonetheless, CMG believes that risk characterization should consider the possibility that some category S-2 soil at the Property might exhibit TCE or PCE. Therefore we conservatively incorporated an estimated EPC value equivalent to the average laboratory reporting limit for these VOCs in the 9 samples of category S-2 soil tested for VOCs (none of which exhibited any TCE or PCE identifications) in our Substantial Hazard evaluation for the construction worker scenario (see Section 4.4.1 and Table 8A of the TS Report).

### PARAGRAPH (b): ARITHMETIC VS. GEOMETRIC MEAN

b. Lead concentrations remaining in site soil range from 1.83 milligrams per kilogram (mg/kg) to 4,330 mg/kg. The 2010 RAO concludes that the appropriate measure of the average concentration of total lead at the Site is the geometric mean rather than the arithmetic mean. According to MassDEP's Office of Research and Standards (ORS) the average concentration (arithmetic mean) is the best way to estimate the average concentration contacted by a receptor at the exposure point over time, and that the geometric mean is likely to underestimate the average concentration contacted over time. Based on this determination, it is MassDEP's position that the use of a geometric mean to calculate an EPC of lead in soil is not a conservative estimate of the concentration contacted by a receptor over time, in violation of 310 CMR 40.0926(3)(b).

RESPONSE:
CMG and The Estate agree with DEP that use of the geometric mean concentration as an EPC value is not sufficiently conservative for risk characterization purposes. Therefore CMG used the arithmetic mean averages as EPC values in our Substantial Hazard evaluation of soil exposure (see Section 4.3.5 and Tables 2A, 8A & 8B of the TS Report).

CMG still maintains that the data for total lead and cadmium in Property soils are log-normally distributed, so the geometric mean concentration provides a much better measure of central tendency for these data sets than does the arithmetic mean (see Sections 2.1.3 & 2.1.4, Tables 1C & 1D, and Charts A through D of the TS Report).

### PARAGRAPH (c): ARSENIC IN SOIL

c. The RAO Statement states that arsenic is not considered a Contaminant of Concern, based on it being "consistently present and naturally occurring." However, it is possible that arsenic was used during on-site operations, as arsenic was commonly used to alloy with lead. Table I-A of the RAO, "Data for Soil Remaining at Site," indicates that arsenic was detected in all locations where lead, cadmium, and chromium were also detected. Although the EPC for arsenic in soil approaches the S-1/GW-1 Method 1 Risk Characterization Standard of 20 mg/kg, the only soil sample ("Background Lessard") collected outside of the release areas where other COCs

were not detected found arsenic at a concentration of 6.91 mg/kg. Additional sampling for arsenic outside of the smelting waste release areas is needed to further eliminate arsenic from consideration as a COC within the release areas. Although the EPC for arsenic in soil remaining at the site is 20.5 mg/kg, only slightly above the S-1/GW-1 concentration of 20 mg/kg (background is also 20 mg/kg), arsenic should be included as a site COC, or more conclusively shown or technically justified to be background. Therefore, background concentrations of arsenic have not been established at the site, as required by 310 CMR 40.0904(3).

RESPONSE:
Statistical analysis that CMG conducted on the set of total arsenic data in Property soils is equivocal as to whether these data are normally or log-normally distributed (see Section 2.1.5, Table 1E, and Charts E & F of the TS Report). CMG interprets this to indicate there are both naturally-occurring and anthropogenic sources of total arsenic at the Property. We believe that 17 mg/Kg, the average total arsenic concentration in soil remaining at the Property omitting the apparent data outlier (Lessard sample SS-13 [1-2']), is a reasonable estimate of background total arsenic levels. However, CMG does not have sufficient data to unequivocally demonstrate this, and it is possible that the true background level for arsenic in Property soils may be as low as 5.5 mg/Kg (see Section 4.2.1 of the TS Report).

CMG included arsenic as a contaminant of concern, and did not attempt to subtract out any background level from our calculated EPC of total arsenic for risk characterization purposes. We conservatively calculated an average S-2 soil EPC of 20.7 mg/Kg (including the apparent data outlier) and used this value in our Substantial Evaluation for soil exposure (see Tables 2A, 8A & 8B of the TS Report).

### PARAGRAPH (d): EXTENT OF CHLORINATED VOCS

d. TCE and PCE trends in select groundwater monitoring wells have fluctuated significantly from initial detections in 1998 through 2003, with PCE ranging from <1.0 to 35 ug/L and TCE ranging from 3.8 to 420 ug/L in MW LEI-3, located directly downgradient of the former pit area. PCE concentrations in MW OT-6D have ranged from <1.0 ug/L to 10.5 ug/L. TCE concentrations have ranged from <1.0 ug/L to 191 ug/L. Monitoring wells MW-104, MW-105, and MW-106, located hydraulically downgradient of MW LEI-3 were only sampled once, in May 2008. Shallow groundwater monitoring wells located hydraulically downgradient of the chlorinated solvent-impacted area have not been sampled to adequately characterize the effects of seasonal variation on groundwater contaminant concentrations and determine a conservative Exposure Point Concentration for a GW-1 drinking water area, as required by 310 CMR 926(3)(a)(3).

RESPONSE:
Prior to the DEP audit, CMG's conceptual site model (CSM) for chlorinated VOCs in Property groundwater was that the obvious diminishing trend in chlorinated solvent contamination measured in groundwater samples from the Property was due to CEA's remediation efforts in April 2004, along with natural attenuation due to biodegradation and dispersion. We collected groundwater samples from select monitoring wells for chlorinated VOC analysis in all four quarters of 2010, and the results of this testing agreed well with this CSM (which is why CMG ceased groundwater monitoring for VOCs in November 2010).

CMG and The Estate agree that DEP presents a good alternative CSM of chlorinated VOC contamination, namely that the plume of chlorinated VOC contamination has migrated past the monitoring wells that CMG has sampled in 2010 (OT-2, OT-3, OT-6D & LEI-3). [Incidentally, this alternative CSM also implies that residual chlorinated solvent contamination beneath the Property Building 2 machine pits no longer constitutes a significant ongoing contaminant source.] Therefore CMG collected groundwater samples for chlorinated VOC analysis in May, August, and September 2014 from monitoring wells OT-6D, LEI-3, and MW-103 at the Property and downgradient wells MW-104, MW-105, and MW-106 on the northeast-abutting 15 Harback Road property. We also made a concerted effort to locate former downgradient monitoring well LEI-1 at 15 Harback Road, but could not find it and presume this well destroyed.

Unfortunately it appears that DEP's alternative CSM is correct, as the recent groundwater analyses documented a TCE concentration of 5.3 µg/L in well LEI-3 in May 2014 (slightly above its 5 µg/L GW-1 standard) and PCE concentrations of up to 31.2 µg/L in downgradient wells MW-105, and MW-106 (significantly above its 5 µg/L GW-1 standard). This finding demonstrates the need for additional downgradient assessment, but recent drinking water analyses confirm there is no current Substantial Hazard from TCE or PCE (see Sections 4.4.2 & 5.2.6 and Table 3 of the TS Report).

### PARAGRAPH (e): CADMIUM IN SURFACE WATER

e. Sampling of groundwater monitoring well OT-5, located approximately 50' from the on-site stream, revealed cadmium exceeding Method 1, GW-1 and GW-3 standards. The surface water was not sampled for cadmium, or any other site COC, with the exception of lead. The nature and extent of contamination in site surface water may not be defined per 310 CMR 40.0904(2)(c)(l).

RESPONSE:
CMG and The Estate agree with DEP that additional assessment of surface water is warranted at the Property. On August 22, 2014 CMG was prepared to collect surface water samples from the unnamed intermittent brook that traverses the Property for total cadmium, total lead, and hardness analyses but the brook was dry at that time. We were able to collect sediment samples from three locations in the brook streambed for total cadmium, chromium, and lead analysis (see Section 2.4.1, Figure 2, and Table 4 of the TS Report). Total cadmium was higher in the most downstream sediment sample location (though still below sediment benchmark screening criteria), which suggests the possibility that Property cadmium contamination has impacted this intermittent stream. CMG opines that surface water sampling for total cadmium would be prudent when there is water in this intermittent brook to sample.

### PARAGRAPH (f): SEDIMENT SAMPLING

f. Historic sediment sampling detected lead and EPH in sediment from the on-site intermittent stream. Concentrations of lead appear to be higher in the upstream and downstream sampling locations (Lessard samples 11-2001). Sediment sampling in December 1997 identifies lead exceeding benchmark levels in upstream and downstream sediment, and concludes that this lead is naturally occurring. However, no other metals were analyzed. The Nature and Extent of impact to site sediment may not be defined per 310 CMR 40.0904(2)(c), given the identification of cadmium and chromium as other contaminants of concern at the site.

RESPONSE:
CMG collected sediment samples from three locations in the dry streambed of the unnamed intermittent brook that traverses the Property on August 22, 2014 (see response to paragraph (e) above). This testing included analysis for total cadmium, chromium, and lead, along with EPH and total organic carbon (see Section 2.4.1 and Table 4 of the TS Report). Testing documented elevated lead concentrations in all three sediment samples, with the highest concentration in the most upstream sample (collected at the Property boundary). CMG does not believe the elevated lead concentrations to be naturally occurring. However, we conclude that the source of EPH, cadmium, chromium, and lead contamination in sediment samples is upstream of the Property and therefore not attributable to RTNs 2-11136, 2-12143, or 2-15941 (see Section 4.4.4 of the TS Report).

PARAGRAPH (g): BEDROCK AQUIFER

g. The 2010 Class C-2 RAO does not consider drinking water wells in the area as receptors of site contamination. Although overburden groundwater has been determined to flow in a generally easterly direction across the site, the depth and construction of private wells in the area have not been determined. Bedrock assessment, including fracture trace analysis, pump tests, or borehole logging has not been conducted to further characterize the bedrock aquifer and hydraulic conductivity of the potable water supply to the site groundwater. Therefore, the private drinking water wells within 500 feet are considered to be potential exposure points that have not been adequately assessed for purposes of risk characterization to demonstrate that a condition of No Substantial Hazard exists as required for Class C RAO by 310 CMR 40.1050; and to continually assess and evaluate for a condition requiring an Immediate Response Action as per 310 CMR 40.0411(7); and to ultimately demonstrate that groundwater Exposure Point Concentrations (EPCs) everywhere within 500 feet of potable wells meet applicable GW-1 Method 1 Risk Characterization standards to demonstrate a Condition of No Significant Risk to achieve a Permanent Solution for the site.

RESPONSE:
CMG and The Estate reiterate that based on the available data, we do not consider private drinking water supply wells at or near the Property to be current exposure points for contamination attributable to RTNs 2-11136, 2-12143, or 2-15941. However we agree with DEP that private drinking water supply wells within 500' of disposal site boundaries each constitute a potential exposure point.

CMG inquired at the Sutton Board of Health office regarding available documentation of private drinking water supply wells in the Property vicinity in 2009 while researching available information for our January 2010 Class C-2 RAO Report for RTN 2-11136. A Board of Health representative informed us at that time that the Town of Sutton does not have records documenting depth or construction of the private supply wells in question. Fracture trace analysis, pump testing, and borehole logging are beyond the means of The Estate, and CMG opines such testing is not warranted.

CMG collected drinking water samples from 6, 14, 15, 16 & 18 Harback Road on August 15, 2014 for total cadmium analysis to evaluate potential exposure of human receptors and assess for potential IRA conditions relative to RTN 2-15941. This testing did not identify any total

cadmium above laboratory reporting limits in the drinking water samples (see Section 2.3 and Table 3 of the TS Report).

CMG verbally notified DEP of a potential new IRA condition on August 29, 2014 upon identifying a PCE concentration above 5 µg/L in downgradient monitoring well MW-106. Mr. Robert Dunne of the DEP Central Region Emergency Response Branch took our call, and after consultation with other DEP staff responded back that this was not a new IRA condition and thus did not warrant issuance of a new RTN. CMG collected additional drinking water samples from 9, 14, 15, and 16 Harback Road on September 2, 2014 for analysis of VOCs via EPA Method 524.2 to ascertain whether there was any exposure to human receptors (we also collected additional groundwater samples on that date to better delineate this new finding). Laboratory analysis did not identify any VOCs in these drinking water samples attributable to RTNs 2-11136 or 2-12143. CMG concludes that this is sufficient evidence that elevated TCE levels in groundwater at wells MW-105 and MW-106 does not constitute an actual Substantial Hazard to human receptors pursuant to 310 CMR 40.0956(1)(c) [see Section 4.4.2 of the TS Report].

CMG and The Estate believe that additional assessment is warranted to define the downgradient extent of the chlorinated VOC plume in groundwater, and also that testing of additional private drinking water supplies within 500' is warranted. There has not been sufficient time to conduct this additional assessment to date, but The Estate (or the future Property owner) intends to do so as soon as practical (see Section 5.2.6 and Figure 9 of the TS Report).

### PARAGRAPH (h): MONITORED NATURAL ATTENUATION

h. According to the 2010 Class C-2 RAO, the plan to achieve a Permanent Solution at the site includes ongoing groundwater monitoring for chlorinated volatile organic carbons (CVOCs). The selected remedial alternative for cadmium in site groundwater includes Monitored Natural Attenuation (MNA) through dispersion. The Class C-2 RAO states that the US EPA definition of MNA: "reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods" will be followed. MNA parameters, such as dissolved oxygen, pH, temperature, oxidation-reduction potential (ORP), dissolved organic carbon, dissolved iron or sulfate, etc. have not been monitored, as recommended by USEPA guidance (see *Monitored Natural Attenuation of Inorganic Contaminants in Groundwater,* Vol. 1 and 2, October 2007, *EPAJ6001R-071139* & 140), to demonstrate that MNA is occurring primarily as a destructive and/or detoxifying processes such as adsorption and precipitation, to minimize long-term management of groundwater contamination in accordance with the Response Action Performance Standard (RAPS), in accordance with 310 CMR 40.0191(2)(a), (b) and (3)(a). Dispersion of groundwater contamination, by itself, is not considered to meet the requirements of RAPS, as per 310 CMR40.0191(3)(c).

RESPONSE:
[Slight clarification: CMG notes that the EPA definition of MNA quoted in paragraph (h) above does not appear in the 2010 Class C-2 RAO Report for RTN 2-11136. However, CMG does provide this definition verbatim in our January 2013 Post-RAO OMM Report #6 and subsequent OMM reports.]

Section 4.4 of the Class C-2 RAO Report presents MMI's 'Plan to Achieve a Permanent Solution' and subsection 4.4.2 details this plan with regards to groundwater concerns. This plan stated that "MMI will monitor natural attenuation of chlorinated VOCs" and "CMG opines that natural attenuation (through dispersion) will eventually reduce dissolved cadmium concentrations below M1RC standards." This plan nowhere obligates MMI to test for the MNA parameters that DEP cites. Nonetheless, CMG and The Estate concur that evaluation of such parameters could serve to better quantify natural attenuation.

CMG routinely screens low-flow groundwater samples for pH, temperature, and conductivity (see Section 3.2.2 of the TS Report), although we have not included this information with OMM reports for RTN 2-11136. The following table summarizes available field screening reading data from March 2010 through September 2014.

FIELD SCREENING READINGS

| DATE | WELL ID | PH | TEMPERATURE | CONDUCTIVITY |
|---|---|---|---|---|
| 3/1/10 | OT-2 | 6.03 S.U. | 8.0 °C | 267 µS |
| | OT-3 | 6.25 S.U. | 5.1 °C | 27.9 µS |
| | OT-5 | 5.35 S.U. | 4.2 °C | 583 µS |
| | LEI-3 | 6.06 S.U. | 6.8 °C | 148 µS |
| 5/21/10 | OT-3 | 6.79 S.U. | 13.7 °C | 47 µS |
| | MW-5 | 6.55 S.U. | 13.4 °C | 168 µS |
| 11/18/10 | LEI-4 | 6.37 S.U. | 14.1 °C | 185 µS |
| | OT-3 | 6.14S.U. | 12.6 °C | 33.7 µS |
| | OT-6D | 6.24 S.U. | 14.1 °C | 145 µS |
| 2/17/11 | OT-5 | 5.38 S.U. | 4.7 °C | 1,244 µS |
| 5/26/11 | MW-5 | 5.61 S.U. | 11.9 °C | 391 µS |
| 11/16/11 | LEI-4 | 7.77 S.U. | 15.1 °C | 455 µS |
| 2/15/12 | OT-5 | 6.10 S.U. | 6.2 °C | 295 µS |
| 5/17/12 | LEI-4 | 5.90 S.U. | 11.2 °C | 494 µS |
| | MW-5 | 5.66 S.U. | 11.9 °C | 342 µS |
| 2/22/13 | OT-5 | 4.56 S.U. | 2.6 °C | 0 µS |
| 5/28/14 | LEI-3 | 6.12 S.U. | 8.2 °C | 225 µS |
| | LEI-4 | 6.18 S.U. | 8.6 °C | 507 µS |
| | OT-1 | 6.12 S.U. | 13.9 °C | 363 µS |
| | OT-5 | 5.94 S.U. | 9.0 °C | 394 µS |
| | OT-7 | 6.25 S.U. | 9.4 °C | 401 µS |
| | MW-5 | 6.06 S.U. | 8.3 °C | 520 µS |
| | MW-104 | 6.25 S.U. | 8.9 °C | 402 µS |
| | MW-105 | 6.21 S.U. | 8.7 °C | 435 µS |
| | MW-106 | 6.16 S.U. | 11.6 °C | 199 µS |
| 8/22/14 | OT-6D | 6.58 S.U. | 15.8 °C | 56.3 µS |
| | MW-106 | 6.56 S.U. | 17.0 °C | 33.0 µS |
| 9/2/14 | MW-103 | 6.02 S.U. | 19.2 °C | 17.7 µS |
| | MW-104 | 6.00 S.U. | 16.3 °C | 21.2 µS |
| | MW-105 | 6.10 S.U. | 15.7 °C | 22.8 µS |
| | MW-106 | 6.11 S.U. | 20.1 °C | 23.8 µS |

CMG opines that these field-screening data do not provide any significant information pertinent to MNA of either chlorinated VOCs or soluble cadmium.

CMG also screened groundwater samples collected on August 22, 2014 for dissolved oxygen (0.35 mg/L at OT-6D and 0.32 mg/L at MW-106) and oxidation-reduction potential (-23 mV at OT-6D and +61 mV at MW-106). These data indicate reducing conditions at well OT-6D (preferable for microbial dechlorination of TCE and PCE) and oxidizing conditions at MW-106.

PARAGRAPH (i): MONITORING WELL LEI-1

i. Monitoring well LEI-1, which is the most downgradient monitoring well (located on the northeasterly abutting property (15 Harback Road) revealed TCE at 3.2 ug/L in March 2003. This well was not sampled again. Based on this data, MW LEI-1 being located at the leading edge of the plume, and the TCE in MW LEI-1 approaching the applicable OW-1 Method 1 Risk Characterization Standards of 5 ug/L, the monitoring well LEI-1 should be monitored periodically to demonstrate that the plume is not expanding or increasing in concentration to show that the source is controlled to the extent feasible, in violation of 310 CMR 40.1003(5)(B).

RESPONSE:
As noted in our response to paragraph (d) above, CMG searched for former downgradient monitoring well LEI-1 on May 28, 2014 but could not find it, and presumes it destroyed. (We used a magnetometer for this search, focusing on the area within 25' of where previous mapping located this well.) CMG had also searched for this well in May 2010 without success.

Therefore CMG collected groundwater samples from monitoring wells MW-105 and MW-106 to assess downgradient chlorinated VOC concentrations. As noted above, these wells exhibit the highest identified current PCE concentrations at or near the Property. Therefore CMG and The Estate conclude that further assessment of downgradient groundwater quality is warranted (see Section 5.2.6 of the TS Report). This should take the form of additional downgradient monitoring well(s). CMG believes it may be most cost-effective to conduct a passive soil gas survey to map chlorinated VOC contours to select the best location(s) for such additional wells.

# Conservation Sign in Sheet

**Date:** 10-21-15

| Name | Address & or Email | Agenda Address |
|---|---|---|
| Bob Miller | 5 Harbach Rd | 9 Harbach Rd |
| Wm. Clougherty | MassDOT Dist 3 605 Belmont St. | Rte 146/Boston Rd. |
| Phil Fusco | WSP-PB 9 Trolley Crossing Rd Charlton, MA | Rt. 146/Boston Rd |
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