



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE – SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

CONTAINS ENFORCEMENT-SENSITIVE INFORMATION

MEMORANDUM

DATE: 08 April 2014

SUBJ: Request for a Removal Action at the Fay Street Site,
Lowell, Middlesex County, Massachusetts - **Action Memorandum**

FROM: Elsbeth Hearn, Federal On-Scene Coordinator
Emergency Response and Removal Section I

Elsbeth Hearn 4/9/2014

THRU: Michael Barry, Acting Chief
Emergency Response and Removal Section I

Ms Barry 4/5/2014

Carol Tucker, Chief
Emergency Planning & Response Branch

TO: James T. Owens III, Director
Office of Site Remediation and Restoration

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action at the Fay Street Site (the Site), which is located at properties adjacent to 86 Fay Street in Lowell, Middlesex County, Massachusetts. Hazardous substances present in surface soils (less than three feet) at the Site, if not addressed by implementing the response actions selected in this Action Memorandum, will continue to pose a threat to human health and the environment. There are no nationally significant or precedent-setting issues associated with this Site, and there has been no use of the OSC's \$200,000 warrant authority.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID# : MAN000106163
SITE ID# : 01 LH
CATEGORY : Time-Critical

A. Site Description

1. Removal site evaluation

From July 23-24, 2013, U.S. Environmental Protection Agency (EPA) Federal On-Scene Coordinators (OSC) Michael Nalipinski and Eric Vanderboom; EPA's Mobile Laboratory and Chemist Scott Clifford; and, Superfund Technical Assistance and Response Team (START) personnel conducted a Site Investigation. START contractors collected 133 soil samples from the three properties that are adjacent to 86 Fay Street. These samples were analyzed on site for lead using an XRF. START also sent 13 soil samples for total metals analysis and 10 samples for confirmation analysis to EPA's North Chelmsford laboratory.

Reports and data obtained from the Massachusetts Department of Environmental Protection (MassDEP) and the City of Lowell indicate metals contamination at the perimeter of 86 Fay Street which is a publically owned property and was remediated under the Brownfields program (see State and Local Actions Section below). During the soil excavation at 86 Fay Street ash layers were observed at/near the edges of the excavation. EPA initiated soil sampling at O'Donnell Park/Shaugnessy Elementary and Butler Middle Schools to the north, the residential property at 74 Fay Street to the west and at the condominium property 106 Lundberg Street to the south. The property to the east is a commuter rail line and was not sampled.

The data from the EPA investigation supports the state and City's hypothesis. The residential property at 74 Fay Street and condominiums at 106 Lundberg Street contain hazardous substances as defined by 40 C.F.R. Section 302.4 from the ground surface to two feet below grade.

The OSC recommended that a Time Critical Removal Action (RA) was appropriate at the Site, documented in a closure memo dated December 2, 2013.

2. Physical location

The Fay Street Site, defined during the EPA Site Investigation, is two residential properties adjacent to 86 Fay Street. The geographic coordinates as measured from the center of 86 Fay Street are 42 degrees 37 minutes 26.3 seconds north latitude and 71 degrees 18 minutes and 10.2 seconds west longitude. The property to the west, 74 Fay Street, is comprised of a residence and a lawn area totaling 0.42 acres. 106 Lundberg Street is approximately 2 acres in size, and contains eight residential condominium buildings and associated grounds (e.g., lawn/common areas and paved parking areas).

3. Site characteristics

Properties in the vicinity of the Site have been mainly residential since the 1880s. The properties 86 Fay Street and 106 Lundberg Street were once a single property and historically were occupied by the J.A. Ready Boiler Works from approximately 1896 to the early 1900s. The property north of 86 Fay Street was occupied by the Middlesex North Agricultural Fairgrounds from 1860 to about 1910. This northern property is currently occupied by the O'Donnell Park, Shaughnessy Elementary and Butler Middle Schools.

Previous site investigations and historical data suggest that the area was used for land disposal of ash prior to 1938. Sometime between 1945 and 1950 the City of Lowell acquired the property, currently identified as 86 Fay St and 106 Lundberg Street, for tax purposes.

During the excavations at 86 Fay Street, intermittent layers of ash were observed at depths less than 3 feet below ground surface at the property boundaries with 74 Fay Street, 106 Lundberg Street and O'Donnell Park.

The residence at 74 Fay Street is currently occupied, as is the condominium property at 106 Lundberg Street.

According to the Region One ArcGIS mapping tool, within one mile of the Site there are:

- 18,481 residents;
- Ten RCRA Tier 2 Facilities;
- Four public schools (two are adjacent to 86 Fay Street);
- Two daycare facilities; and
- The Concord River.

According to the EPA Region 1 Environmental Justice Screen Mapping Tool (EJSCREEN), the Site is above the 80th percentile for 10 of the 12 EJSCREEN criteria.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

The Site presents an ongoing release of hazardous substances. Analysis of the 94 surface soil (0 – 2 ft below ground surface) samples collected from 74 Fay and 106 Lundberg Streets detected lead and arsenic in excess of the EPA Regional Removal Management Levels (RMLs) for unrestricted residential uses and above the Massachusetts Contingency Plan Soil Category S-2 standards. **Highlighted** entries in the following summary tables indicate exceedances of the RML's.

Table 1: Fay Street Site - 74 Fay St Property Contaminant Concentrations in mg/kg (ppm)

Field Screening Results	Lead	Arsenic
Maximum (lab result)	1500	30
Number of Samples/ % > Residential RML	49/50%	7/0%
Regional RML – Industrial/Commercial	800	240
Regional RML – Residential	400	61
MassDEP, Unrestricted Residential Use	300	20
EPA/ATSDR, Unrestricted Residential Use	--	--

Table 2: Fay Street Site – 106 Lundberg Street Contaminant Concentrations in mg/kg (ppm)

Field Screening Results	Lead	Arsenic
Maximum (lab result)	7300	160
Number of Samples/ % > Residential RML	38/29%	6/25%
Regional RML – Industrial/Commercial	800	240
Regional RML – Residential	400	61
MassDEP, Unrestricted Residential Use	300	20
EPA/ATSDR, Unrestricted Residential Use	--	--

Both 74 Fay and 106 Lundberg Street properties are residential properties and activities such as yard work, gardening and congregating were observed during the EPA Site Investigation.

5. NPL status

The Site is not currently on the National Priorities List, and has not received a Hazardous Ranking System rating.

B. Other Actions to Date

1. Previous actions

In May 2013, MassDEP notified EPA’s Removal Program that based on the Brownfields funded excavations at 86 Fay Street, hazardous material may be on adjacent properties.

On July 23-24, 2013, EPA completed field sampling which identified lead contaminated soil 0-2 feet below ground surface at 74 Fay Street and 106 Lundberg Street.

2. Current actions

The City of Lowell is in the process of completing the Response Action Outcome Statement and Activity and Use Limitation as required by the Massachusetts Contingency Plan. Once the City completes the MassDEP requirements and EPA completes removal actions on the adjacent properties the City plans to build a low impact park on the 86 Fay Street property.

C. State and Local Authorities' Roles

1. State and local actions to date

In 1988, a "Site Assessment" Report was generated for the Merrimack Valley Housing Authority Partnership (MVHP) for the property currently known as 106 Lundberg Street. This report mapped ash observed in the surface and subsurface soils. 106 Lundberg Street property was sold in 1989 to the MVHP and nine multi unit housing buildings were constructed.

In 2006, an environmental assessment by a prospective developer of the 86 Fay Street site identified heavy metals and petroleum hydrocarbons above the Massachusetts soil standards. In March of 2006 the City of Lowell, who owns the property, notified the MassDEP of the exceedances.

In 2008, the City of Lowell was awarded an EPA Brownfields Assessment and Cleanup Grant for the 86 Fay Street property.

From 2010 to 2012 EPA provided \$57,000 for Brownfields assessment. In 2012 EPA provided an additional \$150,000 in Brownfields Cleanup Funding and an additional \$30,000 was obtained by the City from a Community Development Block Grant. Additionally, \$65,000 was obtained from a MassDevelopment Grant to complete the requirements of the MassDEP cleanup process including the placement of Activity and Use Limitations on the 86 Fay Street property.

From 2008 to March of 2012 sampling conducted to comply with the MassDEP requirements identified multiple metals and PAHs at soil concentrations above the applicable MCP Method 1 S-1/GW-3 standards in the surface soils (i.e., 0-3 ft below ground surface). Investigations identified buried ash at the southern edge of 86 Fay Street at approximately 1 foot below grade to approximately 14 feet below grade at the northern edge of the property.

In 2012, using Brownfields funding, the City's contractor excavated the top three feet of soil from the 86 Fay Street property and backfilled the excavation with clean fill. During the excavations at 86 Fay Street intermittent layers of ash were observed at the property boundaries with 74 Fay Street, 106 Lundberg Street and O'Donnell Park. The ash was observed at depths less than 3 feet below ground surface.

2. Potential for continued State/local response

Neither MassDEP nor the City of Lowell has the resources to conduct a removal action, but will continue to provide active support, public outreach and a regulatory role. The City has indicated that 86 Fay Street could be used as a staging area for this removal action.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants; [§300.415(b)(2)(i)];

See paragraph below.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];

Lead in surface soil on the 74 Fay Street and 106 Lundberg Street properties and arsenic on 106 Lundberg Street present a threat to the residents and the general public in the surrounding area. The exposure pathways include direct exposure and exposure to dust from wind in the unvegetated areas. Specific pathways include:

- Dermal contact;
- Ingestion, and
- Inhalation.

Specifically, lead concentrations are greater than the Regional RML's for both industrial/commercial and residential properties and the MCP Method S-1/GW-3 Standard in surface soil (i.e., 0-3 feet below ground surface) at both 76 Fay Street and 106 Lundberg Street. The arsenic surface soil concentrations at 106 Lundberg Street are greater than the Regional RML and MCP Method S-1/GW-3 Standard for residential use. Since both properties are currently occupied residences use of the residential risk standard is appropriate.

Lead - The effects of lead are the same whether it enters the body through breathing or ingesting. Lead can affect almost every organ and system in the body. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High level exposure in men can damage the organs responsible for sperm production.

The Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens and the EPA has determined that lead is a probable human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic lead is probably carcinogenic to humans and that there is insufficient information to determine whether organic lead compounds will cause cancer in humans.¹

Arsenic - Breathing high levels of inorganic arsenic may cause sore throats or irritated lungs. Ingesting very high levels of arsenic can result in death. Exposure to lower levels can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso. Skin contact with inorganic arsenic may cause redness and swelling. Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs. Inhalation of inorganic arsenic can cause increased risk of lung cancer. The Department of Health and Human Services (DHHS) and the EPA have determined that inorganic arsenic is a known human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans.²

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)];

Metals in the soils at the surface present a threat of migrating in dry weather conditions as fugitive dust.

¹ Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Lead (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

² Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Arsenic (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)];

No other response mechanisms exist.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances or pollutants or contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.³

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The response actions described in this memorandum directly address actual or potential release of hazardous substances, which may pose an imminent and substantial endangerment to public health, welfare, or the environment. Specific removal activities will include the following:

- Develop and implement a Site Health and Safety monitoring plan;
- Conduct a site walk with the Emergency and Rapid Response Services (ERRS) cleanup contractor;
- Conduct additional sampling as needed;
- Perform public outreach and communication activities;
- Provide security services as deemed necessary by the OSC;
- Inventory and document existing property conditions;
- Clear vegetation and other obstructions as needed;
- Maintain safety of residents during construction activity;
- Mitigate safety concerns and coordinate field activities with residents at 74 Fay Street and 106 Lundberg Streets to allow for safe work on the residential properties;
- Excavate contaminated soil and debris not to exceed three feet below ground

³ In accordance with OSWER Directive 9360.0-34, an endangerment determination is made based on "appropriate Superfund policy or guidance, or on collaboration with a trained risk assessor," which is outlined and discussed in Section III above. "Appropriate sources include, but are not limited to, EPA relevant action level or clean-up standards, Agency for Toxic Substances and Disease Registry documents or personnel, or staff toxicologists." EPA relied on Connecticut Remediation Standard Regulations Standards for determining risk at the Site.

- surface (estimated volume 1800 tons);
- Perform dust monitoring, control, and mitigation measures as necessary;
- Backfill excavated areas;
- Pre-treat hazardous substances if beneficial for off-site disposal options;
- Dispose of hazardous substances at an EPA-approved off-site disposal facilities(s); and,
- Repair response-related damages including, but not limited to replacing fences, re-establishing vegetation/landscape in areas that were impacted by removal activities, and installing erosion/runoff control measures etc. (between 74 Fay Street/106 Lundberg Street properties and 86 Fay Street), as necessary.

This removal action will be conducted in a manner not inconsistent with the NCP.

2. Community relations

The OSC will coordinate and communicate cleanup activities during the removal action with the State, local authorities and the EPA Community Involvement Coordinator(s).

3. Contribution to remedial performance

The cleanup proposed in this Action Memorandum is designed to mitigate the threats to human health and the environment posed by the Site. The actions taken at the Site would be consistent with and will not impede any future responses.

4. Description of alternative technologies

The use of alternative technologies may be evaluated if beneficial for off-site disposal.

5. Applicable or relevant and appropriate requirements (ARARs)

Federal ARARs:

40 CFR Part 262 Standards Applicable to Generators of Hazardous Waste

Subpart B - The Manifest

- 262.20 : General requirements for manifesting
- 262.21 : Acquisition of manifests
- 262.22 : Number of copies of manifests
- 262.23 : Use of the manifest

Subpart C - Pre-Transport Requirements

- 262.30 : Packaging
- 262.31 : Labeling
- 262.32 : Marking

Subpart D - Recordkeeping and Reporting

- 262.40 : Recordkeeping

40 CFR Part 264 Standards for Owners and Operators of Hazardous waste Treatment, Storage, and Disposal Facilities:

40 CFR Part 264 Hazardous Waste Regulations - RCRA Subtitle C:
 268-270 : Hazardous and Solid Waste Amendments Land Disposal Restrictions Rule

40 CFR Part 300.440 Procedures for Planning and Implementing Off-Site Response Actions (Off-Site Rule)

40 CFR Part 61: Clean Air Act standards for controlling dust

40 CFR Sections 122.26(c)(ii)(C) and 122.44(k): Clean Water Act NPDES regulations for storm water control and management

State ARARs:

The OSC will coordinate with State officials to identify additional State ARARs, if any. In accordance with the National Contingency Plan and EPA Guidance Documents, the OSC will determine the applicability and practicability of complying with each ARAR which is identified in a timely manner.

6. Project schedule

All work is expected to be completed within nine months from the mobilization date.

B. Estimated Costs

COST CATEGORY		CEILING
<i>REGIONAL REMOVAL ALLOWANCE COSTS:</i>		
ERRS Contractor		\$390,000.00
US Army Corps of Engineers		\$ 10,000.00
<i>OTHER EXTRAMURAL COSTS NOT FUNDED FROM THE REGIONAL ALLOWANCE:</i>		
START Contractor		\$50,000.00
Engineering Services		\$30,000.00
Extramural Subtotal		\$480,000.00
Extramural Contingency	10%	\$48,000.00
TOTAL, REMOVAL ACTION CEILING		\$528,000.00

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action will increase public health risks due to increased exposure to metals. Without the removal action described herein, conditions at the Site will remain unaddressed, and threats associated with the hazardous substances will persist.

Delayed action will increase public health risks due to increased exposure to metals. Without the removal action described herein, conditions at the Site will remain unaddressed, and threats associated with the hazardous substances will persist.

VII. OUTSTANDING POLICY ISSUES

There is no precedent-setting policy issues associated with this Site.

VIII. ENFORCEMENT ... For Internal Distribution Only

See attached Enforcement Strategy.

The total EPA costs for this removal action based on full-time accounting practices that will be eligible for cost recovery are estimated to be \$528,000 (extramural costs) + \$30,000 (EPA intramural costs) = \$558,000 X 1.3778 (regional indirect rate) = **\$768,812**⁴.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Fay Street Site in Lowell, Massachusetts developed in accordance with CERCLA, as amended, and is not inconsistent with the National Contingency Plan. The basis for this decision will be documented in the administrative record to be established for the Site.

Conditions at the Site meet the NCP Section 300.415 (b) (2) criteria for a removal action due to the following:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants [§300.415(b)(2)(i)];

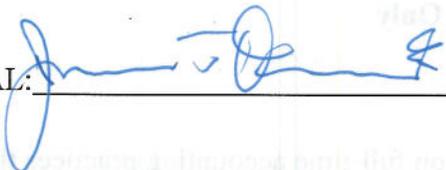
High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate [§300.415(b)(2)(iv)];

⁴Direct Costs include direct extramural costs \$528,000 and direct intramural costs \$30,000. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site specific costs 37.78% x \$558,000, consistent with the full accounting methodology effective October 1, 2013. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released [§300.415(b)(2)(v)];

The availability of other appropriate Federal or State response mechanisms to respond to the release [§300.415(b)(2)(vii)];

I recommend that you approve the proposed removal action. The total extramural removal action project ceiling if approved will be \$528,000.

APPROVAL:  _____

DATE: 4/14/14

DISAPPROVAL: _____

DATE: _____