



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

CONTAINS ENFORCEMENT-SENSITIVE INFORMATION

MEMORANDUM

DATE: July 28, 2015

SUBJ: Request for a Removal Action at the Medford Housing Authority Site, Medford, Middlesex County, Massachusetts - **Action Memorandum**

FROM: Gary Lipson, On-Scene Coordinator *GL*
Emergency Response and Removal Section II

THRU: William Lovely, Chief *WL*
Emergency Response and Removal Section II

Carol Tucker, Chief *CT*
Emergency Planning & Response Branch

TO: Nancy Barmakian, Acting 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 Medford Housing Authority Site (the Site), specifically the MHA Willis Avenue Apartments which are located at Bonner, Willis, Congress, and Exchange Avenues in Medford, Middlesex County, Massachusetts. Hazardous substances (lead) present in surface soil 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 On-Scene Coordinator's (OSC) \$200,000 warrant authority.

It is expected that removal activities will be incrementally funded.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID# : MAN000100745
SITE ID# : 01LU
CATEGORY : Time-Critical

A. Site Description

1. Removal site evaluation

In April 2014, the Massachusetts Department of Environmental Protection (MassDEP) brought the Medford Housing Authority (MHA) Site, specifically the MHA Willis Avenue Apartments, to the attention of the U.S. Environmental Protection Agency (EPA). Based on sampling and analysis conducted by a contractor for the MHA, concentrations of lead in surface soil throughout the property were documented at levels that may present a significant health risk to a younger population. The lead and potentially other contaminants are being associated with historic fill material and/or dumping at the Site.

During the summer of 2014, EPA conducted a preliminary assessment / site investigation (PA/SI). Soil samples were collected throughout the approximately 10 acre development from accessible, separated grassy areas (grids) in between the multi-unit apartment buildings. These grids include designated play areas where playground equipment such as swing sets and sliding boards already exist. In most instances, multiple samples were collected from each grid and aliquots from the 0 – 1', 1 – 2', and 2 – 3' below grade were composited and analyzed. Individual grab samples were also collected from the community raised bed garden location as well as from a few private gardens.

Additional details can be found in Section II.A.4.

2. Physical location

The Site is located at Bonner, Willis, Congress and Exchange Avenues in Medford, Middlesex County, Massachusetts. The geographic coordinates of the intersection of Congress and Exchange Avenues are 42°24'13.1" north and 71°6'11.8" west. The Site is bordered to the north by Bonner Avenue and residential properties, to the south by primarily commercial structures which run along Hicks Avenue, to the east by commercial properties and Mystic Avenue, and to the west by Willis Avenue and residential properties.

3. Site characteristics

According to the EPA flex viewer software program, there are 1,400 and 4,861 people living (nighttime population) within $\frac{1}{4}$ mile and $\frac{1}{2}$ mile respectively of the center of the Site. There are also 2 public schools and 3 tier 2 facilities within $\frac{1}{2}$ mile.

The Site consists of a 10.36 acre parcel containing 30 buildings, 28 of which are multi-apartment unit dwellings, a maintenance building, and a community center. The property includes a ballfield, several play areas containing swing sets, slides, etc., and a small raised bed community gardening area. All of the utilities associated with the MHA (water, sewer, electric, cable, etc.) are below ground.

The Willis Avenue Apartment complex is currently owned and operated by the MHA. The complex's operation and maintenance is funded by income generated from its rent controlled (income dependent) apartments and by annual funding provided by the U.S. Housing and Urban Development Agency (HUD). It is home to approximately 470 individuals, the majority being of Haitian-Creole descent. About 79.4 percent of the population, or 371 residents, is classified as minority (Black, Asian, or American Indian). There are roughly 69 children living there between the ages of 0-6 and 75 children between the ages of 7-12. According to the EPA Region 1 Environmental Justice Screen Mapping Tool (EJSCREEN mapping tool), the Site is below the 80th percentile for all 12 of the EJSCREEN criteria (EJ Indexes) when compared to the rest of the country. However it should be noted that the data includes portions of the surrounding neighborhood which could be skewing the results.

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

As described in Section II.A.1. of this memorandum, lead in surface soil is the primary contaminant at this Site. Lead is a listed CERCLA hazardous substance in 40 CFR 302.4.

The visual observations and boring logs produced during the summer 2014 EPA site investigation are consistent with the MHA contractor's assessment that lead in surface soil is the primary contaminant. A somewhat distinct layer of fill including coal fragments, glass, ash, brick, etc. was documented in many of the samples taken from just below the surface.

During the 2014 PA/SI, approximately 130 borings were collected from a total of 38 grids, the majority of which contained 5 borings. One additional grid was previously sampled by the contractor for MHA and has been fenced off due to an elevated level of lead. This grid was not re-sampled during EPA's PA/SI. The number of borings per

grid was determined after consulting the EPA Document: OSWER 9285.7-50, Superfund Lead Contaminated Residential Sites Handbook, prepared by EPA Lead Sites Workgroup, August 2003 and primarily based on square footage within each grid. All of the grids were accessible, separate grassy/vegetated areas in between and/or adjacent to the multi-unit apartment buildings. Of those 39 grids, six of them are considered playground locations where there are swing sets/climbing equipment and one is a baseball field. The soil from the borings was separated into discrete layers from 0-1' below grade (bg), 1-2' bg, and 2-3' bg and those aliquots were analyzed for lead. The discrete layers from the borings within each grid were then composited and that composite was also analyzed. In addition, samples were collected from a number of raised beds that are used for community gardening as well as from private gardens throughout the MHA.

When determining if the concentrations of lead detected were of levels of concern, the OSC consulted EPA's Regional Removal Management Levels (RMLs) website for chemical contaminants. The purpose of this website is to provide updated lists of RMLs to assist OSCs, and others involved in decision-making concerning Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal actions at Superfund sites. These numbers are not meant to be action or cleanup levels but meant to be a starting point to determine if further action is warranted should the members be met or exceeded. The number for lead in a residential setting is 400 mg/kg or parts per million (ppm). As a screening technology was used to identify lead levels (X-Ray fluorescence) in the field, the OSC selected a concentration of 350 ppm in his analysis of site conditions to provide an extra factor of safety. A minimum of 10% of the samples analyzed by XRF were also sent to a laboratory for confirmatory analysis.

The presence of lead in surface soils in the playgrounds and some of the gardens creates a direct exposure potential to local residents, including children. Over time, weather events will continue to exacerbate the potential for human exposure to lead in soil.

The following table indicates the number of **exceedances** of 350 ppm for a particular grid and depth, as well as the ranges, averages, and/or concentrations of lead within the specific depths of soil. See Figure 1 for a graphical representation of the grids/areas exceeding 350 ppm from 0 – 1'.

		0 – 1' below grade	1 - 2' below grade	2 -3' below grade
Grids: 32	Exceed 350 ppm	12 grids	23 grids	25 grids
	Range	398-770 ppm	437-2874 ppm	437-2134 ppm
	Average	492 ppm	1088 ppm	1146 ppm
Play Areas: 7	Exceed 350 ppm	5 play areas	7 play areas	7 play areas
	Range	393-920 ppm	523-2074 ppm	437-1556 ppm
	Average	635 ppm	1075 ppm	963 ppm
Public Raised Bed Gardens: 5	Exceed 350 ppm	2 gardens	NA	NA
	Concentrations	435, 448 ppm		
Private Gardens: 5	Exceed 350 ppm	1 garden	NA	NA
	Concentrations	387 ppm		

5. NPL status

The site is not currently on the National Priorities List (NPL), and has not received a Hazardous Ranking System rating. It is not expected to be rated and not expected to be proposed for the NPL.

B. Other Actions to Date

1. Previous actions

In April 2013, Green Environmental, Inc. (Green) was retained by MacRitchie Engineering, who was contracted by MHA to complete an electrical transformer upgrade program on the property. Soil samples collected by Green in April 2013, for Massachusetts landfill disposal parameters, indicated elevated levels of lead up to 664 milligrams per kilogram (mg/Kg). The exceedance triggered a 120-day reporting condition for the MassDEP. Green observed the presence of urban fill in the soil, and therefore surmised that the lead may be attributable to the presence of coal or coal ash and/or possibly lead-based paint.

Due to state and federal guidance and regulations concerning lead paint vs. lead from other sources, Green subcontracted a laboratory to conduct additional lead analysis to determine if any lead based paint or another identifiable lead source may be present in the submitted soil samples by microscopy tests including Scanning Electron Microscopy and Energy Dispersive X-ray Spectroscopy macroscopic inspection.

Excerpts from the conclusions by MicroVision Laboratories, Inc., Chelmsford, MA in a report dated 10/3/13 are as follows:

The collected data showed that there were no lead bearing paint or particles present in this sample. The multilayer paint chips had common components such as titanium and barium present. There were no discrete particles of lead based paint, or particles coated with lead based paint found in the sample.

No discrete particles consistent with lead bearing paint were observed in the sample. Numerous particles that were consistent with plaster, painted brick and mortar, and other clay based construction debris were observed. Many of these particles showed signs of surface coating or treatment, but the vast majority of them were not painted. Typical building debris in this sample was characterized primarily as being clay aggregates of aluminum and silicon with smaller amounts of potassium and titanium. Iron oxide was present in these particles in areas where the surface appeared red. A handful of discrete, low concentration lead bearing particles were observed interspersed between clay particles and aggregates in two of the more porous building debris samples.

During August, October, and December 2013, Green conducted additional soil sampling at the property as part of an Immediate Response Action Plan for MassDEP. Surface soil samples (0-12 inches) indicated elevated levels of lead up to 2,460 mg/Kg. The levels of lead exceeded the Massachusetts Contingency Plan Soil Category S-1 Standard and triggered an Imminent Hazard condition. In November 2013, in several areas determined to have soils with elevated lead levels, a 6-foot-high chain-link fence was erected and polyethylene sheeting was installed and anchored within the fenced areas.

2. Current actions

Since the installation of the chain-link fence and polyethylene sheeting as described above, there have been no additional on-site activities conducted by the MHA or MassDEP.

C. State and Local Authorities' Roles

1. State and local actions to date

In April 2014, the MassDEP informally requested assistance from EPA in assessing the current situation at the MHA Willis Avenue Apartments. EPA followed through

by collating and reviewing data previously collected by the MHA contractor(s) and setting up and participating in meetings with MassDEP, MHA, and representatives of HUD.

In a letter to Carol Tucker, Branch Chief of the EPA Emergency Planning and Response Branch dated December 22, 2014, Iris Davis, Risk Reduction and Enforcement Section Chief, MassDEP, Northeast Region requested assistance from EPA. "The MassDEP requests assistance from the EPA in order to address the documented release of hazardous materials that may present an Imminent Hazard and Significant Risk to public health and the environment at the Medford Housing Authority (Site) property located in the Willis Avenue area."

The City of Medford has been made aware of the issues associated with this property and EPA's involvement. Representatives of the Medford Board of Health were present during a public meeting held at the MHA on August 20, 2014 to inform the residents of the Willis Avenue Apartment complex of the impending PA/SI and the possibility of a future removal action.

2. Potential for continued State/local response

As indicated in its request for assistance letter and subsequent meetings and conversations, MassDEP does not appear to have the resources to undertake any Site cleanup actions. MHA's limited pre-determined budget is funded by HUD and income from its rent-controlled apartments. There is not a budget for unforeseen expenses and any lead cleanup would redirect funds away from other capital improvement projects (e.g. new roofs, screen doors, interior paint, etc.). Therefore, MHA also does not appear have the resources to undertake the removal action.

Based on the results of the ongoing investigation of the site history and origin of the lead in soil, MassDEP has indicated that under 310 Code of Massachusetts Regulation 40.0006, the state is likely to consider the soil as historic fill. This designation by MassDEP would mean that after receiving from MHA a Permanent Solution Statement with conditions described in 310 CMR 40.1041, the state would not require additional cleanup once EPA is done with their removal action under CERCLA.

MHA representatives have expressed concern over the current contaminated soil situation and have continuously stated that they want to keep their residents safe from lead and other environmental concerns. As stated in Section V.A.1., Proposed Action Description, the EPA removal action will be limited to the designated play areas and the public raised gardens. If the state does designate the soil as historic fill and does not require further action, the MHA has expressed the desire to undertake further action even if it is not mandated. Following EPA's action, they stated they intend to evaluate

the remaining locations that are at or above concentrations of concern and will consider addressing them in subsequent years as time and budget allows.

Both the MassDEP and MHA have been extremely cooperative with EPA by supplying data, maps, attending informational and scoping meetings, and providing on-site assistance in the way of in-kind services during the PA/SI. It is expected that this type of assistance will continue if EPA undertakes this site as a fund lead 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)];

As has been stated previously in this memorandum, lead has been detected in surface soils at the MHA Willis Avenue Apartments. Although lead is a naturally occurring element and found in higher concentrations in urban settings due to anthropogenic sources, the concentrations detected in this neighborhood appear to exceed background concentrations. Data indicates that concentrations of lead in surface soils in many instances exceed those as stipulated by the MCP for an immediate contact threat and in some instances exceed MCP Imminent Hazard levels (1,000 mg/kg (PPM)). The concentrations in many cases also exceed those found listed in EPA RMLs (see Section II.A.4. for an explanation).

Additionally concerning is the fact that of the approximately 470 residents of the MHA, about 144 of them are below the age of 13. Not only is the health threat from the exposure of lead higher for younger children (see accompanying health information), but given that the Willis Avenue Apartments are considered a low income housing development, the prevailing belief is that the children will be spending the majority of their time in and around the complex.

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)];

and

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

As there are high levels of lead in surface soil, the potential for migration is high. Any type of intrusive yard work or play, especially in areas of little or no vegetation, will tend to redistribute soil particles and make exposure more likely. During times of heavy

precipitation or snow melt runoff, surface water will carry soil particles containing lead. These particles will be redistributed and in this case may reach neighboring yards where there is currently no apparent contamination. During extremely dry conditions, windblown dust or soil, also with affixed lead particles, will be spread and redistributed. During these types of conditions there is also a higher chance of inhalation of these particles.

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

As noted in §II.C.2. above, the MassDEP has requested EPA Removal program assistance to address the documented release of hazardous substances. In addition, EPA has corresponded with multiple HUD officials and has met on at least two occasions with agency representatives as they are the agency that provides the continued operating resources for this low income housing development. They have stated that they do not believe that there is funding to address this situation but will continue to explore their options. In the most recent meeting conducted on December 11, 2014, HUD representatives mentioned the presence of an emergency fund but felt that it was limited to weather related disasters. HUD does not have environmental remediation staff.

Therefore, it is unlikely that any other state or federal entity would address this situation.

Lead¹

The effects of lead are the same whether it enters the body through breathing or swallowing. Lead can affect almost every organ and system in your 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.

We have no conclusive proof that lead causes cancer in humans. Kidney tumors have developed in rats and mice that had been given large doses of some kind of lead compounds. The Department of Health and Human Services (DHHS) has determined that lead and lead

¹ Agency for Toxic Substance and Disease Registry (ATSDR), U.S. Department of Health and Human Services, Public Health Service, ToxFAQs for Lead, August 2007

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.

Small children can be exposed by eating lead-based paint chips, chewing on objects painted with lead-based paint, or swallowing house dust or soil that contains lead.

Children are more vulnerable to lead poisoning than adults. A child who swallows large amounts of lead may develop blood anemia, severe stomachache, muscle weakness, and brain damage. If a child swallows smaller amounts of lead, much less severe effects on blood and brain function may occur. Even at much lower levels of exposure, lead can affect a child's mental and physical growth.

Exposure to lead is more dangerous for young and unborn children. Unborn children can be exposed to lead through their mothers. Harmful effects include premature births, smaller babies, decreased mental ability in the infant, learning difficulties, and reduced growth in young children. These effects are more common if the mother or baby was exposed to high levels of lead. Some of these effects may persist beyond childhood.

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. In accordance with OSWER Directive 9360.0-34 (August 19, 1993), 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, relevant action level or clean-up standards, Agency for Toxic Substances and Disease Registry documents or personnel, or staff toxicologists." EPA relied on the MCP (see Section II.B.1) and on consultation with EPA RML's (see Section II.A.4).

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

As documented in the table on page 4 in Section II.A.4., surface (0-1' bg) soil contain lead above 350 ppm, the level of concern, in five of the seven designated playground areas within the housing complex, the public raised garden bed area, and one private garden. The average concentration of lead in the five play areas is 635 ppm. This concentration is slightly higher than the 600 ppm background level of lead in soil containing coal or wood ash associated with fill material as stated in a MassDEP guidance² document. This removal action will be limited to removing the top foot of contaminated soil and replacing it with clean fill in the playgrounds as well as the identified gardens. An alternative to excavation that is being considered in some of the locations elevates the play areas in a manner similar to the raised garden beds. The current ground surface would be lined with a geotextile fabric, a perimeter structure would be constructed and filled with an appropriate material, and the playground equipment installed.

Twelve of the 32 non-play area grids are also above 350 ppm in surface soil. Although the average lead concentration in the top foot of soil in these locations is 492 ppm, these areas will not be subject to the removal action for the following reasons:

- a. These locations have an average lead concentration that is approximately 23% lower than that of the play areas and below the background concentration;
- b. Unlike the concentrated exposure potential experienced by playing within the confines of the contaminated playgrounds, the potential for exposure at levels of concern is diluted when play occurs in the grassy locations that have varying concentration levels spread out over the area;
- c. In August 2014, The Medford Public Health Department requested assistance from The Massachusetts Department of Public Health, Bureau of Environmental Health (MDPH/BEH) in addressing potential health concerns primarily related to lead in soil at the property. In response, MDPH/BEH reviewed environmental sampling data, evaluated blood level data for children residing at the property, provided site-specific recommendations, and attended a public meeting held by

² "Technical Update, Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil." This paper was an update in 1992 to section 2.3, Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan.

EPA to help address public health concerns. On December 3, 2014, MDPH/BEH prepared a Health Consultation summarizing their activities related to the Willis Avenue Apartments property. Located in the Discussion Section of the Consultation, the following statement was made: "In general, the majority of unpaved areas appeared to have good grass cover, an important factor in reducing dust generation and direct contact with soil." In addition, the following statement was made in the Conclusions and Recommendations Section: "To assess potential historic exposures, MDPH/BEH completed a screening-level evaluation of blood lead level data for young children living at the property and nearby areas. This evaluation indicated that, while slightly higher than the state as a whole and the City of Medford as a whole, the percentage of children with elevated blood levels at the property was not statistically significantly different. This suggests that historical exposure opportunities to lead in soil at the property have not resulted in an unusual pattern of elevated blood level levels";

- d. The MHA has stated its intent, post-removal action, to evaluate remaining areas that contain lead at concentrations of concern, and to consider addressing them in subsequent years as time and budget allows.

Proposed removal activities may include the following:

- Conduct a site walk with the cleanup contractor to determine the necessary resources for the impending removal action;
- Mobilize/subcontract the necessary resources (equipment and personnel) to be able to carry out the activities described in this section. This includes site support such as: work trailer(s), sanitary facilities, sub-surface utility search, and utilities.
- Conduct additional sampling and site characterization to further delineate the extent of contamination and/or to assist in guiding response actions including disposal options;
- Perform public communication and outreach activities;
- Provide security or a security guard service during the removal action;
- Inventory and document existing property conditions. This includes a sub-surface utility search to ensure that utilities will not be affected during excavation activities. Clear vegetation, debris, and/or existing features, playground equipment, or structures as needed to provide proper clearance and space for removal activities;

- Excavate soil contaminated with lead at concentrations of concern to the depth of 1' below grade, place a geotextile fabric at that depth to mark the delineation, and backfill and vegetate (grass seed, sod, etc.) as appropriate. Appropriate air monitoring will be conducted and dust control measures will be used accordingly. Temporary fencing will be used around excavated areas until backfilled to grade and/or contaminated soil is made to be non-accessible). Perform confirmation sampling and analysis in some instances;
- As an alternative to excavation and clean backfill and to the extent feasible depending on the surrounding landscape, create raised play areas. A raised perimeter would first be constructed with timbers or another innocuous material, a geotextile fabric would be placed inside the perimeter and over the play area footprint, and the space would be backfilled and the play equipment would be installed;
- Remove and replace the soil within the raised community garden and private gardens throughout the MHA that have soils containing lead at concentrations of concern;
- Provide for a temporary staging area for excavated soil in the event that it cannot be live loaded (i.e. transported off-site for disposal at the time of excavation);
- In conjunction with the EPA off-site rule, all hazardous substances to be removed will be disposed of at appropriately licensed off-site disposal facilities;
- Repair or replace response related damages as appropriate. This could include lawns, play areas and playground equipment, vegetation, walkways, etc.

In June of 2015, EPA requested a review of this Action Memorandum and more specifically, the proposed actions, by the MDPH/BEH. In a letter dated June 30, 2015, the MDPH/BEH stated "MDPH supports the response actions proposed by EPA in order to reduce the risks of exposure to lead in surface soil at the Medford Housing Authority Willis Avenue Apartments. Specifically, MDPH supports remediation of the play areas and all gardens, including the raised community garden and private gardens."

2. Community relations

On August 20, 2014 representatives of EPA, MassDEP, the Massachusetts Department of Public Health, and the MHA held a public meeting prior to the PA/SI. The residents were informed of what was going to be occurring and why and had the opportunity to ask questions. This was augmented by a fact sheet containing similar information that

was dropped off at every apartment within the housing authority and written in both English and Haitian-Creole, the predominate language at the Willis Avenue Apartments. It is anticipated that a similar meeting(s) will be held and additional fact sheets will be distributed prior to any removal actions. Due to a large number of non-English speaking residents, translation services will be available. An EPA Community Involvement Coordinator will continue to work with the OSC to provide the public with general information, respond to specific concerns, and to provide whatever outreach is deemed necessary. In addition, the OSC will make himself available on-site during removal activities to meet with residents at their discretion and convenience.

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

Due to the size, age, and aesthetics provided by the trees throughout the housing complex, it is expected that the contaminated soil around the roots of the trees will not be excavated by heavy machinery to avoid death or permanent damage to the trees. Instead, the work plan will call for hand work around the trees to loosen up the soil and a heavy duty vactor truck will be used to remove the loosened soil. At this point, no other alternative technologies have been identified for this removal action, but they will continue to be discussed and considered as the removal action progresses.

5. Applicable or relevant and appropriate requirements (ARARs)

Federal ARARs

Resource Conservation and Recovery Act, Subtitle C, 40 CFR Parts 260-262 and 264:
Hazardous Waste Identification and Listing Regulations; Generator and Handler Requirements, Closure and Post-Closure.

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 Hazardous Waste Regulations - RCRA Subtitle C:

268-270 : Hazardous and Solid Waste Amendments Land Disposal Restrictions Rule

Clean Water Act, National Pollutant Discharge Elimination System (NPDES), 40 CFR Parts 122 and 125: storm water standards for construction sites over one acre.

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

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

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 that is identified in a timely manner.

6. Project schedule

The actual starting date of the removal action will be decided upon after consultation with the Executive Director of the MHA. It is anticipated that the action will be completed within three months of site mobilization.

B. Estimated Costs

COST CATEGORY		CEILING
<i>REGIONAL REMOVAL ALLOWANCE COSTS:</i>		
ERRS Contractor		\$770,000.00
Interagency Agreement		\$0,000.00
<i>OTHER EXTRAMURAL COSTS NOT FUNDED FROM THE REGIONAL ALLOWANCE:</i>		
START Contractor		\$230,000.00
Extramural Subtotal		\$1,000,000.00
Extramural Contingency	10%	\$100,000.00
TOTAL, REMOVAL ACTION CEILING		\$1,100,000.00

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

Delayed action will increase public health and environmental risks posed by the presence of lead in surface soil which continues to be accessible to the general population. In addition, soil and lead particles will continue to migrate during times of heavy precipitation/snow melt, windy conditions, and intrusive activity such as in playgrounds and gardening.

VII. OUTSTANDING POLICY ISSUES

There are no precedent-setting policy issues associated with this site.

VIII. ENFORCEMENT ... For Internal Distribution Only

See attached Confidential 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 \$1,100,000 (extramural costs) + \$200,000 (EPA intramural costs) = \$1,300,000 X 1.5942 (regional indirect rate) = **\$2,072,460³**.

³Direct Costs include direct extramural costs \$1,100,000 and direct intramural costs \$200,000. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site specific costs $59.42 \times \$1,300,000$, 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

IX. RECOMMENDATION

This decision document represents the selected removal action for the Medford Housing Authority Site in Medford, MA, 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)];

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 you approve the proposed removal action. The total extramural removal action project ceiling if approved will be \$1,100,000.

APPROVAL: 

DATE: 08/05/15

DISAPPROVAL: _____

DATE: _____

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.

