



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

MEMORANDUM

DATE: August 20, 2019

SUBJ: Request for a Removal Action at the Gallows Hill Site,
Salem, Essex County, MA - **Action Memorandum**

FROM: James Carew, On-Scene Coordinator *EOB ja*
Emergency Response and Removal Section I

THRU: Edward J. Bazenias, Chief *EOB*
Emergency Response and Removal Section I
Robert Cianciarulo, Acting Deputy Director *[Signature]*
Superfund and Emergency Management Division

TO: Bryan Olson, Director *[Signature]*
Superfund and Emergency Management Division

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action at the Gallows Hill Site (the Site), which is located on Langdon Street in Salem, Essex County, MA. Hazardous substances present in residential 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 OSC's \$200,000 warrant authority.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID# : MAN000102859

SITE ID# : 01PH

CATEGORY : Time-Critical

A. Site Description

1. Removal site evaluation

In December 2018 and January 2019, the Massachusetts Department of Environmental Protection (MassDEP) was notified in accordance with State law by the City of Salem (City), MA of elevated levels of arsenic in the soil at Gallows Hill Park (Park) soccer field in Salem, MA. The elevated arsenic was identified by a Licensed Site Professional (LSP) hired by the City to sample Park property prior to the initiation of improvement projects. MassDEP conducted additional sampling of Park property and four residential properties immediately adjacent to the park. Arsenic was found above the State Soil Category S-1 Standards at three of the four residential properties. The S-1 Standard is 20 mg/kg for arsenic and is defined by the Massachusetts Contingency Plan (MCP) as “residential exposure scenario in which the potential receptor may come into contact with the contaminated soil in their yard while playing or gardening.”

On March 20, 2019, the City of Salem requested EPA assistance, and subsequently on April 17, 2019, the MassDEP formally referred the Site to the Emergency Planning and Response Branch for assistance with the investigation and possible remediation of the residential properties adjacent to the Park. The Preliminary Assessment/Site Investigation described below included soil samples collected at seven residential properties.

On May 29, 2019, EPA and contractors, Superfund Technical Assessment and Response Team (START) mobilized to collect soil samples ranging from zero to three feet in depth on residential properties. EPA’s mobile laboratory was onsite to conduct field screening of soil samples using Xray fluorescence (XRF) to detect metals. Additional analysis at the EPA New England Regional Laboratory confirmed the presence of elevated levels of arsenic in soil at the Site. Based on these results, a time-critical removal action is recommended at three of the seven residential properties. This decision was documented in the Site Investigation Closure Memorandum, dated August 8, 2019.

2. Physical location

The Site is comprised of residential properties on Langdon Street in Salem, Essex County, MA. The geographical coordinates at the approximate center of the Site are: 42°31'00"N 70°54'36"W.

3. Site characteristics

The approximately 0.27 acres Site consists of three residential properties. Two of the properties are single-family homes, the third property is a two-apartment complex occupied by renters. All three properties are immediately adjacent to an estimated 1.5-acre grass field located at 50 Proctor Street that is a portion of the City owned Gallows Hill Park

(Park). The approximately 1.5-acre field is listed as a MassDEP disposal site identified with Release Tracking (RTN) 3-0035355 and is not considered part of the EPA Site. MassDEP is working with the City to address the contaminated soil in the grass field. The City of Salem and the MassDEP continue to investigate other properties in the vicinity that may be associated with the former tannery.

Historical records indicate the Park property was the site of a tannery and leather currier from approximately 1890 through the late 1920's. Photographs of the area dated 1906 depict a four-building complex identified as the former "Morrill Leather Company Morocco Factory." A "Plan of Land of Ellen D. Looney" obtained by MassDEP from the South Essex County Registry of Deeds indicates the Park property previously measured approximately 2.34 acres in size, extending across what is today Mansell Parkway and includes an area now containing portions of four residential properties on Mansell Parkway and Looney Avenue.

The City, working with MassDEP, hired environmental consultants Tighe and Bond to perform soil sampling on the Park property in December of 2018 and characterize the levels and extent of arsenic and chromium contamination. The results of the investigation indicated levels of arsenic greatly exceeding the S-1 Standard of 20 mg/kg throughout the Park. Prompted by the high levels of arsenic in the Park soils, MassDEP performed additional sampling in February 2019 at the four residential properties immediately adjacent to the Park's grass field and found arsenic levels above the S-1 Standard of 20 mg/kg from 0-1 foot on three of the four properties. MassDEP installed temporary fencing around the residential properties in February 2019 to restrict access to exposed soil.

There is an approximate population of 25,800 within one mile of the Site. Seven schools, two nursing homes and eleven child care centers are also located within one mile of the Site.

Based on information in EPA's EJSCREEN environmental justice screening tool, zero of 11 Environmental Justice Indexes for the area within a one-mile radius of the site exceed the 80th percentile on a national basis. Please see the attached EJSCREEN standard report for more information.

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

During the SI on May 29-30, 2019, EPA collected soil samples from seven residential properties on Langdon Street, Mansell Parkway, and Looney Avenue. The samples were screened on-site for arsenic, chromium and lead using Xray fluorescence technology by the EPA Region 1 mobile laboratory. For quality assurance purposes, ten percent of these samples were sent to the EPA's New England Regional Lab (NERL) for confirmatory

analysis. Based on the results, arsenic is the primary contaminant of concern. The results of sample investigation screening are summarized in Table 1.

Table 1 – Average Arsenic Concentration on Residential Properties

Property Identifier	Average Arsenic Levels Field Screening	Average Arsenic Levels Laboratory Analysis	EPA RML	MassDEP Soil Category S-1 Standard Residential
L1	A – 59 mg/kg* B – 130 mg/kg	A- 30 mg/kg B- B - 216 mg/kg	68 mg/kg	20 mg/kg
L3	A – 63 mg/kg C – 72 mg/kg	A – 84 mg/kg C – 96 mg/kg	68 mg/kg	20 mg/kg
L5	A – 94 mg/kg B – 156 mg/kg C – 394 mg/kg	A – 115 mg/kg C – 795 mg/kg	68 mg/kg	20 mg/kg

*A – Surface to 1 foot below ground surface (bgs); B – 1-2 feet bgs; C – 2-3 feet bgs.

Arsenic contamination exceeding relevant State and federal risk levels is present in surface soil in three of the seven residential properties. For the purpose of this time-critical removal action, the “Site” is defined as these three residential properties identified on Table 1 as properties L1, L3 and L5. The levels of arsenic contamination exceed both the EPA Removal Management Levels (RMLs) and the MassDEP Soil Category S-1 Standard for residential properties and pose a threat to human health and the environment.

Children and pets reside in or near the three properties and all the properties have gardens. Direct physical contact with contaminated soil poses a potential risk to residents living at the three properties which make up the Site. Arsenic is a hazardous substance as defined by Section 101(14), 42 U.S.C. §9601(14), of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

5. NPL status

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

6. Maps, pictures and other graphic representations

Please see attached Tables 1 and 2 presenting field screening and laboratory analysis for arsenic levels in on-site soils at a depth of 0-3 feet below ground surface.

B. Other Actions to Date

1. Previous actions

There have been no previous actions by EPA at this Site.

2. Current actions

EPA has completed the PA/SI and through this Action Memorandum is working with MassDEP, the City of Salem and the impacted residents to address arsenic contamination in residential soil.

MassDEP continues to investigate other properties in the vicinity that may be associated with the former tannery, including an historic brook that appears to have been filled in on the Park property and surfaces in a swale on private property on Proctor Street. MassDEP may request further assistance with investigation and clean up if arsenic contamination is identified in water or soil. Under this Action Memorandum, EPA will address only the three residential properties identified in the PA/SI.

C. State and Local Authorities' Roles

1. State and local actions to date

MassDEP and the City of Salem have been investigating the soil contamination in the City-owned Gallows Hill Park. The State has installed chain-link fencing around the areas of the residences with contaminated soil to reduce the risk of exposure to residents. The City also fenced off the City Park field to reduce the risk of exposure to park visitors.

As discussed earlier in this Action Memorandum, both the City and MassDEP have formally requested assistance from EPA Emergency Planning and Response Branch for this Site. Neither MassDEP nor the City have the resources available to mitigate the threat to human health and the environment at the residential properties.

2. Potential for continued State/local response

MassDEP will continue to assist with public outreach to residents. The City, with oversight from MassDEP, continues to evaluate the options for remediation of the City-owned Park.

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

The soil contamination at the residential properties immediately abutting the former tannery and leather currier property meet the criteria for a removal action, as set forth in 40 C.F.R. §300.415(b)(1), as “there is a threat to public health or welfare of the United States or the environment,” and consideration of the factors set forth in 40 C.F.R. §300.415(b)(2) as described below.

(i) 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)];

Arsenic has been identified in surface soil at residential properties exceeding the EPA’s Removal Management Levels (RMLs). The properties are occupied by adults, children, and pets who may be exposed to the contaminant through contact with exposed soil or inhalation of arsenic laden dust. Consuming vegetables grown in gardens may pose an exposure risk by ingestion.

(iv) 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)];

Levels of arsenic exceeding the EPA RML have been identified in surface soil at the Site. Soils containing arsenic may migrate toward other residential properties due to overland drainage or human activity. Migration of contaminated soils may potentially increase the number of humans exposed to harmful arsenic levels.

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

Levels of arsenic above the RML have been identified in surface soil at the Site. Exposed soils could be transported off site following rain or flooding events or may be windblown offsite during dry conditions.

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

Neither MassDEP nor the City have the resources to undertake the proposed removal action at the Site. No other federal or state mechanism exists to respond to the release. Due to the lack of available resources, MassDEP requested EPA perform a removal action.

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." For the Gallows Hill Site, EPA will use the EPA RML (68 mg/kg of arsenic in residential soil) to initiate cleanup, and the MassDEP Residential Standard for Soil Category S-1 (20 mg/kg for arsenic) as the target clean up level to a depth of three feet below ground surface.

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. The removal action will focus on removing or mitigating arsenic contamination relevant to concentration levels consistent with the land use.

Specific removal activities will include, but are not limited to, the following:

- Develop and implement a Site Health and Safety Plan (HASP) to protect workers and the public during the removal action;
- Conduct a site walk with the Emergency and Rapid Response Services (ERRS) clean up contractor and START;
- Develop and implement a Mobilization/Layout Plan for staging equipment, excavated soil, clean fill materials, and site personnel needs;
- Develop and implement a Community Involvement Plan that includes public outreach and communication activities;
- Develop and implement a Traffic Management Plan;
- Provide appropriate level of site security based on Site conditions;
- Establish a staging area and command post, and ensure there is safe access to these areas for passenger and work vehicles, and pedestrians;
- Conduct air monitoring to determine exclusion zones and determine appropriate levels of respiratory protection, as per the HASP
- Inventory and document existing property conditions;
- Clear vegetation and other obstructions as needed;
- Excavate contaminated soil and move to staging area pending coordination of transportation and disposal (T&D);

- Excavation is not to exceed three feet below ground surface and may not include areas located under homes, driveways, porches, where exposure to soil is not likely;
- Perform dust monitoring, control and mitigation measures as necessary;
- Backfill excavated areas with clean fill material;
- Characterize all waste streams for disposal;
- Pre-treat hazardous substances if beneficial for off-site disposal options;
- Coordinate disposal of waste at a facility in compliance with the Off-Site Rule;
- Repair response related damage, including but not limited to, replacing fences, and re-establishing vegetation/landscape in areas that were impacted by removal activities; and
- Demobilize personnel and equipment.

EPA will coordinate with the Mass DEP to identify elevated arsenic levels exceeding state standards in residential soil that will remain at the Site below three feet. The Mass DEP will determine if any State Restricted Use Limitations or other post-removal site controls should be implemented by the State after the completion of the EPA removal action.

2. Community relations

EPA will remain involved with the local community during the course of the removal action through press releases, fact sheets, and public meetings, as necessary. The OSC will receive assistance from the EPA Community Involvement Coordinator (CIC) to assist with all public relations activities. EPA will work closely with the community, the City of Salem and the State of Massachusetts, keeping all stakeholder informed and involved.

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 innovative technologies and sustainable approaches

In accordance with the December 23, 2013 Memorandum, updated August 02, 2016, issued by Office of Land and Emergency Management as well as the Region 1 Clean and Greener Policy for Contaminated Sites, greener cleanup practices should be considered for all cleanup projects. Greener cleanup is the practice of incorporating practices that minimize the environmental impacts of cleanup actions and maximize environmental and human benefit. Alternative technologies and sustainable approaches will be considered and incorporated, as appropriate, throughout the implementation of the removal action. EPA

also plans to maximize recycling during this removal. EPA will attempt to bulk similar waste streams to reduce volume of any waste shipped off-site. EPA will implement recycling practices including recycling of paper and plastic bottles, etc.

5. Applicable or relevant and appropriate requirements (ARARs)

Pursuant to 40 C.F.R. 300.415(j), removal actions shall, to the extent practicable considering the exigencies of the situation, attain 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. Hazardous waste will be managed on-site until such time as it is shipped to an EPA-approved off-site disposal location.

40 C.F.R. Parts 260-262 and 264 Resource Conservation and Recovery Act, Subtitle C: Hazardous Waste Identification and Listing Regulations; Generator and Handler Requirements, Closure and Post-Closure - Massachusetts has been delegated the authority to administer these RCRA standards through its state hazardous waste management regulations. Waste generated will be tested to determine whether it exceeds hazardous waste thresholds and, if so, the hazardous waste will be managed on-site and until such time as it is shipped to an EPA-approved off-site disposal location.

State ARARs:

310 CMR 7.00: Massachusetts Air Pollution Regulations stipulate that during construction and/or demolition activities, air emissions (i.e., dust, particulates, etc.) must be controlled to prevent air pollution. Construction activities will be managed to meet standards for visible emission (310 CMR Section 7.06): dust, odor, construction, and demolition. During the removal action, appropriate measures would need to be taken to comply with these regulations.

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

Upon approval of the proposed removal action, EPA expects to initiate the time-critical removal action in late summer 2019 and estimates that the removal will be complete within three months.

B. Estimated Costs

COST CATEGORY		CEILING
REGIONAL REMOVAL ALLOWANCE COSTS:		
ERRS Contractor		\$600,000.00
Interagency Agreement		\$0,000.00
OTHER EXTRAMURAL COSTS NOT FUNDED FROM THE REGIONAL ALLOWANCE:		
START Contractor		\$120,000.00
Extramural Subtotal		\$720,000.00
Extramural Contingency	20%	\$144,000.00
TOTAL, REMOVAL ACTION CEILING		\$864000.00

The total EPA costs for this removal action that will be eligible for cost recovery are estimated to be \$864,000 (extramural costs) + \$200,000 (EPA intramural costs) = \$1,064,000 X 1.4957 (regional indirect rate) = **\$1,591,425¹**.

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

Delayed action will increase public health risks to adults, children and pets residing in the homes, and sensitive ecosystems. If not addressed, the persons using or residing on contaminated properties will continue to be exposed to hazardous substances. Rain and other

¹Direct Costs include direct extramural costs \$864,000 and direct intramural costs \$200,000. Indirect costs are calculated by using regional indirect rate in effect at time cost estimate is prepared, and is expressed as a percentage of the direct costs 49.57% x \$1,064,000, consistent with EPA's full cost accounting methodology effective October 01, 2018. 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 events may cause the hazardous substances to migrate from the contaminated properties to other areas.

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.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Gallows Hill Site in Salem, 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 that you approve the proposed removal action. The total extramural removal action project ceiling if approved will be \$1,064,000.

APPROVAL: _____


DATE: _____ 8/21/19

DISAPPROVAL: _____

DATE: _____