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November 22, 2000

Mr. Bruce Beitler
Penna. Department of Environmental Protection
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428

Subject: Remediation of Soils at Logan Section, Philadelphia, PA

Dear Mr. Beitler:

On behalf of the City of Philadelphia, I am transmitting the attached Response Action Plan (RAP) for the remediation of lead-contaminated soils at Logan Section in Philadelphia. The purpose of this transmittal is to advise you of the remediation program envisioned.

As you may be aware, an agreement has been signed between EPA and the City¹ that requires the City to prepare the RAP, then remediate the contaminated soil in accordance with the RAP². The City has retained a remediation contractor, TTI Environmental, Inc. of Marlton, NJ to implement the soil cleanup. Actual cleanup activities are expected to start in the first week of December and be completed in less than 75 days.

If you have any questions or comments, please contact the City's Barry Scott (215 683-1720) or me (215 922-8081 x-1411).

Very truly yours,

Thomas G. May, PE
Vice President

cc: Barry Scott, City of Philadelphia
Martin Liberman, City of Philadelphia

¹ See Appendix A of the RAP for a copy of the agreement.

² EPA has recently approved the RAP, subject to a few minor changes.

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Risk Management Division
City of Philadelphia, PA

Response Action Plan Logan Section of Philadelphia

November 2000



Urban Engineers, Inc.
Philadelphia, PA

**RESPONSE ACTION PLAN
LOGAN SECTION OF PHILADELPHIA, PENNSYLVANIA**

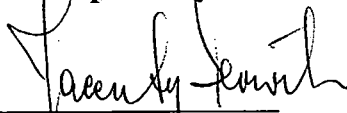
Urban Project No. 999926 (Supplement)

Prepared for

**City of Philadelphia
Risk Management Division**

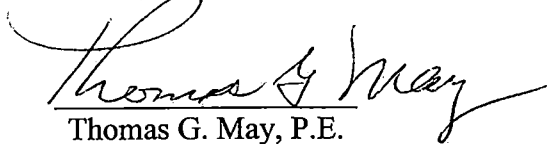
November 2000

Prepared by



Jacenty Serwik, P.G.
Senior Hydrogeologist

Approved by



Thomas G. May, P.E.
Director, Environmental Services

**Urban Engineers, Inc.
530 Walnut St. - 14th Floor
Philadelphia, Pennsylvania 19106**

RESPONSE ACTION PLAN

Logan Soil Cleanup

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1.0 Introduction

The so called "sinking homes" section of Logan is located in the northeast section of Philadelphia and consists of 17 contiguous blocks bounded by Wingohocking Street on the south; 11th Street on the west; Loudon Street on the north; and Marshall Street and Roosevelt Boulevard on the east and southeast. Approximately 30 percent of the total area is paved over and 40 percent is covered with grass and vegetation. The remaining 30 percent of the total area contains loose surface soil. Miscellaneous bricks and other demolition rubble are also scattered over the site.

The area bound by these streets is a former stream valley, which was filled with ash, cinder, a mixture of construction rubble, and other miscellaneous fill. A majority of the buildings in this section of Philadelphia developed cracks in the foundation walls and were condemned for residential use. These structural problems derived from the severe and dangerous settlement of the subgrade under the building foundations, partially as a result of the quality of the fill used.

After the structural problems were detected and the buildings were condemned, approximately 75 percent of the total number of buildings were demolished. The basements of the buildings were backfilled with local material or fill from off-site. This represents the second wave of fill brought to the sites.

As described below, subsequent soil testing revealed elevated levels of lead in the soil. The US EPA and City agreed that the City would undertake cleanup of six areas delineated by EPA. EPA and the City have entered into an agreement concerning the cleanup of the soils in the Logan Section. The agreement stipulates various requirements, of which the preparation of this RAP is one. A copy of the agreement is provided in Appendix A.

2.0 Historic Site Investigation Activities

In May 1998, the U.S. Army Corps of Engineers (Corps) performed an environmental evaluation of the existing fill at the sites. Their study concentrated on the chemical quality of the ash and cinder in the subsurface. The Corps performed four borings in the streets within the site to a depth ranging from 18 to 40 feet below the level of the surface. The Corps collected 10 samples from each boring, of which only one was taken immediately below the surface. The presence of some metals and petroleum compounds was detected in the tested media. However, the Corps concluded that no hazardous material as per EPA 40 CFR 261.124 had been identified on-site.

In 1998 the Corps performed a Supplemental Phase I study to more closely characterize the chemical quality of fill material overlying the layers of ash and cinder materials. Three test pits were dug in order to obtain soil samples from depths of 2 to 5 feet below existing grades. Four soil samples were collected from these test pits. The results, reported in a February 1999 Corps report, indicated the presence of lead and mercury in

concentrations above the normal range of natural occurring elements for areas of the Eastern United States. The concentrations of volatile organic compounds (VOCs) and semi-volatile compounds (SVOCs) were all reported to be below Pennsylvania clean-up criteria for direct contact, except for pyrene.

In March 1999 the City of Philadelphia performed further surface soil sampling, in accordance with the HUD guidelines for the evaluation and control of lead-based paint hazards in housing. Three composite surface soil samples were taken from lots 1, 14 and 16 and two other samples were collected from blocks located west of the site. The lead levels varied from 381.52 ppm to 1713.84 ppm. Two samples exceeded the PA-Act 2 direct contact criteria for residential areas, which in the case of lead is 500 ppm.

In May 1999 the City retained Urban Engineers, Inc. to conduct further soil testing. This re-testing was done to gather additional data characterizing the levels of contaminants in the surface soils in order to assess the potential health and safety risks for children and adults still living in the area. One surface sample (at depths of 0 to 6 inches) was collected from each of the 17 blocks. The samples were tested for the presence of PCBs, total petroleum compounds, BTEX, PAH, Pesticides/Herbicides and RCRA metals. The only compounds with any results over the Pennsylvania Act 2 cleanup standards were arsenic and lead. Arsenic exceeded PADEP direct contact standards in a total of 10 lots, while the lead standard was exceeded in 4 lots.

In July of 1999, representatives of the City met with citizens of the Logan community in a forum chaired by City Councilwoman Marion B. Tasco. At this forum, the City presented results of soil sampling and reviewed precautionary measures that residents should take to minimize any potential hazards.

In August 1999, the Logan/Olney Coalition, representing some members of the Logan community, requested via a letter to US Senator Rick Santorum, that EPA perform an investigation and cleanup of the Logan site. EPA conducted additional surface soil testing in November 1999 consisting of 230 grab samples from the 17 lots. The agency identified six areas with high lead levels in soils and concluded they should be remediated to below a lead concentration goal of 730 ppm¹. The six sites are summarized below:

Area No.	Area (sq. yd)	Avg. Lead Conc. (ppm)
1	15,357	1,037
2	178	5,920
3	4,115	1,555
4	107	22,300
5	1,925	1,005
6	4,000	868

¹ EPA has determined that the appropriate cleanup level for the site is 730 ppm of lead, rather than the Pennsylvania Act 2 standard of 500 ppm.

3.0 Extent of Area to be Remediated

Six areas will be remediated to at least a soil lead cleanup goal of 730 ppm. The areal extent of these sites are summarized above and depicted in the figure in Appendix D (from EPA contractor's map dated December 7, 1999, prepared by R.F. Weston, Inc.).

4.0 Response Action Plan

The response proposed to remediate the six areas with high lead soils is to excavate high lead soils to a depth of 1 foot and transport them to an approved landfill for disposal. Excavated areas will be backfilled and graded. The steps needed to accomplish this response are described below.

4.1. Site Security

Site security measures will be implemented to keep unauthorized people from entering the six cleanup areas during the cleanup. Prior to excavation activities, "Jersey Barriers" will be placed around the parameters of the six areas. During excavation activities, some of these barriers will be moved to provide access for trucks and excavation equipment. Temporary chainlink construction fencing will be placed at any openings in the Jersey Barrier perimeter during non-working hours. When the cleanup has been completed, all barriers and fencing will be removed.

Patrols of the area during non-working hours will be made by the Philadelphia Police Department every half hour.

4.2. Mobilization

Markup of site utilities by The Pennsylvania One-Call System will be requested, although excavation will only be to a depth of 1 foot and utility problems are not anticipated. A trailer unit (with shower facilities) will be set-up in the vicinity of Area 1. At the entrance of each working zone, an area will be established where decontamination procedures will take place. The excavation contractor will establish a traffic flow pattern and communication system to enhance efficient and safe work conduct.

Warning posters will be set up at each intersection and at side streets near the work area. Posters will be at least 20 inches by 14 inches and state the date and place of the lead removal work project. In addition, posters must include the phrase "Caution Lead Hazard, Keep Out" in bold lettering at least 2 inches high.

4.3. Site Preparation

4.3.1. Soil Staging Areas

No soil staging areas are predicted. Contaminated soil will be continuously loaded on trucks and removed off-site, minimizing the number of times soil needs to be handled and thus reducing the potential for soil erosion and the creation of airborne particles and dust.

4.3.2. Site Zones

Each excavation area will be divided into three discrete zones. These zones are the exclusion (or work) zone, the contamination reduction zone (CRZ), and the support zone. These zones will be delineated by the HSO for all members of the field team. The purpose of these zones is to minimize and control the transfer of hazardous substances from contaminated to uncontaminated areas.

Exclusion Zone

The exclusion zone is the area where potential contamination exposure to the worker is possible through either inhalation, oral contact, or dermal contact. The exclusion zone will be identified as the area of excavation. During excavation, the exclusion zone will be identified by the HSO. Entry and egress of personnel will occur through designated areas. Egress from the exclusion zone will be accompanied by the appropriate decontamination of personnel and equipment.

Contamination Reduction Zone (CRZ)

The CRZ serves as a buffer zone between the support and exclusion zones. Personnel entering the site will pass through the "clean" end of the CRZ on their way to the exclusion zone. Exiting personnel will then pass through the contaminated side of the CRZ after leaving the exclusion zone. Personnel will remove contaminated clothing and gear during passage through the CRZ, so that they will be "contaminant" free before entering the support zone. The CRZ will be established and physically delineated by the HSO.

Support Zone

The support zone will be established in an area free of contamination. Health, safety, and sampling equipment will be stored in the support zone. Personnel will dress out and activate monitoring equipment while in this zone.

4.3.3. Dust Suppression

Dust will be suppressed by spraying the excavated area, equipment, and adjacent streets with water supplied via connections to City hydrants. Up to four washdown areas are

projected to be built for trucks exiting to local streets. Trucks leaving the site will have tires washed so as to reduce the depositing of soil on streets. Soil loaded onto the trucks will be covered prior to the trucks leaving the site to prevent dust and soil loss during transit to the disposal site.

4.3.4. Work Zones and Decontamination

Each area to be excavated will be treated as an exclusion zone. Each exclusion zone, if any, will have a decontamination station for workers leaving the exclusion zone. As described in the Site Specific Health and Safety Plan (see Appendix B), a mobile facility at the site will be equipped with showers and eye wash stations.

Water generated as a result of removal activities will be filtered through a 5-micron filter and collected in 55-gallon drums. Representative samples of the wastewater and used filters must be tested for total lead. Disposal of the wastewater and used filters must comply with federal and state regulations as they apply based on the concentration of total lead.

4.4. Soil Sampling and Leachate Testing

The City will conduct additional characterization of soils prior to excavation in order to determine if any areas have lead levels high enough to be classified as hazardous (none are expected). This will allow setting up exclusion work zones, arranging disposal at approved landfills, and taking appropriate health and safety actions.

It is proposed to test soils in the areas with the highest lead levels first. Areas 4 and 2 have high lead concentrations (22,300 and 5,920 ppm, respectively, compared to the other four areas at 868 to 1,555 ppm). Accordingly, TCLP tests will be run on soils from the two highest levels – if TCLP results indicate that those soils do not meet the hazardous waste criteria it can be safely assumed that all the soils in the six areas are non-hazardous. Three surface soil samples will be collected in each of the two highest lead areas and composited in the field. The two composite samples will be sent to a certified analytical laboratory for TCLP analysis.

A sample will be defined as hazardous when the leachate concentration from a TCLP test exceeds 5 mg/l, according to EPA guidance. Any soil concentration higher than this value will be deemed hazardous. If the TCLP analyses indicate the soils are hazardous, additional soil testing in the remaining areas will be necessary. This scenario is not expected, but if it occurs the City will develop a grid-based sampling protocol to conduct further sampling and TCLP testing for EPA's review and approval. If the soil is determined to be hazardous, a hazardous waste generator identification number will be obtained.

4.5. Excavation and Disposal

4.5.1. Waste Determination

The disposal site accepting contaminated soil will need leachate analysis results to determine if the soil can be accepted. The TCLP data described in Section 4.4 will be made available to the contractor. If the contractor's disposal site operator requires additional testing, it will be the responsibility of the removal contractor to provide such testing results.

4.5.2. Erosion Control

An NPDES permit for the discharge of stormwater from construction activities is not needed due to the nature of the site. However, stormwater management requirements must be met. The City will contact the Pennsylvania DEP to coordinate appropriate runoff control requirements. The excavation contractor will be responsible for preparing an acceptable erosion and sediment control plan.

Exposed soil that could be washed onto side streets during rainfalls will have erosion protection in the form of temporary control measures, including the construction of hay bales or silt fences to intercept runoff. Catch basins may also require temporary rock filter controls. It is not expected that runoff from the excavated areas will by-pass the erosion and sediment control measures. In fact, runoff loads to the sewer system are not currently controlled, so provisions of control measures are expected to improve current conditions.

4.5.3. Excavation and Disposal

Soil from each area will be excavated to a depth of 1-foot, loaded onto trucks, and transported to an approved disposal facility. Where extensive rubble such as bricks, concrete chunks greater than 1 cu ft, wood, and other non-soil demolition debris is encountered, the contractor will separate the debris from the soil for later removal and disposal by the contractor.

The contractor will establish an elevation reference system that will allow excavation of the top 1 foot of soil and backfilling to the original surface elevation (e.g., stakes set on a grid pattern or a laser level system). This system will allow the City to verify that 1 foot of soil has been excavated and that backfilling to the original surface elevation has been accomplished.

The contractor will establish an inventory control system to track all materials leaving the site. The following information will be recorded and entered into a database or spreadsheet by the contractor and checked by the City's on-site representative:

- Name and address of receiving facility
- Manifest numbers (if applicable)

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The contractor will establish an inventory control system to track all materials leaving the site. The following information will be recorded and entered into a database or spreadsheet by the contractor and checked by the City's on-site representative:

- Name and address of receiving facility
- Manifest numbers (if applicable)

- Type and quantity of material (from material weight sheets)
- Date shipped / Date received

The contractor will prepare all required manifests and a City representative will sign them before each soil shipment. The contractor will be responsible for providing additional analytical data to the disposal facility, if the facility desires more information than is available from existing reports and the sampling described above.

4.6. Backfilling and Landscaping

When soil excavation from any one of the six cleanup areas is completed, the excavated areas will be immediately backfilled with a 1-foot thick layer of clean fill which will then be compacted and graded. The top 3 inches of the backfill will be topsoil so the remediated areas can support vegetation growth. The contractor will be required to submit laboratory data demonstrating that the fill complies with Pennsylvania's clean fill criteria.

5.0 Soil Removal Action Report

5.1. Progress Reports

Progress reports will be submitted by the cleanup contractor every 7 calendar days. These reports will be appended to a summary report prepared by the City and submitted to EPA bi-weekly. A Daily Inspection Log will be maintained by the City representative observing the contractor's activities. The City representative will take photographs of every stage of cleanup.

5.2. Final Report

When cleanup activities are complete, the contractor will prepare a final report summarizing the work conducted. The City will use this input to prepare a Final Report, which summarizes remedial activities accomplished and presents data that confirms cleanup was achieved. This report will be submitted to EPA.

6.0 Schedule

The removal of contaminated soil, backfilling with cleanfill, and landscaping will be accomplished in 65 days following EPA authorization to proceed with excavation. It is anticipated that field operations will begin by November 30, 2000, barring unforeseen difficulties.

APPENDIX A

EPA/CITY AGREEMENT

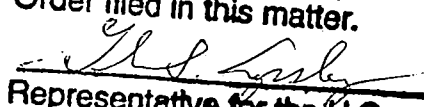
**BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III**

IN THE MATTER OF:

Logan Section Contamination Site
City of Philadelphia, Pennsylvania

:
:
:

I hereby certify that the
within is a true and correct copy
of the original Administrative
Order filed in this matter.


Representative for the U.S.
Environmental Protection Agency,
Region III

MEMORANDUM OF AGREEMENT

WHEREAS, the parties to this Memorandum of Agreement ("Agreement"), the City of Philadelphia, Pennsylvania ("City") and the United States Environmental Protection Agency Region III ("EPA") have conducted sampling and analysis, as described in detail in Section III herein, of certain property located in the Logan Section of Philadelphia, Pennsylvania, described in paragraph 3.2 below, and hereinafter referred to as the Logan Site or "the Site;"

WHEREAS, the parties agree that the results of that sampling indicate the need for certain work, as described in detail in Section V herein (the "Work"), to be performed at the Site and have agreed to work to abate, mitigate and/or eliminate the release or threat of release of unsafe levels of lead at the Site;

WHEREAS, the City, as a municipal corporation and a City of the First Class within the Commonwealth of Pennsylvania, has sovereign powers to protect public health and the environment and specific authority pursuant to the City of Philadelphia Health Code to perform the Work; and

WHEREAS, the City has determined to undertake all actions described herein comprising the Work and to comply with all requirements of this Agreement;

NOW, THEREFORE, the parties agree as follows:

I. STATEMENT OF AUTHORITY

This Agreement is executed pursuant to the authority delegated to the Regional Administrators of EPA by delegation No. 1-11 (1200 TN 466, June 23, 1998) and the authority vested in the City by its Home Rule Charter.

II. STATEMENT OF PURPOSE

In entering into this Agreement, the mutual objectives of EPA and the City are to abate, mitigate and/or eliminate the release or threat of release of hazardous substances at the Site (as hereinafter described), by a combination of excavation and proper disposal of 12 inches of

materials contaminated with lead from designated areas of the Site and replacing the excavated soil with clean fill material, all as described in detail herein and in the Response Action Plan to be prepared by the City in accordance with Section V of this Agreement.

III. FINDINGS AND DETERMINATIONS

3.1 The Site comprises a seventeen-block area in the Logan section of Philadelphia, bordered by Roosevelt Boulevard on the southeast, by Marshall Street on the east, by Wingohocking Street on the south, by 11th Street on the west and by Loudon Street on the north. The Site is depicted on the map attached hereto as Attachment 1.

3.2 The Site is located in a former stream valley which was filled with coal cinder and ash prior to the construction of houses on the Site in the early part of the 20th century. Over time, the ash fill has settled or eroded, leaving the houses on increasingly unstable foundations. By 1986, the City determined that many houses and other structures were unsafe and began evacuating homes and other structures determined to be in imminent danger of collapse. Beginning in 1986, the City, through the Logan Assistance Corporation (LAC), initiated the demolition of houses and to date, has demolished approximately 900 houses.

3.3 In May, 1998, the City requested the U.S. Corps of Engineers to sample and analyze the soil at the Site. Samples were collected in December, 1998 and the results were reported in February, 1999. The results indicated that elevated levels of lead were present.

3.4 In March 1999 and May 1999, the City conducted further sampling and analysis of surface soils at the Site. One "grab" sample was taken from each of 17 blocks. The results of this sampling showed levels of lead in the surface soil, ranging from 70 ppm to 1892.8 ppm. The City notified residents in the area surrounding the Site that the levels found did not constitute an immediate health risk, but rather posed a potential, chronic, or long-term health hazard. The City recommended that residents minimize contact with the soil in the area of the Site and wash their hands after contact with the soil.

3.5 From November 8 through November 10, 1999, EPA collected 230 "grab" samples from the surface soils at the Site. Results from this sampling revealed lead levels ranging from 25 ppm to 22,300 ppm.

3.6 During EPA's November 1999 sampling, children were observed using the lots that comprise the Site as thoroughfares to other parts of the neighborhood and were also observed playing in the soil on the Site. Adults and animals were also observed crossing the lots.

3.7 The average lead levels in soil in six areas designated as "pockets," covering five acres of the Site, have been determined to pose potentially unacceptable risks to young children under a

residential exposure scenario. Those pocket areas are depicted on the map attached as Attachment 1 to this Agreement, designated, and referred to herein, as "Response Areas 1 - 6."

3.8 Based on the Findings set forth herein, and upon a full review of information available, EPA and the City have determined that:

- a. the Work is necessary to protect the public health and welfare and the environment;
- b. because there is a threat or potential threat to public health or welfare or the environment, a removal action (the Work) is appropriate to abate, minimize, stabilize, mitigate or eliminate the release or threat of release of unsafe levels of lead at or from the Site; and
- c. the City will properly and promptly conduct the Work, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 C.F.R. Part 300.415, for removal actions, to the extent set forth in this Agreement.

IV. PARTIES BOUND

4.1 This Agreement shall apply to and be binding upon EPA and its agents, and upon the City and its agents, successors, and assigns.

4.2 The City shall provide a copy of this Agreement to all contractors, subcontractors, supervisory personnel, laboratories and consultants retained by the City to conduct any portion of the Work. The City shall require in any and all contracts related to the Site that the Work that is the subject of such contract be performed within the time and in the manner set forth in this Agreement.

V. RESPONSE ACTION PLAN ("RAP") DEVELOPMENT AND IMPLEMENTATION

5.1 The City shall commence and complete performance of the Work as described in detail below within the time periods specified herein.

5.2 Within two (2) business days of the effective date of this Agreement, the City shall notify EPA in writing of the identity and qualifications of the contractor, subcontractor, supervisory personnel, and other persons who will be primarily responsible for developing the Response Action Plan ("RAP") required by this Section. The City shall further notify EPA in writing of the identity and qualifications of all contractors, subcontractors, supervisory personnel and other persons selected by the City who will conduct all or any portion of the Work no less than five (5) business days prior to commencement of the Work to be performed by such persons. The City

shall ensure that all contractors, subcontractors, supervisory personnel and/or other persons retained to perform the Work shall meet the applicable Occupational Safety and Health Administration ("OSHA") requirements as defined in 29 C.F.R. § 1910.120. The City's selection of all contractors, subcontractors, supervisory personnel and other persons who will perform the Work; the City's Project Coordinator designated pursuant to Section VII; and any replacements to any such persons are subject to disapproval by EPA at any time. In the event of any such disapproval by EPA, the City shall notify EPA within five (5) calendar days of receipt of such EPA disapproval of the person(s) who will replace the one(s) whose selection was disapproved by EPA. If a person's selection is disapproved by EPA, that person shall not perform such specified Work. In the event that the City removes any approved person(s) from performing any portion of the Work for non-performance or non-compliance with contractual requirements or the requirements of the RAP or this Agreement, the City shall select an alternative person(s) to perform the work within ten (10) business days. Such replacement person(s) shall be subject to EPA acceptance.

5.3 The City shall accomplish the following items:

- a. Provide site security designed to preclude normal or routine access by persons not conducting or overseeing the Work required by this Agreement;
- b. Develop and implement a plan of cleanup for the Site, detailing a combination of both of the following: excavate and properly dispose of the top 12 inches of soil from the areas depicted in Attachment 1 to this Agreement, and backfill with clean fill material, all work to be as described in the RAP, and performed in accordance with the requirements and standards set forth in this Agreement;
- c. Obtain a Hazardous Waste Generator Identification Number if and as required by law;
- d. Provide site specific health and safety measures, including preparation and implementation of a Health and Safety Plan ("HASP") for actions to be performed at the Site, to protect the health and safety of workers, other personnel and the public from the hazardous substances and work-related health and safety hazards during performance of the Work specified herein. The HASP shall, as appropriate, provide for proper decontamination of personnel and equipment, monitoring and control of offsite migration of hazardous substances during the performance of activities at the Site and protection of public health from exposure to hazardous substances during the conduct of activities at the Site pursuant to this Agreement. Health and safety requirements in the HASP shall be at least as stringent as those set forth in Occupational Safety and Health Administration and EPA requirements, including but not limited to, requirements contained in 29 C.F.R. § 1910.120 and/or EPA Standard Operating Safety Guides (June 1992); and
- e. Develop and follow an expeditious schedule for implementation of the RAP.

5.4 Within 10 business days of the effective date of this Agreement, the City shall submit to EPA for approval a RAP detailing the Work to be implemented for the items specified in paragraph 5.3 above. To the extent that information concerning the details of a particular item does not yet exist so that it can be described in the RAP, the RAP shall set forth an expeditious schedule and plan for submittal of RAP supplement(s) to EPA for approval, which supplement(s) shall fully detail such items. All references to the review, approval and enforcement of the RAP shall also be applicable to any RAP supplement(s). The RAP shall include, among other things, a schedule for expeditious performance of the Work required by this Agreement. The RAP shall be consistent with the NCP and shall be subject to approval by EPA according to the provisions of paragraphs 5.5 and 5.9 below.

5.5 EPA will review the RAP and notify the City of EPA's approval or disapproval of the RAP. In the event of disapproval, EPA will specify the deficiencies in writing. The City shall respond to and correct the deficiencies identified by EPA and resubmit the RAP to EPA within five (5) business days of receipt of EPA disapproval or such longer time as may be agreed to by the parties in writing. Approval, disapproval and/or modification by EPA of the subsequent RAP submission shall be according to the provisions of Paragraph 5.9 below.

5.6 Within five (5) business days of receipt from EPA of written approval to proceed with implementation of the EPA-approved RAP ("written approval to proceed"), the City shall commence implementation of such RAP and complete implementation in accordance with the RAP and the schedule therein. In the event EPA determines that any portion of the Work performed is deficient, and EPA requires the City to correct or re-perform such portion of the Work pursuant to this Agreement, the City shall correct or re-perform such the Work or portion of the Work in accordance with a schedule agreed to in writing by the City and EPA.

5.7 Beginning seven (7) calendar days subsequent to the date of receipt of EPA approval of the RAP and every seven (7) calendar days thereafter, or such longer interval as may be determined in writing by the City and the EPA Project Coordinator designated pursuant to Section VII, and until EPA advises the City that the Work is complete, the City shall provide EPA with a progress report for each preceding 7-day period or if applicable, the period agreed to in writing by the City and the EPA Project Coordinator. The progress reports shall include, at a minimum: 1) a description of the Work completed and the actions that have been taken toward achieving compliance with this Agreement; 2) a description of all data anticipated and activities scheduled for the next 7 calendar days or, if applicable, the period agreed to in writing by the City and the EPA Project Coordinator; 3) a description of any problems encountered or anticipated; 4) any actions taken to prevent or mitigate such problems; 5) a schedule for completion of such actions; 6) copies of all analytical data received during the reporting period; and 7) all modifications to the Work, RAP and schedule during the reporting period.

5.8 Documents, including plans, reports, sampling results and other correspondence to be submitted pursuant to this Agreement, shall be sent by overnight mail to the EPA Project Coordinator designated pursuant to Section VII, or hand delivered to the EPA Project

Coordinator, with copies of all correspondence, cover letters, and documents to be delivered concurrently to counsel designated pursuant to Section VII.

5.9 All reports, plans, approval letters, specifications, schedules and attachments required by this Agreement are subject to EPA approval and shall be deemed incorporated into this Agreement upon approval by EPA. In the event of conflict between this Agreement and any document attached hereto (other than written amendments and modifications made to this Agreement), incorporated in or enforceable hereunder, the provisions of this Agreement shall control. In the event that EPA disapproves any required submission, EPA will (1) specify the deficiencies in writing, and/or (2) submit its own modifications to the City to accomplish the Work outlined in paragraph 5.3 above. The City shall amend and submit to EPA a revised submission that responds to and corrects the specified deficiencies within two (2) business days of receipt of EPA disapproval or such longer time as may be specified by EPA in its discretion. In the event that EPA submits its own modifications to the City, the City is hereby required to incorporate such modifications. Any non-compliance with EPA-approved reports, plans, specifications, schedules, attachments, or submission of deficient revisions following EPA disapproval, or non-compliance with an EPA-required modification shall be considered a failure to comply with a requirement of this Agreement.

5.10 In addition to the information and documents otherwise required by this Agreement, the City shall provide to EPA, upon written request, copies of any and all information and documents in its possession, custody or control related to the Site including, but not limited to, Site analytical data (including raw data); Site safety data; Site monitoring data; operational logs; copies of all hazardous waste manifests, if any (including copies of all hazardous waste manifests signed upon receipt of the hazardous wastes by a licensed treatment, storage or disposal facility); the identity of treatment, storage and/or disposal facilities used; the identity of transporters used; the identity of any contractors, subcontractors and supervisory personnel used; information and documents concerning the City's compliance with Quality Assurance and Quality Control requirements of this Agreement; information and documents relating to the City's efforts to secure access; and information and documents relating to any project delays. Nothing herein shall be interpreted as (1) limiting the application of any privilege or exemption to disclosure requirements applicable by law to the City; or (2) limiting the inspection and information-gathering authority of EPA under Federal law.

5.11 Within twenty (20) calendar days of the date the City concludes it has completed implementation of the RAP and the items identified in paragraph 5.3, the City shall submit a written Final Report to EPA, subject to EPA approval described in paragraph 5.9 above. The written report shall detail the work undertaken to implement the RAP and the items identified in paragraph 5.3, and shall be certified by the City in accordance with the terms of Section XVII of this Agreement. EPA will review the adequacy of the City's implementation of the RAP and accomplishment of items specified in paragraph 5.3 above. EPA will notify the City, in writing, of any discrepancies in the Final Report or deficiencies in the execution of the RAP and the items identified in paragraph 5.3 and the actions required to correct such discrepancies or deficiencies.

Within ten (10) business days of receipt of notification by EPA, or as otherwise specified by EPA, the City will amend the Final Report, develop an additional plan or amend the existing RAP to address such discrepancies or deficiencies. Any additional plan or amendment to the RAP will be subject to the approval procedures outlined in paragraphs 5.5 and 5.9 above. The City shall perform all actions approved by EPA in a manner consistent with all applicable Federal, state and local laws and regulations.

5.12 The City shall not handle or remove any hazardous substances from the Site except in conformance with the terms of this Agreement and all applicable Federal, State and local laws, ordinances and regulations. Any hazardous substance, pollutant or contaminant transferred for disposal off-site as a result of this Agreement must be taken to a facility acceptable under EPA's Off-Site Rule, 40 CFR § 300.440 and in accordance with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3).

5.13 The City shall not commence any Work except in conformance with the terms of this Agreement. The City shall not commence implementation of the RAP developed hereunder until receiving written EPA approval to proceed pursuant to paragraph 5.6.

5.14 The City shall immediately notify EPA's Project Coordinator and the National Response Center [(800) 424-8802] and any other party required by law in the event of any action or occurrence during the pendency of this Agreement which causes or threatens to cause an additional release of hazardous substances, pollutants or contaminants on, at or from the Site, or which may create a danger to public health, welfare or the environment.

5.15 In the event that EPA believes that Work or other activities at the Site by the City are causing or may cause a release or potential release of hazardous substances, or are a threat to public health or welfare or to the environment, EPA may, in its discretion, immediately halt or modify such Work or other activities to eliminate or mitigate such actual or potential releases or threats of release.

VI. FAILURE TO PERFORM

6.1 In the event that the City does not perform the Work in accordance with standards as set forth herein, and in the timeframe(s) specified, then EPA reserves the right to initiate and/or undertake any removal or remedial actions at any time that it determines such actions are appropriate.

VII. DESIGNATED PROJECT COORDINATORS

7.1 The Project Coordinator for EPA and the Project Coordinator for the City shall be responsible for overseeing the Work. To the maximum extent possible, communications between the City and EPA and all documents concerning the activities performed pursuant to the

terms and conditions of this Agreement, including plans, reports, approvals and other correspondence, shall be directed to the Project Coordinators, with copies to counsel as listed below.

7.2 The Project Coordinator for EPA is:

Glen S. Lapsley
On-Scene Coordinator
U.S. Environmental Protection Agency
Removal Enforcement and Oil Section (3HS32)
1650 Arch Street
Philadelphia, PA 19103
(215) 814-3279 (phone)
(215) 814-3254 (fax)

EPA Counsel:

Janet Williams
3RC41, U.S. EPA
1650 Arch Street
Philadelphia, PA 19103
(215) 814-2492 (phone)
(215) 814-2603 (fax)

7.3 The Project Coordinator for the City is:

Barry Scott
Director of Safety & Loss Prevention
Risk Management Division
Department of Finance
City of Philadelphia
1515 Arch Street, 14th Floor
Philadelphia, PA 19102-1579
(215) 683-1720 (phone)
(215) 683-1705 (fax)

Counsel for the City:

Patrick K. O'Neill
Law Department
One Parkway
1515 Arch Street
Philadelphia, PA 19102-1595
(215) 683-5172 (phone)
(215) 683-5175 (fax)

7.4 EPA shall have the right to change its Project Coordinator at any time without prior notice to the City. EPA's intent is to notify the City as soon as practicable following any such change of its Project Coordinator.

7.5 The absence of the EPA Project Coordinator from the Site shall not be cause for the stoppage or delay of Work except when such stoppage or delay is specifically ordered by EPA.

7.6 The EPA Project Coordinator shall have the authority to halt or modify Work or other activities performed by the City at the Site in order to eliminate a release or threat of release of hazardous substances. Such direction by the EPA Project Coordinator may be given verbally or in writing. If such direction is given verbally, the EPA Project Coordinator will later memorialize such direction in writing.

VIII. QUALITY ASSURANCE

The City shall use quality assurance, quality control, and chain of custody procedures in accordance with the following documents while conducting all sample collection and analysis activities required by this Agreement:

(a) "EPA NEIC Policies and Procedures Manual" (EPA Document 330/9-78-001-R (revised August 1991));

(b) "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," (QAMS-005/80 (December 1980)); and

(c) "QA/QC Guidance for Removal Activities," (EPA/540/G-90/004 (April 1990)).

The City shall consult with EPA in planning for, and prior to, all sampling and analysis required by the approved RAP. The City shall use a laboratory(s) which has a documented Quality Assurance Program that complies with EPA guidance document QAMS-005/80.

IX. ACCESS

9.1 As of the effective date of this Agreement, the City shall ensure that appropriate access to all areas of the Site where any part of the Work is to be performed is obtained in accordance with all applicable Federal, State and local laws and regulations.

9.2 In accordance with law and regulation, as appropriate, EPA and its employees, agents, contractors, consultants and other authorized and designated representatives shall have the authority to enter and freely move about the location where the Works and/or Work is being performed at all reasonable times for the purposes of, inter alia: inspecting Work, records, operating logs and contracts related to the Site; reviewing the progress of the City in carrying out the terms of this Agreement; conducting such tests as EPA deems necessary; using a camera, sound recording or other documentary type equipment; and verifying the data submitted to EPA by the City. The City shall permit such persons to inspect and copy all records, files, photographs, documents and other writings, including all sampling and monitoring data, in any way pertaining to the Work.

9.3 No claim of confidentiality or privilege shall be made regarding any data required to be submitted pursuant to this Agreement including, but not limited to, sampling, analytical, monitoring, hydrogeologic, scientific, chemical or engineering data, or documents or information evidencing conditions at or around the Site. Nor shall such claims be made for analytical data; Site safety data; Site monitoring data; operational logs; hazardous waste manifests; identities of treatment, storage and/or storage facilities used; identities of transporters used; identities of any contractors or subcontractors used in performing work required by this Agreement.

9.4 Notwithstanding any provision of this Agreement, EPA retains all of its access and information-gathering authorities and rights under CERCLA and any other applicable statute and regulation.

X. NOTIFICATION OF DELAY

10.1 The City, through its Project Coordinator, shall notify EPA of any delay or anticipated delay in achieving compliance with any requirement of this Agreement. Such notification shall be made verbally as soon as possible but not later than two (2) business days after the City becomes aware or should have become aware of any such delay or anticipated delay, and in writing no later than five (5) business days after the City becomes aware, or should have become aware, of such delay or anticipated delay. Such written notification shall be certified by the Project Coordinator in accordance with Section XVII of this Agreement and shall fully describe the nature of the delay, including how it may affect the Work, RAP and schedule; the actions that will be or have been taken to mitigate, prevent and/or minimize further delay; and the timetable according to which the future actions to mitigate, prevent and/or minimize the delay will be taken. The City shall ensure that its Project Coordinator provides the City with immediate notification of any project delays. The City shall adopt all reasonable measures to avoid and minimize such delay.

10.2 To the extent the City intends to claim that any delay or anticipated delay described by the City in accordance with paragraph 10.1 was or will be caused by circumstances beyond its

control, the City shall, within five (5) business days after the City becomes aware, or should have become aware, of such delay or anticipated delay, submit to EPA a notice in which the City demonstrates that the delay was caused by circumstances beyond its control which could not have been overcome by due diligence, the necessity of the proposed length of the delay, and that the City took and is taking all reasonable measures to avoid and minimize delay. Any notice shall be certified by a responsible official of the City pursuant to paragraph 17.1(b) of this Agreement.

XI. RESERVATION OF RIGHTS

EPA hereby expressly reserves its right to disapprove of Work performed by the City; to halt Work being performed by the City if the City has not complied with an approved RAP or this Agreement, or at any time EPA deems necessary to protect public health, welfare or the environment and to perform such Work; to request and require hereunder that the City correct and/or re-perform any and all Work disapproved by EPA. Further, EPA reserves the right to undertake the Work at any time EPA deems appropriate.

XII. OTHER CLAIMS

12.1 Nothing in this Agreement shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation not bound by this Agreement for any liability it may have relating in any way to the generation, storage, treatment, handling, transportation, release or disposal of any hazardous substances, hazardous wastes, pollutants or contaminants found at, taken to, or taken from the Site.

12.2 This Agreement does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

12.3 By consenting to the issuance of this Agreement, the City waives any claim to reimbursement it may have under Sections 106(b), 111 and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611 and 9612.

XIII. OTHER APPLICABLE LAWS

13.1 All Work shall be undertaken in accordance with the requirements of all applicable and/or relevant and appropriate local, State and Federal laws and regulations.

13.2 Nothing herein shall relieve the City from any obligations it has under any applicable local, State, or Federal law or regulation.

XIV. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

14.1 The effective date of this Agreement shall be two (2) business days after the date on which EPA forwards a true and correct signed copy to the City.

14.2 This Agreement may be amended by mutual agreement of EPA and the City. Such amendments shall be in writing and shall have as their effective date the date on which such amendments are signed by EPA, unless the parties agree in writing to a different effective date. Modifications to the EPA-approved RAP and its implementation may be made by mutual agreement of the Project Coordinators. Such modifications shall be memorialized in writing by the Project Coordinators, with copies to counsel as provided in Section VII.

14.3 Any reports, plans, specifications, schedules, or other submissions required by this Agreement are, upon approval by EPA, incorporated into this Agreement.

14.4 Informal advice, guidance, suggestions or comments by EPA regarding reports, plans, specifications, schedules or other submissions by the City or the requirements of this Agreement shall not be construed as constituting formal amendment or modification to this Agreement.

XV. LIABILITY OF THE UNITED STATES GOVERNMENT

Neither the United States Government nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions of the City, or of its employees, agents, servants, receivers, successors or assigns, or of any persons including, but not limited to, firms, corporations, subsidiaries, contractors or consultants in carrying out the Work, nor shall the United States Government or any agency thereof be held out as a party to any contract entered into by the City in carrying out the Work.

XVI. CERTIFICATION OF COMPLIANCE

16.1 (a) Unless otherwise required by the terms of this Agreement, any notice, report, certification, data presentation or other document submitted by the City under or pursuant to this Agreement which discusses, describes, demonstrates or supports any finding or makes any

representation concerning the City's compliance or non-compliance with any requirement(s) of this Agreement shall be certified by the City, a responsible official of the City or by the Project Coordinator for the City.

(b) The written Final Report required by paragraph 5.11 of this Agreement and any Notice described in paragraph 9.2 of this Agreement shall be certified by the City or a responsible official of the City.

16.2 The certification required by paragraph 17.1 of this Agreement shall be in the following form:

After personal inquiry, I certify that the information contained in or accompanying this (specify type of submission) is true, accurate and complete to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment for knowing violations.

Signature: _____

Name (print): _____

Title: _____

16.3 Submission of documents pursuant to this Agreement which are found by EPA to contain knowingly false information shall constitute a failure to comply with this Agreement.

XVII. RECORD RETENTION

The City shall preserve all documents and information relating to the Work performed under this Agreement, or relating to the hazardous substances found at or released from the Site, for six (6) years following completion of the Work required by this Agreement. At the end of this six year period and thirty (30) days before any document or information is destroyed, the City shall notify EPA that such non-privileged documents and information are available to EPA for inspection, and upon request, shall provide the originals or copies of such documents and information to EPA.

XVIII. DEFINITIONS

18.1 "Business days" as used in this Agreement shall mean every day of the week except Saturdays, Sundays and federal holidays.

18.2 "Calendar days" as used in this Agreement shall mean every day of the week, including Saturdays, Sundays and federal, state or city holidays.

18.3 "Days" as used herein shall mean "calendar days" unless specified otherwise.

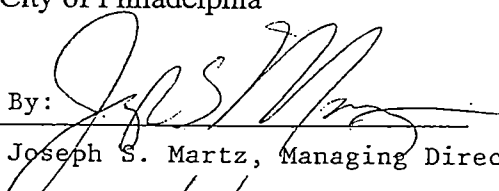
18.4 All terms not defined herein shall have the meanings set forth in CERCLA.

XIX. NOTICE OF COMPLETION

When EPA determines, after EPA's review and approval of the Final Report required pursuant to paragraph 5.11 of this Agreement, that all Work specified in Section V of this Agreement has been fully performed, with the exception of any continuing obligations required by this Agreement, including those requirements specified in XI ("Reservation of Rights"), XV ("Liability of the United States"), and XVII ("Record Retention"), EPA will provide a notice of completion to the City regarding all aspects of the Work other than the continuing requirements of this Agreement.

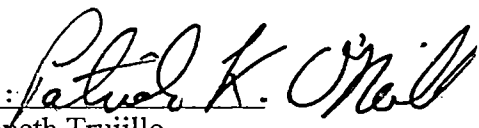
FOR THE CITY:

John Street
Mayor
City of Philadelphia

By: 

Joseph S. Martz, Managing Director

Date: 10/4/00

Approved as to Form: By: 

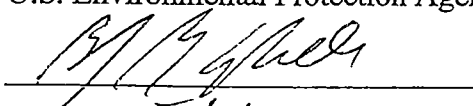
Kenneth Trujillo

~~Acting~~ City Solicitor

City of Philadelphia Law
Department

FOR THE EPA:

Bradley M. Campbell
Regional Administrator
Region III
U.S. Environmental Protection Agency


Date: October 10, 2000

APPENDIX B

HEALTH AND SAFETY PLAN

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1.0 INTRODUCTION

The US EPA and the City of Philadelphia have agreed that the City would undertake cleanup of the six areas delineated in the main body of the report. The proposed response is to excavate high lead soils to a depth of 1 foot and transport them to an approved landfill for disposal. Excavated areas will be backfilled, graded, and seeded. This Site Health and Safety Plan provides a general framework to be followed during the cleanup.

1.1 *Applicability of the Site Health and Safety Plan (HASP)*

The purpose of this site HASP is to define general requirements to be followed during excavation, sampling and disposal operations at the Logan site. The Contractor must submit means and methods of complying with the requirements set forth in this HASP.

All personnel must be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards of this operation. The HASP summarizes those hazards in Table 3.1 and defines protective measures planned for the site. This plan must be reviewed and signed by all personnel prior to entering the site.

This plan was developed based on current safety standards (as defined by EPA/OSHA/NIOSH), health effects, and procedures designed to account for potential site hazards. Specifically, the following reference sources have been consulted:

- OSHA 29 CFR 1910.120 and EPA 40 CFR 311.
- U.S. EPA, OERR ERT Standard Operating Safety Guides.
- NIOSH/OSHA/USCG/EPA Occupational Health and Safety Guidelines.
- (ACGIH) Threshold Limit Values, 1993-1994.

1.2 *Visitors*

All visitors to the Site will be required to read and verify compliance with the provisions of this HASP. In addition, visitors will be expected to comply with relevant OSHA requirements such as medical monitoring, training, and respiratory protection (if applicable). Visitors will also be expected to provide their own protective equipment.

In the event that a visitor does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All nonconformance incidents will be recorded in the site log.

2.0 IDENTIFICATION OF HEALTH AND SAFETY OFFICER

The prime contractor is responsible for appointing a Site Health and Safety Officer (HSO) acceptable to the City. The HSO is responsible for determining whether the provisions of this HASP are adequate and implemented in the field. Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, it is vital that personnel assigned as HSO be experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120. The HSO is also responsible for conducting site inspections on a regular basis in order to ensure the effectiveness of this plan.

Each Contractor is responsible for preparing their own HASP which must comply with the provisions contained herein. In addition, each contractor must designate their own site Health and Safety Representative who will report daily to the HSO on issues related to the HASP.

3.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSIS

3.1 *Historical Overview of Site*

This HASP defines the hazards and methods to protect personnel from those hazards as identified in previous site work or background information. For a thorough overview of historical information concerning the Site see the following documents:

Preliminary assessment

Initial Site Investigation, U.S. Army Corps of Engineers, May 1998
Supplemental Phase I, U.S. Army Corps of Engineers, February 1999

Site inspection report

Additional Soil Testing, City of Philadelphia, March 1999
Soil Testing, Urban Engineers, Inc., May 1999
Surface Characterization, U.S. Environmental Protection Agency (EPA), November 1999

Remedial investigation report

Remedial Investigation Report, U.S. EPA, November 1999

3.2 *Contaminant Risk Analysis*

TABLE 3.1: CHEMICAL HAZARDS OF CONCERN

Contaminant	Concentration in Soil	Physical Properties	Exposure Source	Health Symptoms Acute and Chronic	Routes of Exposure
Lead, Inorganic	0 to 22,300 ppm	Molecular weight 207.2 MLT 621F UEL: Not available LEL: Not available	Surface soil, Air	Weakness, insomnia, anorexia, abdominal pain, anemia, kidney disease	Inhalation Ingestion Direct contact
Arsenic	0 to 50 ppm	Molecular weight 74.9 Specific Gravity 5.73 Vapor pressure 0 mm UEL: Not available LEL: Not available	Surface soil, air	Possible Liver, skin, kidney damage	Inhalation Ingestion Skin/eye contact

3.3 *Task Hazard Descriptions*

3.3.1 Off-site activities

Site boundaries should clearly mark off the "clean" off-site areas from the "contaminated" on-site areas, so contamination from the site should not be a hazard associated with perimeter and off-site monitoring.

Off-site activities are performed once the site boundaries have been established. Hazards specific to perimeter and off-site monitoring include encounters with residents and non-project personnel. This is a unique hazard, in that untrained personnel prove to be a risk when performing any type of site work. Unauthorized persons may interfere with the monitoring/sampling effort, jeopardizing the safety of themselves as well as the safety of the field team.

Hazard Prevention

To minimize public involvement in perimeter monitoring/off-site monitoring, the most effective preventative measure is to inform all interested parties. Notifying state and local police, the fire department, and any local/state governmental officials of the projects purpose and scope will allow those authorities to answer questions posed to them by local residents and the media by preparing statements on the projects purpose or by informing the public where to call for further information. This will alleviate the problem of work stoppage due to field personnel answering questions.

3.3.2 Site walk through

General hazards associated with the site walk-through include:

- Exposure to irritant and toxic plants such as poison ivy and sticker bushes may cause allergic reactions to personnel.
- Surfaces covered with debris and heavy vegetation create a tripping hazard.
- Back strain due to carrying equipment.
- Heat stress/cold stress exposure.
- On-site chemical hazards depending on contaminant location and contact or disturbances of contaminated areas.

Hazard Prevention:

- Wear long sleeved clothing and slacks to minimize contact with irritant and toxic plants and to protect against insect bites.
- Be alert and observe terrain while walking to minimize slips and falls.
- Steel-toed boots provide additional support and stability.
- Use proper lifting techniques to prevent back strain.
- Perform a tick check after leaving a vegetated area.
- Implement heat stress management techniques.

3.3.3 Air sampling/monitoring

General hazards frequently encountered during air sampling and monitoring include:

- Electrical hazards as a result of power sources to run sampling pumps.

- Placing sampling pumps in elevated areas or areas where slip/trip and fall hazards exist.
- Hazards associated with ambient environment being sampled.

Hazard Prevention

- Grounded plugs should be used when a power source is needed to reduce the hazard of electric shock.
- Generators or air pumps should be used in dry areas, away from possible ignition sources. Do not stand in water or other liquids when handling equipment. Electrical equipment shall conform with OSHA 1910.303(a), 1910.305(a), (f), (f)(3).
- Ground fault interrupters are used in the absence of properly grounded circuitry or when portable tools must be used in wet areas.
- Extension cords should be protected from damage and maintained in good condition.
- Air pumps should be placed within easy reach using an OSHA approved ladder, elevated platform or by placing the pump on a stake.
- Personnel should be thoroughly familiar with the use, limitations and operating characteristics of the monitoring instruments.

3.3.4 Surface soil sampling

Surface soil sampling will be considered any soil sampling completed by hand using a trowel, split spoon, shovel, auger, or other type of handheld tool. Hazards generally associated with soil sampling include:

- Contact with or inhalation of contaminants, potentially in high concentrations in sampling media.
- Back strain and muscle fatigue due to lifting, shoveling and augering techniques.
- Contact with or inhalation of decontamination solutions.

Hazard Prevention

- To minimize exposure to chemical contaminants, a thorough review of suspected contaminants should be completed.
- Proper lifting (pre-lift weight assessment, use of legs, multiple personnel) techniques will prevent back strain. Use slow easy motions when shoveling, auguring, and digging to decrease muscle strain.
- Material Safety Data Sheets for all decontamination solutions should be included with each Site Health and Safety Plan.
- First aid equipment should be available based on MSDS requirements.

3.3.5 Soil excavations

Hazards encountered during soil excavation include both chemical and physical agents as follows:

- Exposure to airborne contaminants released during intrusive activities.
- Falling during access/egress or while monitoring or dismounting equipment, or stumbling into excavation.
- An overhead hazard can result from material, tools, rock, and/or soil falling into the excavation.
- Congested work area due to many workers in a small area.
- Exposure to contaminants deposited on skin and clothes.

Hazard Prevention

- Monitor for airborne contaminants. Use proper PPE when necessary.
- To prevent overexertion, limit manual lifting and emphasize mechanical means where practical.
- Maintain ample workroom between workers.
- Wear appropriate PPE and follow proper decontamination procedures.

3.4 Universal Hazard Prevention

Hazard preventions to be included in any job task include the following:

- Use engineering controls to prevent airborne dust readings¹ from exceeding levels listed in Table 3.2. Since lead is the primary contaminant in the soil, we assume that engineering controls needed to suppress airborne exposure to lead will suppress airborne exposure to arsenic.

TABLE 3.2: AIRBORNE DUST LEVELS REQUIRING ENGINEERING CONTROLS

Area No. (as defined in RAP)	Area (sq. yd)	Avg. Lead Conc. in Soil (ppm)	Airborne Dust Readings (mg/cubic meter)
1	15,357	1,037	28.930
2	178	5,920	5.068
3	4,115	1,555	19.292
4	107	22,300	1.345
5	1,925	1,005	29.851
6	4,000	868	34.562

¹ In order to determine airborne dust levels requiring engineering controls, the average concentration of lead in soil was converted to percent lead in soil (for example, in Area 4, 22,300 ppm lead in soil is equivalent to 2.23 percent lead in soil). Assuming the percent lead in soil is equivalent to the percent lead in dust generated from the soil, we calculated the total dust readings required to generate 30 ug/cubic meters of airborne lead (OSHA Action Level).

- If airborne dust readings continually exceed the readings listed in Table 3.2, engineering controls or engineering control measures must be reevaluated or altered as directed by the HSO.
- As a further safety precaution, it is recommended that no eating, drinking, and smoking be permitted by anyone in the designated work zone during any work activity.
- Review the contaminants suspected to be on site and perform continuous/discreet air monitoring as required.
- All chains, lines, cables, portable electric hand tools, cords, etc. should be inspected daily for weak spots, frays, etc. Cords will be replaced if there is visible damage to insulating material.
- Hard hats and the entire Level D personal protective equipment should be worn at all times when working on-site. Loose clothing shall be secured.
- Follow appropriate lifting procedures when lifting objects by hand. Inspect grounds around object and route which it will be carried, make sure that clearances between pieces of equipment are sufficient for removal of the object. Inspect object as to safest way to handle it, lift with the knees (not with the back), keeping object close to body.
- A mobile facility at the site will be equipped with showers and eye wash stations.

3.5 Cold Stress

One aspect of fieldwork which must be taken into consideration when planning and conducting in winter time months (e.g. November through February) is the occurrence of adverse and harsh weather conditions. Cold weather can cause physical discomfort, loss of efficiency, and possible personal injury or death, if not careful. The HSO will be responsible for daily monitoring of temperature and wind speed, which may result in cold stress to personnel.

Two major areas of concern in cold weather are **frostbite** and **hypothermia**. Frostbite is the freezing or the local effect of a partial freezing of some part of the body. High surface-area-to-volume ratios such as the fingers, toes, ears, nose, and cheeks are most susceptible to frostbite. Improper rewarming of an affected area can cause damage or death to the tissue. Have the victim drink warm, non-caffeinated or non-alcoholic fluids, elevate the affected area, and get medical attention.

Hypothermia is a severe drop in core body temperature due to overexposure to low temperatures. If the condition is not recognized and treated, death can result. Hypothermia often occurs at moderate temperatures (40° F) during periods of heavy precipitation. Move the victim to a warm place if the symptoms listed below appear.

In addition, on-site personnel should be kept aware of the effects of **cold stress**. With outdoor temperatures expected to be near freezing (30° F) or below, personnel should pace themselves, especially if wearing heavy clothing, and take frequent rest breaks if directly involved with strenuous activities (e.g. lifting, pushing, etc.). Proper intake of non-caffeinated beverages (e.g. water, commercial electrolyte balanced drinks) is encouraged periodically throughout the workday in order to maintain proper fluid level retention and avoiding dehydration.

If one experiences one or more of the following:

pale, cool moist skin
muscle spasms
dizziness or nausea
fainting
red, hot, or drier than normal skin

heavy or no sweating
pain in hands, feet, or abdomen
strong, rapid, pulse rate
confusion

then it is strongly advised that they should immediately sit down and attempt to alert a coworker to notify the site supervisor, who will take appropriate measures.

If a person on site experiences the following disorders, especially during exhaustive, high physical activity periods outdoors in winter months:

uncontrollable shivering
memory lapses
drowsiness
decreasing blood pressure, pulse rate, or respiration

vague or slowed speech
incoherence
changing color of skin

then that person may be exhibiting early warning signs of cold stress. It is imperative to get this person acclimatized to a warmer (preferably indoors, at ambient temperatures) location as soon as possible and rehydrated with non-caffeinated, sweetened beverages.

4.0 PERSONNEL TRAINING REQUIREMENTS

Consistent with OSHA's 29 CFR 1910.120 regulation covering Hazardous Waste Operations and Emergency Response, all site personnel are required to be trained in accordance with the standard. At a minimum, all site personnel are required to be trained to recognize the hazards on site, the provisions of this HASP, and the responsible personnel.

4.1 *Preassignment and Annual Refresher Training*

Prior to arrival on site, each employer will be responsible for certifying that his/her employees meet the requirements of OSHA 29 CFR 1910.120 paragraph (e)(3). The employer should be able to provide a document certifying that each general site worker has received 40 hours of instruction off the site, and 24 hours of training for any workers who are on-site only occasionally for a specific task. If an individual employee has work experience and/or training that is equivalent to that provided in the initial training, an employer may waive the 40-hour training so long as that equivalent experience is documented or certified. All personnel must also receive 8 hours of refresher training annually.

4.2 *Site Supervisor Training*

Consistent with OSHA's 29 CFR 1910.120 Paragraph (e)(8), individuals designated as site supervisors require an additional eight hours of training.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) TO BE USED

This section describes the general requirements of the EPA designated Levels of Protection and the specific levels of protection required for tasks at the site.

5.1 *Levels of Protection*

Personnel must wear protective equipment when response activities involve known or suspected atmospheric contamination vapors, gases, or particulates being generated by site activities, or when direct contact with skin occurs. Full-face respirators protect lungs, one's gastrointestinal tract, and eyes against airborne toxicant(s). If the HSO upgrades the site PPE to include respirators, air-purifying respirators may be used based on the site conditions and potential exposure levels. Site safety representatives are responsible for confirming that the correct air purifying respirator filter cartridges are being used based on airborne exposure levels. Chemical-resistant clothing protects the skin from contact with skin destructive and absorbable chemicals.

The specific levels of protection and necessary components for each have been divided into four categories according to the degrees of protection offered. Listed here are the two categories offering the minimal levels of protection:

Level C: Should be worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is needed.

Level D: Should be worn only as a work uniform and not in any area with respiratory or skin hazards. It provides minimal protection against chemical hazards.

Modifications to these levels are permitted, and routinely employed during site work activities to maximize efficiency. For example, Level C respiratory protection may be required if, in addition to the use of engineering controls, airborne dust levels indicate potential exposure to lead above the OSHA Permissible Exposure Level (PEL) of 50 ug/cubic meter. Likewise, the type of chemical protective ensemble (i.e. material, format) will depend upon contaminants and degrees of contact. It is anticipated that the respiratory and dermal hazards associated with this project will meet the requirements of Level D Personal Protective Equipment.

The Level of Protection selected is based on the following:

- Type, toxicity and measured concentration of the chemical substance in the ambient atmosphere.
- Potential for exposure to substances in air, liquids or other direct contact with material due to work being done.

- Knowledge of chemicals its physical and chemical characteristics on site along with exposure routes.

In situations where the type of chemical, concentration, and possibilities of contact are not known, the appropriate level of protection must be selected based on professional experience and judgment until the hazards can be better identified.

5.2 Level C Personal Protective Equipment

- Air-purifying respirator, full-face, organic vapor cartridge (MSHA/NIOSH approved)
- Chemical-resistant clothing (coveralls-hooded, one or two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls)
- Coveralls
- Long cotton underwear
- Gloves (outer), Neoprene
- Gloves (inner), Latex
- Boot covers (outer), chemical-resistant (disposable)
- Hard hat (face shield)

5.3 Level D Modified Personal Protective Equipment

Currently, a modified² Level D is the recommended level of protection for this project during site inspections and excavation.

- Tyvek suits
- Gloves (outer), cotton
- Gloves (inner), Latex
- Boots (leather, steel toe and shank)
- Safety glasses
- Hard hat
- Safety vests for day and night use

5.4 Reassessment of Protection Program

A level of protection provided by PPE selection will be upgraded or downgraded based upon changing site conditions or findings of investigations. When a significant change occurs, hazards will be reassessed. Indicators of the need for reassessment are:

- Change in job tasks during a work phase
- Change of season/weather
- When temperature extremes or individual medical considerations limit PPE effectiveness
- Contaminants are encountered
- Change in work scope, which affects the degree of contact with contaminants

²Level D PPE will be modified to include Tyvek suits and latex inner gloves for additional dermal protection.

5.5 Standard Operating Procedure (SOP) for Respiratory Protection Devices

The following subsections define standard operating procedures for air purifying respirators and self-contained breathing apparatus.

Cleaning and Disinfecting Air Purifying Respirators (APR):

APRs in routine use should be cleaned and disinfected at least daily. Where respirators are used only occasionally or when they are in storage, the cleaning interval is weekly or monthly, as appropriate.

Daily Cleaning Procedure:

The steps to be followed for cleaning and disinfecting daily are as follows:

- **Respirator Disassembly:** Respirators are taken to a clean location where the filters, cartridges or canisters are removed, cleaned and discarded to prevent accidental reuse. For thorough cleaning, the inhalation and exhalation valves, speaking diaphragm, and any hoses are to be removed.
- **Cleaning:** In most instances, the cleaning and disinfecting solution provided by the manufacturer is used, dissolved in warm water in an appropriate tub. Using gloves, the respirator is placed in a bucket and swirled for a few moments in a solution of Alconox and warm water. A soft brush may be used to facilitate cleaning.
- **Rinsing:** Cleaned and disinfected respirators are rinsed thoroughly in distilled water to remove all traces of detergent and disinfectant. This is very important for preventing dermatitis. After this step, they are rinsed again via a hand held spray/squeeze bottle containing a solution of distilled water and muriatic acid.
- **Drying:** The respirators may be allowed to dry in room air on a clean surface. They may also be hung upside down like drying clothes, but care must be taken not to damage or distort the facepieces.
- **Reassembly and Inspection:** The clean, dry respirator facepieces should be reassembled and inspected in an area separate from the disassembly area to avoid contamination. Special emphasis should be given to inspecting the respirators for detergent or soap residue left by inadequate rinsing. This appears most often under the seat of the exhalation valve, and can cause valve leakage or sticking.

APR Inspection and Checkout:

1. Visually inspect entire unit for obvious damages, defects, or deteriorated rubber.
2. Make sure that the facepiece harness is not damaged. The serrated portion of the harness can fragment, which will prevent proper face seal adjustment.

3. Inspect lens for damage and proper seal in facepiece.
4. Exhalation Valve - pull off plastic cover and check valve for debris or for tears in the neoprene valve (which could cause leakage).
5. Inhalation Valves (two) - screw off cartridges/canisters and visually inspect neoprene valves for tears. Make sure that the inhalation valves and cartridge receptacle gaskets are in place.
6. Make sure a protective cover lens is attached to the lens.
7. Make sure the speaking diaphragm retainer ring is hand tight.
8. Make sure that you have the correct cartridge.
9. Don and perform negative - positive pressure fit test.

Storage of Air Purifying Respirators:

OSHA requires that respirators be stored to protect against:

<i>Dust</i>	<i>Excessive moisture</i>
<i>Sunlight</i>	<i>Damaging chemicals</i>
<i>Heat</i>	<i>Mechanical damage</i>
<i>Extreme cold</i>	

Storage of respirators should be in a clean area which minimizes the chance for contamination or unsanitary conditions.

5.6 SOP for Personal Protective Equipment

Proper inspection of PPE features several sequences of inspection, based on specific articles of PPE and its frequency of use. Different levels of inspection are as follows:

- Inspection and operational testing of equipment received.
- Inspection of equipment as it is issued to workers.
- Inspection or training after use, and prior to maintenance.
- Periodic inspection of stored equipment.
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

The primary inspection of PPE in use for activities on site will occur prior to immediate use and will be conducted by the user. This ensures that the user has checked out the specific device or article and that the user is familiar with its use.

6.0 MEDICAL SURVEILLANCE REQUIREMENTS

Medical monitoring programs are designed to track the physical condition of employees on a regular basis as well as survey preemployment or baseline conditions prior to potential exposures. The medical surveillance program is a part of each employer's Health and Safety program.

6.1 *Baseline or Preassignment Monitoring*

Prior to being assigned to a hazardous or a potentially hazardous activity, employees must receive a preassignment or baseline physical. The contents of the physical is to be determined by the employers medical consultant. As suggested by NIOSH/ OSHA/ USCG/EPA's Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities, the minimum medical monitoring requirements for work at the Site is as follows:

- Complete medical and work histories
- Physical examination
- Pulmonary function tests (FVC and FEV1)
- Chest X-ray (every 2 years)
- Eye examination and visual acuity
- Audiometry
- Urinalysis
- Blood chemistry and heavy metals toxicology

The preassignment physical should categorize employees as fit-for-duty and able to wear respiratory protection.

6.2 *Periodic Monitoring*

In addition to a baseline physical, all employees require a periodic physical within the last 12 months unless the advising physician believes a shorter interval is appropriate. The employer's medical consultant should prescribe an adequate medical which fulfills OSHA 29 CFR 1910.120 requirements. The preassignment medical outlined above may be applicable.

All personnel working in contaminated or potentially contaminated areas at the Site will verify currency (within 12 months) with respect to medical monitoring. This is done by indicating the date of the last physical on the safety plan agreement form.

6.3 *Site Specific Medical Monitoring*

Medical monitoring is the responsibility of each Contractor/subcontractor. Medical monitoring should be based on the Occupational Safety and Health Administration (OSHA) exposure to inorganic lead and arsenic in soil.

6.4 *Exposure/Injury/Medical Support*

As a follow-up to an injury or possible exposure above established exposure limits, employees are entitled to seek medical attention and physical testing. Depending upon the type of exposure, it is critical to perform follow-up testing within 24-48 hours. It will be up to the employer's medical consultant to advise the type of test required to accurately monitor for exposure effects.

6.5 *Exit Physical*

At termination of employment or reassignment to an activity or location which does not represent a risk of exposure to hazardous substances, an employee shall require an exit physical. If his/her last physical was within the last 6 months, the advising medical consultant has the right to determine adequacy and necessity of exit exam.

7.0 FREQUENCY AND TYPES OF AIR MONITORING/SAMPLING

This section explains the general concepts of an air-monitoring program and specifies the surveillance activities that will take place during project completion at the site.

The purpose of air monitoring is to identify and quantify airborne contaminants in order to verify and determine the level of worker protection needed. Initial screening for identification is often qualitative; i.e., the contaminant, or the class to which it belongs, is demonstrated to be present but the determination of its concentration (quantification) must wait subsequent testing.

Two principal approaches available for identifying and/or quantifying airborne contaminants will be used on this project:

- The on-site use of direct reading instruments (particulate meter).
- Laboratory analysis of air samples obtained by collection media (i.e., filter, sorbent).

7.1 Direct-Reading Monitoring Instruments

Unlike air sampling devices, which are used to collect samples for subsequent analysis in a laboratory, direct-reading instruments provide information at the time of sampling, enabling rapid decision-making. Data obtained from the real-time monitors are used to assure proper selection of personnel protection equipment, engineering controls, and work practices. Overall, the instruments provide the user the capability to determine if site personnel are being exposed to concentrations which exceed exposure limits or action levels for specific hazardous materials. Periodic monitoring of conditions is critical, especially if exposures may have increased since initial monitoring or if new site activities have commenced.

Table 7.1, excerpted from Occupational Safety and Health Guidelines for Hazardous Waste Site Activities, provides an overview of available direct reading instrumentation and specific operating parameters.

TABLE 7.1: REAL TIME AEROSOL MONITOR

Instrument: Real Time Aerosol Monitor

Hazard Monitored: Particulates

Application: Measures total particulates in air.

Detection Method: Uses an internal light source. The particulates diffract the light beam and the amount of diffraction is converted into concentration (mg/cubic meter).

General Care/Maintenance: Recharge batteries. Replace desiccant when necessary.

Typical Operating Time: 8-12 hours.

After site mitigation activities have commenced, the selective monitoring of high-risk workers, i.e., those who are closest to the source of contaminant generation, is essential.

Personal monitoring samples should be collected in the breathing zone and, if workers are wearing respiratory protective equipment, outside the facepiece. Those employees working closest with the source have the highest likelihood of being exposed to concentrations which exceed established exposure limits. Representative sampling approaches emphasizing worst case conditions, those employees with the greatest risk of exposure, is acceptable. However, the sampling strategy may change if the operation or tasks change on site or if exposures potentially increase.

8.0 SITE CONTROL MEASURES

The following section defines measures and procedures for maintaining site control. Site control is an essential component in the implementation of the site health and safety program.

8.1 *Buddy System*

When conditions present a risk to personnel, the implementation of a buddy system is mandatory. A buddy system requires at least two people who work as a team; each looking out for each other.

8.2 *Site Communications Plan*

Successful communications between field teams and contact with personnel in the support zone is essential. The following communications systems will be available during activities at the Site.

- Hand Signals
- Two-way radio

8.3 *Nearest Medical Assistance*

The nearest medical facility that can provide emergency care for individuals who may experience an injury or exposure on site is located 1.4 miles north of the site just off North Broad Street:

Albert Einstein Medical Center
5501 Old York Road
Philadelphia, PA
215 456-6200

Site personnel should be familiarized with the route to the hospital (see attached map).

The following individuals on site have current certification in CPR and/or first aid:
Francis P. West, Urban Engineers, Inc.

8.4 *Signs*

Warning posters will be set up at each intersection and at side streets near the work area. Posters will be at least 20 inches by 14 inches and state the date and place of the lead removal work project. In addition, posters must include the phrase "Caution Lead Hazard, Keep Out" in bold lettering at least 2 inches high.

9.0 DECONTAMINATION PLAN

The following steps detail decontamination steps for Level C and Level D PPE:

Level C Decontamination Steps

- Step 1 Segregated equipment drop
- Step 2 Boot cover and glove wash
- Step 3 Boot cover and glove rinse
- Step 4 Tape removal
- Step 5 Boot cover removal
- Step 6 Outer glove removal
- Step 7 Suit/safety boot wash
- Step 8 Suit/safety boot rinse
- Step 9 Safety boot removal
- Step 10 Splash suit removal
- Step 11 Inner glove wash
- Step 12 Inner glove rinse
- Step 13 Face piece removal
- Step 14 Inner glove removal
- Step 15 Inner clothing removal
- Step 16 Field wash
- Step 17 Redress

Level D Decontamination Steps

- Step 1 Remove outer garments (i.e., coveralls)
 - Step 2 Remove gloves
 - Step 3 Wash hands and face
-

10.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

This section describes contingencies and emergency planning procedures to be implemented at the site. This plan is compatible with local, state, and federal disaster and management plans as appropriate.

10.1 Pre-Emergency Planning

During the site briefings to be held, all employees will be trained in and reminded of provisions of the emergency response plan, communications systems, and evacuation routes (if applicable). The plan will be reviewed and revised as necessary, on a regular basis by the HSO. This will ensure that the plan is adequate and consistent with prevailing site conditions.

10.2 Personnel Roles and Lines of Authority

The Site Supervisor has primary responsibility for responding to and correcting emergency situations. Possible actions may involve evacuation of personnel from the site area. The Site Supervisor is additionally responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow-up reports completed. The HSO may be called upon to act on the behalf of the Site Supervisor, and will direct responses to any medical emergency.

10.3 Emergency Recognition/Prevention

Table 3.1 provides a listing of chemical and physical hazards on site. Personnel will be familiar with techniques of hazard recognition from pre-assignment training and site specific briefings. The HSO is responsible for ensuring that prevention devices or equipment are available to personnel.

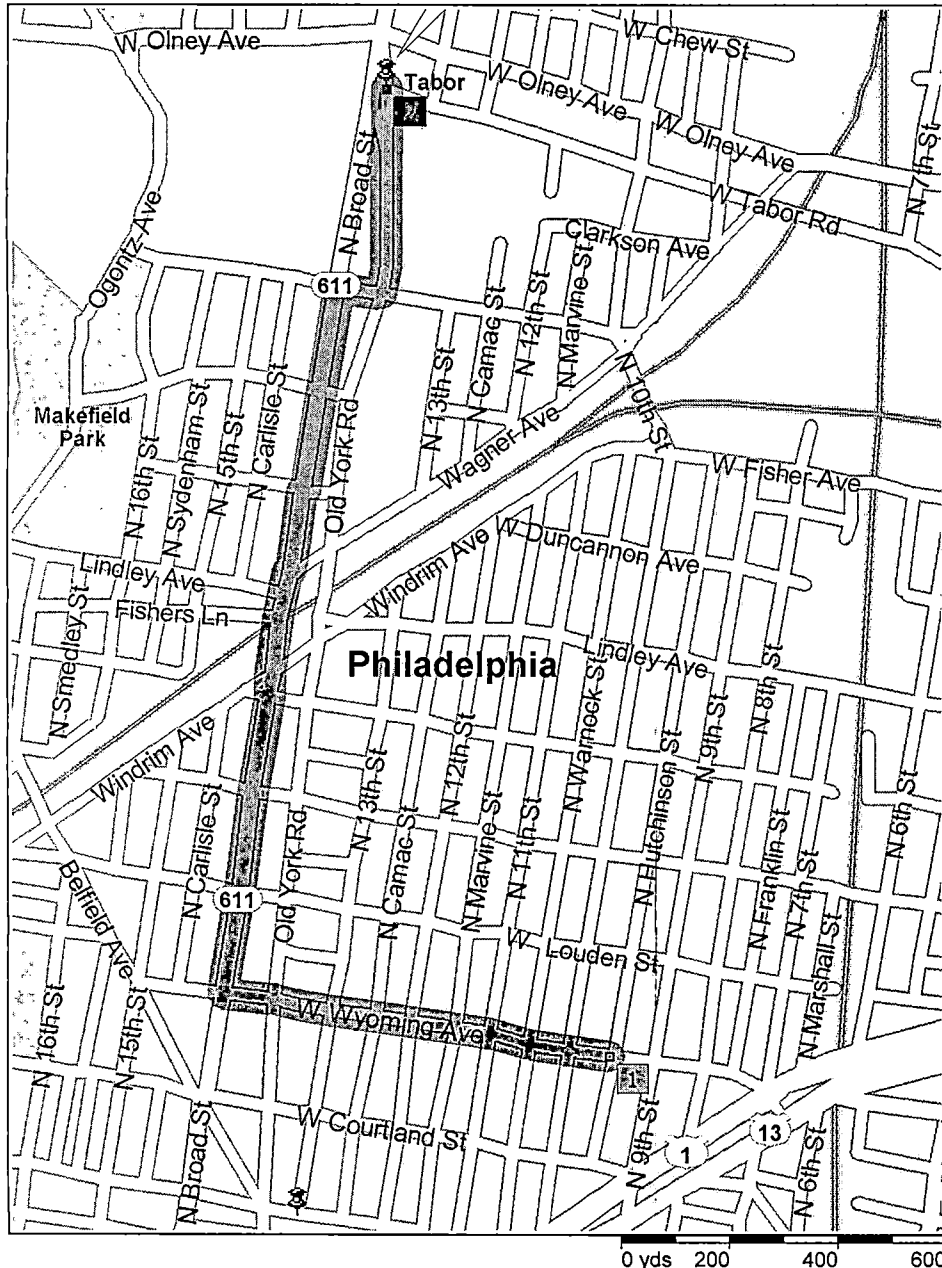
10.4 Emergency Contact/Notification System

The following list provides names and telephone numbers for emergency contact personnel. In the event of a medical emergency, personnel will take direction from the HSO and notify the appropriate emergency organization. In the event of a fire or spill, the site supervisor will notify the appropriate local, state, and federal agencies.

<i>Contact</i>	<i>Telephone</i>
-----	-----
<i>Ambulance</i>	<i>Local 911</i>
<i>Police</i>	<i>Local 911</i>
<i>Fire</i>	<i>Local 911</i>

917 W Wyoming Ave, Philadelphia, PA 19140 to 5501 Old York Rd, Philadelphia, PA 19141

1.4 miles; 5 minutes



- | | | |
|---------|--------|---|
| 9:00 AM | 0.0 mi | 1 Depart 917 W Wyoming Ave, Philadelphia, PA 19140 on W Wyoming Ave (West) for 0.4 mi |
| 9:02 AM | 0.4 mi | Turn RIGHT (North) onto SR-611 [N Broad St] for 0.7 mi |
| 9:03 AM | 1.2 mi | Turn RIGHT (East) onto W Somerville Ave for 76 yds |
| 9:04 AM | 1.2 mi | Turn LEFT (North) onto Old York Rd for 0.2 mi |
| 9:05 AM | 1.4 mi | 2 Arrive 5501 Old York Rd, Philadelphia, PA 19141 |

APPENDIX C

SUMMARY OF RESPONSIBILITIES FOR LOGAN CLEANUP

SUMMARY OF RESPONSIBILITIES FOR LOGAN REMEDIATION

	City	Contractor
Site Security		
Provide and place Jersey barriers	■	
Provide temporary construction fencing		■
Provide police patrols	■	
Provide security during working hours		■
Mobilization		
Provide trailer unit with showers		■
Provide traffic flow pattern, communication system, and warning posters		■
Call Pennsylvania One Call for utility mark up		■
Dust suppression		
Provide water at no charge to contractor	■	
Provide appropriate dust control measures and water sprays		■
Work zones and decontamination		
Delineate areas needing soil removed (in the field)	■	
Provide appropriate control and decontamination areas		■
Excavation and Disposal		
Determine waste characteristics, if required by disposal site		■
Prepare health and safety plan for contractor workers		■
Prepare and submit application for NPDES permit	■	
Implement erosion control plan		■
Observe contractor's work and prepare daily log/bi-weekly report	■	
Establish system to allow verification of 1 foot excavation/backfill to original elevation		■
Excavate designated cells and dispose at approved site		■
Dispose of decon materials		■
Remove separated demolition rubble		■
Maintain inventory control system		■
Prepare manifests		■
Sign manifests	■	
Backfill excavated areas, amend soil, seed, and water		■
Soil Removal Action Report		
Progress reports (bi-weekly)	■	■
Final Report	■	■

Note: City work will be conducted by City workers and City-hired consultant

APPENDIX D

AREAS TO BE REMEDIATED



LOGAN LEAD SITE PHILADELPHIA PHILADELPHIA, PENNSYLVANIA

NO.	DATE	APPR.	REVISION

U.S. ENVIRONMENTAL PROTECTION AGENCY
SITE ASSESSMENT TECHNICAL ASSISTANCE - REGION III
WESTON
FEDERAL PROGRAMS DIVISION
DELRAN NEW JERSEY

CHECKED	DATE
DIS. ENG.	
SITE LEAD	
OSC	



SAMPLE LOCATION MAP	
DWG.#	SHEET#
1	1
DRAWN BY	DATE
D. M. HOUCK	DECEMBER 7, 1999
SCALE	PCS#
SEE BAR SCALE	5700