Special Metals Corporation

THE CITY OF DUNKIRK, CHAUTAUQUA COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 907031

Prepared for:
Special Metals Corporation
100 Willowbrook Avenue, Dunkirk, New York

Prepared by:
GZA GeoEnvironmental of New York

APRIL 2014

REVISIONS				
No.	By	Date	Approved	Remarks

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program for the Area of Concern at Special Metals Corporation (SMC), 100 Willowbrook Avenue, Dunkirk, New York (hereinafter referred to as the "AOC") under the New York State (NYS) Voluntary Cleanup Program administered by New York State Department of Environmental Conservation (NYSDEC). The AOC was remediated in accordance with Order on Consent Index # B9-0737-07-02, Site # 907031, which was effective on February 21, 2007. The Order was amended to increase the size of the AOC by amendment effective May 21, 2007, and also amended (Amendment No. 2) to reflect the Department-approved Remedial Program that is described in Section 13 of the Department-approved Final Engineering Report (FER).

1.1.1 General

SMC entered into an Order on Consent with the NYSDEC to remediate the AOC, an approximate 2 acre portion of the 8 acre property located in the City of Dunkirk, Chautauqua County, New York. This Order on Consent required SMC, to investigate and remediate contaminated media in the AOC. A map showing the SMC facility location and boundaries of this 2-acre AOC subject to this plan is provided in Figure 1. The boundaries of the AOC are more fully described in the metes and bounds site description that accompanies the Environmental Easement, and are attached as Appendix A to this plan.

After completion of the remedial work described in the Interim Remedial Measures (IRM) Work Plan, dated February 2007; IRM Work Plan Addendum #1, dated April 2007; and IRM Work Plan Addendum #2, dated June 2007 and documented in the "Interim Remedial Measures, Remedial Investigation, Feasibility Study Report, Special Metals Corporation, 100 Willowbrook Avenue, Dunkirk, New York, NYSDEC Site #907031" (IRM/RI/FS), dated April 2014, some contamination was left in the subsurface within the AOC, which is hereafter referred to as 'remaining contamination'. This Site Management Plan (SMP) was prepared to manage remaining contamination within the AOC in perpetuity or until extinguishment of the Environmental Easement in accordance with ECL Article 71, Title 36. Remedial action work on the AOC began in April 2007 and was completed in August 2007. Reports associated with the AOC can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by GZA GeoEnvironmental of New York, on behalf of SMC in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by

NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) for the AOC.

1.1.2 Purpose

The AOC contains remaining contamination after completion of the remedial action. Engineering Controls have been incorporated into the AOC remedy to provide proper management of remaining contamination in the future to ensure protection of public health and the environment. An Environmental Easement was granted to the NYSDEC, and recorded with the Chautauqua County Clerk, that provides an enforceable legal instrument to ensure compliance with this SMP and ECs and ICs placed on the AOC. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for ECs and ICs. This SMP specifies the methods necessary to ensure compliance with ECs and ICs required to address the contamination that remains within the AOC. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of procedures required to manage remaining contamination within the AOC after completion of the Remedial Action, including: (1) implementation and management of Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs, which includes a reporting plan for the submittal of data, information, recommendations, and certifications to NYSDEC; (2) a Monitoring Plan for implementation of Site Monitoring; and (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of Environmental Conservation Law and the environmental easement;
- Failure to comply with this SMP is also a violation of, 6NYCRR Part 375 and the Order on Consent, Index #B9-0737-07-02, Site #907031 for the AOC, and thereby subject to applicable penalties.

At the time the SMP was prepared, the SMP and documents related to Remedial Investigation and Interim Remedial Measures for the AOC were maintained at the NYSDEC office in Buffalo, New York.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC Regional Engineer. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The SMC facility is located in the City of Dunkirk, County of Chautauqua, New York and is identified as Tax Map parcel 96.10-1-2 and being owned by the Chautauqua County Industrial Development Agency on the City of Dunkirk & County of Chautauqua Tax Map. The SMC facility is an approximately 8-acre area bounded by the former Al-Tech Specialty Steel Site to the north, east and west and Willowbrook Avenue to the south beyond which are residential homes (see Figure 1). The boundaries of the AOC subject to this SMP are more fully described in Appendix A – Metes and Bounds.

1.2.2 Site History

The tracts of land which make up the SMC facility and the former Al-Tech site were formerly owned and operated by a single owner, Allegheny Ludlum Industries, Inc., which utilized the properties for the manufacturing of steel products. Construction on the SMC facility was underway in 1956.

In 1976, Allegheny Ludlum Industries, Inc. conveyed the Al-Tech Site to Al-Tech Specialty Steel Corporation and retained title to the Forge facility (SMC facility). SMC obtained title to the Forge facility in 1983 by deed from Allegheny International Inc. (formerly known as Allegheny Ludlum Steel Corporation and Allegheny Ludlum Industries, Inc. [1].).

SMC filed a Chapter 11 bankruptcy petition on March 27, 2002 and emerged from bankruptcy on November 26, 2003. On May 25, 2006, Precision Castparts Corporation completed its acquisition of SMC.

[1] Copies of the 1979 deed (and the 1978 corrective deed) for the Al-Tech site and the 1983 deed for the SMC facility are included in Appendix L of the Revised IRM/RI/FS. Available documentation indicates that SMC assumed operation of the Forge facility on January 1, 1979 from what is referred to as Allegheny's Ajax Forging and Casting Division. The current SMC was incorporated in 1983 and merged with the existing SMC.

In August 2006, an expansion of the SMC facility had begun on the western portion of the existing building for the installation of a new rotary forge. This expansion included construction of a new building addition over an area of about 72-feet (north-south) by 87-feet to the west (see Figure 1).

During the building expansion, impacted soil was encountered during the installation of three of the four utility trench excavations that were completed. A summary of these three excavations is presented below.

An electrical conduit trench was excavated along the western portion of the property from an electrical pole to the building expansion area (the "Electric Trench", see Figure 1). During the Electric Trench excavation (August 30, 2006), odors were detected within a portion of the trench. Results of the soil sampling indicated that PCBs were present at a concentration of 140 parts per million (ppm) and 31 ppm in samples identified as Electric Trench 1 and Electric Trench 2, respectively. Other compounds were also detected, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. The detected levels of VOCs and SVOCs are relatively minor, but the PCB concentration of 140 ppm is above the 50 ppm threshold for the material, which classified the excavated soil as a hazardous waste in New York (6 NYCRR § 371.4(e)).

A trench excavation was dug on December 12, 2006 for a communication utility line along the western side of the existing building from the building expansion south to the Guard House (see Figure 1). Olfactory evidence of impacted soil was noted and a composite sample (designated Trench Stockpile) was collected from the soil stockpile and tested for PCBs. Results of the sampling indicated that PCBs were present at a concentration of 370 ppm. Re-analysis of a split sample by another laboratory indicated that PCBs were present at a concentration of 1,200 ppm.

A trench excavation was dug on December 13, 2006 for electric and communication utility lines along the southwestern portion of the property (see southern trench on Figure 1). During the course of this excavation, olfactory evidence of impacted soil was noted in a 2-foot wide by 3-foot long by 1-foot deep (6 cubic feet) area of the trench.

1.2.3 Geologic Conditions

The topography in the vicinity of the SMC facility, which is located on the Lake Erie Plain, is generally flat and slightly sloping downward to the north towards Lake Erie. Chautauqua County mainly consists of glacially derived soils which overlie Upper Devonian (360 to 380 million years ago) bedrock that is predominantly marine shales, siltstones and conglomerates. The upper-most bedrock formation in the vicinity of the SMC facility is the Canadaway Formation, which contains the Northeast Shale Member, Shumla Siltstone Member, Westfield Shale Member, Laona Siltstone Member, Gowanda Member, South Wales Member and Dunkirk Shale Member. In and around the City of Dunkirk, the Dunkirk Shale Member is represented by about 40 feet of massive medium gray to grayish-black shale.

Native overburden soil consists primarily of fine grained silts and clays, with a relatively small percentage of sand and gravel (less than 20%) overlying the bedrock in the areas investigated in the AOC. At the top of rock, the clay and silt materials contain a higher percentage of shale fragments (20% to 40%). The overburden soil thickness ranges from approximately 15 to 17 feet thick.

During the AOC IRM and AOC RI, fill material was encountered at most of the excavation and investigation locations in the form of topsoil (grassy areas), sand, gravel, silt and clay or crushed stone (parking lot and roadways). Fill typically appeared to be less than 3 feet thick, with the exception of the following locations.

- MW-2 (located outside the AOC) where fill extended to a depth of approximately 11 feet bgs in the vicinity of the building foundation in the northwestern portion of the property; and
- The deep portion of AOC Excavation 1, which was completed to approximately 10 feet bgs when a polyethylene pipe was encountered in the center of the east-west orientated excavation.

Additionally, during the completion of AOC IRM Excavations 3, 4 and 6, a horizontal black and/or purple layer was observed throughout these excavations. This layer was present at a depth of 1 to 3 feet beneath the existing asphalt parking lot and road way in the southwestern portion of the SMC facility within the AOC. Due to the size of the area (about 1 acre) where the horizontal "purple" layer was encountered, its thickness (about 1 to 3 inches) and its location beneath the existing asphalt parking lot and road way, it is our opinion that this layer is the result of historical operations (e.g., fill material placement or dust suppression activities prior to the area being paved) before SMC ownership of the property.

Bedrock underlying the SMC facility is shale from the Canadaway Group. No bedrock investigations were done as part of the investigation. Soil borings for monitoring well installations were advanced to auger refusal, assumed to be top of bedrock. The excavation done as part of the building expansion in 2006 was dug to the top of bedrock, approximately 17 to 18 feet bgs. The bedrock exposed within the building excavation outside the AOC was a grayish black shale, consistent with the geology in the area. A geologic section is shown in Figure 2.

Groundwater was not encountered in the overburden soil during the test borings for monitoring well installation, but rather at the overburden soil and bedrock interface. Wet weathered to severely weathered shale was encountered at the eight test borings completed. Water levels measured as part of the RI, ranged in depth from 6.4 feet (MW-2 outside the AOC) to 15.5 feet bgs (MW-6 within the AOC) and indicate a southerly groundwater flow direction. A groundwater flow map is shown in Figure 3.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination within the AOC. The results of the RI are described in detail in the following reports:

"Interim Remedial Measures, Remedial Investigation & Feasibility Study Report, 100 Willowbrook Avenue, Dunkirk, New York, NYSDEC Site #907031", dated April 2014.

SMC implemented an IRM for the AOC prior to the start of the AOC RI field activities. See Section 1.4 for further details.

Below is a summary of site conditions when the AOC RI was performed in late 2007 and early 2008.

1.3.1 Soil

A total of 15 locations were explored/sampled as part of the AOC RI. Eight (8) test borings were completed and converted to 2-inch diameter groundwater monitoring wells (identified as MW-1 through MW-8; MW-1, 2 and 3 are situated outside the AOC). Seven (7) shallow test borings were completed to a 4 to 6 foot depth at the southwest portion of the property (within Excavation 6, see Figure 4). Select soil samples were collected from the test borings and soil probes for analytical testing which included VOCs, SVOC, PCBs and metals.

During the AOC IRM and AOC RI, fill material was encountered at most of the excavation and investigation locations in the form of topsoil (grassy areas), sand, gravel, silt and clay or crushed stone (parking lot and roadways). Fill typically appeared to be less than 3 feet thick, with the exception of the following locations.

- MW-2 (located outside the AOC) where fill extended to a depth of approximately 11 feet bgs in the vicinity of the building foundation in the northwestern portion of the property; and
- The deep portion of AOC IRM Excavation 1, which was completed to approximately 10 feet bgs when a polyethylene pipe was encountered in the center of the east-west orientated excavation.

Additionally, during the completion of Excavations 3, 4 and 6, a horizontal black and/or purple layer was observed throughout these excavations. This layer was present at a depth of 1 to 3 feet beneath the existing asphalt parking lot and road way in the southwestern portion of the SMC facility within the AOC. Due to the size of the area (about 1 acre) where the horizontal "purple" layer was encountered, its thickness (about 1 to 3 inches) and its location beneath the existing asphalt parking lot and road way, it is our opinion that this layer is the result of historical operations (e.g., fill material placement or

dust suppression activities prior to the area being paved) before SMC ownership of the property. SMC is not aware of filling operations or a release which could have caused this.

No specific source of contamination was identified; however, several areas involving PCB contaminated fill material were identified.

Volatile Organic Compounds

A total of 22 samples were tested for volatile organic compounds (VOCs) as part of the AOC RI work. VOCs were detected above their respective method detection limits (MDL) in the 22 samples collected. However these detected VOCs do not exceed their respective Part 375 Industrial Soil Clean-up Objectives (ISCOs).

Semi-Volatile Organic Compounds

A total of 23 samples were tested for semi-volatile organic compounds (SVOCs) as part of the RI activities. SVOCs were detected above their respective MDL in nine of the 23 samples. One sample, MW-2 (0-2) located outside the AOC, was identified with four SVOCs; benzo(a)anthracene (15 ppm), benzo(b)fluoranthene (15 ppm), benzo(a)pyrene (12 ppm) and dibenzo(a,h)anthracene (1.6 ppm) slightly exceeding their respective ISCOs. Soil from this location (see Figure 4) is fill material likely from historic backfill placed during construction of the western wall foundation of the SMC building.

Polychlorinated Biphenyls

A total of 25 samples were tested for PCBs as part of the RI. Of these 25 samples, eleven (11) were identified as non-detect for PCBs. The remaining 14 samples (collected from soil probes and test boring samples) were identified with PCB detections of Aroclor 1242 and/or Aroclor 1248 exceeding their respective MDLs. Of these samples, three (3) were identified with total PCB concentrations exceeding the ISCO value of 25 ppm. Specifically, soil samples from SPR-2, SPR-6 and SPR-7 (see Figure 4) were identified at total PCB concentrations of 1,200 ppm, 170 ppm and 2,600 ppm, respectively. These soil locations were excavated and disposed of as part of the AOC IRM Excavation 6.

The highest concentration of PCBs detected in the soil samples collected for the monitoring well installations was around 0.9 ppm (MW-3 2 to 4 feet bgs), which is below the ISCO value of 25 ppm and did not require remedial action.

Inorganics

A total of 19 samples were tested for inorganics. Several metals were detected above their respective MDLs; however, only two samples were identified with metal concentrations exceeding their respective ISCOs. Specifically, soil samples identified as MW-1 (0-2') and MW-6 (0-2') were identified with arsenic concentrations of 20.6 ppm and 19.5 ppm, respectively, that exceed the ISCO value of 16 ppm.

1.3.2 On-Site and Off-Site Groundwater

Analytical testing results of eleven groundwater samples collected from the eight monitoring wells installed as part of the AOC RI activities indicated the presence of VOCs, SVOCs and metals. PCBs were not identified in the eight wells sampled.

Volatile Organic Compounds

Of the eight wells sampled, one well, MW-8, was identified as non-detect for VOCs. A total of twelve (12) VOCs were identified above their respective MDLs in the other seven wells sampled. Five compounds were identified exceeding their respecting NYSDEC Class GA[2] groundwater criteria. These VOC exceedances include the following.

- Cis-1,2–dichloroethene was identified exceeding its Class GA criteria of 5 parts per billion (ppb) in monitoring wells MW-1, -3 and -5. The concentration is decreasing in the downgradient direction which suggests the contaminant likely originates from an upgradient source (MW-1 is located outside the AOC on the northern SMC property line with the former Al Tech site and has the highest concentration).
- Trichloroethene was identified exceeding the Class GA criteria of 5 ppb in monitoring well MW-1 (outside the AOC) with a concentration of 92 ppb. Its concentration decreased to less than 1 ppb at MW-3 (outside the AOC) and it was not detected at the downgradient monitoring wells which suggests the contaminant likely originates at an off-site source.
- Benzene was identified exceeding its Class GA criteria of 1 ppb in monitoring well MW-5 with a concentration of 5.1 ppb.
- Toluene was identified exceeding its Class GA criteria of 5 ppb in monitoring well MW-5 with a concentration of 8.2 ppb.
- Total xylene was identified exceeding its Class GA criteria of 5 ppb in monitoring well MW-5 with a concentration of 23 ppb.

Generally, the chlorinated VOCs identified appear to be originating from a potential upgradient source, as the concentrations are highest at MW-1 (outside the AOC) which is located in the northwestern most portion of the SMC facility property. Petroleum related compounds were identified in well MW-5 which could be associated with historic on-site activities. The petroleum related compounds were not detected in the groundwater sample collected from downgradient monitoring wells MW-6 and MW-7, suggesting that these compounds are not migrating and natural attenuation may be occurring. Additionally, due to the low concentrations (below Class GA criteria) of VOCs observed in the downgradient wells, VOCs are not considered a concern to potential off-site receptors, nor are they considered to be a contaminant of concern in the groundwater at the SMC AOC.

[2] Division of Water, Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, dated June 1998, amended April 2000.

Semi-Volatile Organic Compounds

Of the eight wells sampled, no SVOCs were detected above MDL in monitoring wells MW-1, -3, -4 and -6 (MW-1 and MW-3 are outside the AOC). A total of seven (7) SVOCs were identified above their respective MDL in the other four wells sampled. None of the SVOCs identified above MDL exceeded their respective NYSDEC Class GA groundwater criteria.

Polychlorinated Biphenyls

PCBs were not detected above MDL in the eight (8) groundwater samples collected.

Inorganics

A total of eight (8) metals were identified above their respective MDLs in the eight groundwater samples tested. Of these detected metals, five were identified exceeding their respecting NYSDEC Class GA groundwater criteria and include: barium, iron, magnesium, manganese and sodium. However, these exceedances may be attributed to turbidity of the groundwater samples as well as to natural conditions for the area.

1.4 SUMMARY OF REMEDIAL ACTIONS

The AOC was remediated in accordance with the NYSDEC-approved Interim Remedial Measure Work Plan dated February 2007; IRM Work Plan Addendum, dated April 6, 2007 and IRM Work Plan Addendum #2, dated June 18, 2007. Special Metals Corporation implemented an IRM at the AOC prior to the start of the RI field activities.

The following is a summary of the Remedial Actions performed within the AOC:

1. The IRM was completed in five areas (Excavation #1 through #5), previously identified in a Site Wide Investigation[3], with PCB contamination that was generally located in the southwestern portion of the Site. A sixth area (Excavation #6) was identified during RI activities that required remediation (Figure 5) presents the six IRM excavation areas that were completed).

   The PCB contamination appeared to be in the subsurface unsaturated fill material zone at depths ranging from 0.3 to 10 feet bgs. Excavation 1 was the only excavation that extended to the depth of 10 feet bgs. This was due

[3] A Site Wide Investigation that included areas outside the AOC was implemented for the benefit of SMC. The Site Wide Investigation Work Plan dated March 9, 2007 was not formally submitted to or approved by the NYSDEC. No formal site wide investigation report was generated. Tables and figures from the site wide investigation were submitted to NYSDEC with the IRM Work Plan Addendum dated April 6, 2007.

to impacted fill material being encountered in the vicinity of a pipeline corridor on Special Metals Corporation property. This pipeline corridor ran from Willowbrook Pond onto the Special Metals Corporation property and along the south side of the building. The pipes within the corridor were installed prior to SMC taking ownership of the facility from Allegheny Ludlum Steel Corporation. The other five AOC excavations (Excavation 2 through Excavation 6) completed had PCB contaminated soils located within the fill material at depths ranging from about 0.3 to 4 feet bgs.

2. Construction and maintenance of a cover system consisting of either asphalt and/or topsoil to prevent human exposure to remaining contaminated soil/fill remaining within the AOC.

3. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to contamination remaining in the AOC shown on attached Figure 1.

4. Development and implementation of a Site Management Plan for long term management of remaining contamination within the AOC as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

Remedial activities were completed at the AOC in August 2007.

1.4.1 Removal of Contaminated Materials from the Site

The AOC IRM excavation work was done between April 9, 2007 and August 7, 2007. The AOC IRM involved the excavation and disposal of accessible soil impacted with PCBs at concentrations greater than 10 ppm from 6 excavation areas. A total of about 6,700 tons of PCB impacted soil was excavated and disposed of as hazardous waste at the CWM facility located in Model City, New York.

Confirmatory soil samples were used to determine the final extent of the PCB impacted soils requiring excavation for disposal. A PCB concentration guideline of 10 ppm (NYSDEC TAGM 4046 Recommended Soil Cleanup Objective (RSCO)) was used to determine whether the limits of the excavation had been reached. If the result of the confirmatory sample was approximately 10 ppm or less, no additional soil was excavated. If the concentration was greater than 15 ppm, additional soil was excavated and disposed of, and additional field and confirmatory samples were collected. Figure 5 presents the locations of the six AOC IRM excavation areas.

1.4.2 Quality of Backfill Placed in Excavated Areas

The six AOC excavations were backfilled to existing ground surface with clean fill material (e.g., crushed stone) from Buffalo Crushed Stone's Wehrle Drive Pit. SMC

resurfaced the areas excavated with asphalt pavement and/or topsoil cover to prevent human exposure to remaining contaminated soil remaining within the AOC. See Figure 6 for the surface cover restoration within the AOC.

1.4.3 On-Site and Off-Site Treatment Systems

No treatment systems were installed as part of the AOC remedy.

1.4.4 Remaining Contamination

Two locations were identified within the AOC at the SMC facility where PCB contamination was present above the Part 375 ISCO of 25 ppm. The north wall of Excavation 2 (EX-2-NORTH), which abuts the existing Site building and an eastern wall sample from Excavation 6 (EX-6-EAST-3), which abuts the existing guard house. See Figure 7 for the locations of the remaining PCB contamination. Both locations where left in place due to the presence of the existing structures. The remaining detections above 25 ppm were located along the western property boundary, which is considered to be off-site, because the excavations extended to the property line and outside the limits of the AOC subject to the Order. This material is to be managed as part of a remedial action work plan for the adjoining former Altech site.

The PCB contamination appeared to be in the subsurface unsaturated fill material zone at depths ranging from 0.3 to 10 feet bgs. Excavation 1 was the only excavation that extended to the depth of 10 feet bgs. This was due to impacted fill material being encountered in the vicinity of a pipeline corridor on Special Metals Corporation property. This pipeline corridor ran from Willowbrook Pond onto the SMC property and along the south side of the building. The pipe within the corridor was installed prior to SMC taking ownership of the facility from Allegheny Ludlum Steel Corporation. The other five AOC excavations (Excavation 2 through Excavation 6) completed had PCB contaminated soils located within the fill material at depths ranging from about 0.3 to 4 feet bgs.

Figure 7 presents a summary of the PCB analytical results of soil samples collected from the limits of the excavations completed within the AOC that exceed the NYSDEC Part 375 ISCOs after completion of the AOC Interim Remedial Measure.

1.4.5 Engineering and Institutional Controls

Since remaining contamination is present within the AOC, Engineering Controls and Institutional Controls have been implemented to protect public health and the environment for the applicable future use. The AOC has the following Engineering Controls:

1. A cover system consisting of at least 2 feet of soil cover, asphalt pavement and/or concrete building slabs. Approximately 80% of the areas excavated were covered with asphalt pavement and the remaining 20% is soil cover as shown on Figure 6.

2. Except for parking and lawn areas facing Willowbrook Drive, the AOC is situated in an industrial facility that is secured via security fencing around the plant area. Access to the plant via locked gates during off hours and security guard post during operating hours.

A series of Institutional Controls are required to implement, maintain and monitor these Engineering Controls. The Environmental Easement requires compliance with the Institutional Controls, so that:

- Engineering Controls are maintained as specified in this SMP.
- Engineering Controls within the AOC are inspected and certified at a frequency and in a manner defined in this SMP.

In addition, the Environmental Easement places the following restrictions on the property:

- Use of the property from residential and restricted residential purposes;
- Use of groundwater underlying the property is prohibited without treatment rendering it safe for the intended use;
- Future activities within the AOC that would disturb remaining contaminated material must be conducted in accordance with the Excavation Plan included in this SMP;
- The property may be used for commercial or, industrial use, provided that the long-term Engineering and Institutional Controls described in the SMP remain in use.

These EC/ICs are designed to:

- Prevent ingestion/direct contact with contaminated soil;
- Prevent ingestion of groundwater with contaminant levels that exceed drinking water standards; and
- Prevent contact with or inhalation of volatiles from contaminated groundwater.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Remedial activities completed within the AOC were conducted in accordance with the NYSDEC-approved Interim Remedial Measure Work Plan dated February 2007; IRM Work Plan Addendum, dated April 6, 2007 and IRM Work Plan Addendum #2, dated June 18, 2007. The remedial goals included attainment of Industrial Soil Cleanup Objectives (ISCOs) for on-site soils for restricted industrial use. A summary of the remedial strategies and EC/ICs implemented at the AOC are as follows.

Since remaining contaminated soil exists beneath existing SMC structures within the AOC, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of EC/ICs within the AOC. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

The purpose of this Plan is to provide:

- A description of EC/ICs on the Site;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the ICs created as stated in the AOC Environmental Easement;
- A description of the features that should be evaluated during each periodic inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of an Excavation Plan for the safe handling of remaining contamination that may be disturbed during maintenance or redevelopment work within the AOC;
- Other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC; and
- A description of the reporting requirements for these controls.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Soil Cover System

Exposure to remaining contamination in soil/fill within the AOC is prevented by a cover system placed over five of the six areas excavated within the AOC. This cover system is comprised of a minimum of 24 inches of crushed stone covered by either clean topsoil, asphalt pavement, concrete-covered sidewalks, and/or concrete building slabs. Excavation 5 was completed in the drainages swale along Willowbrook Avenue and was extended to a depth of approximately 4-inches below grade and backfilled with crushed stone. The Excavation Plan that appears in Section 2.4 outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.1.2 Security Fencing

The AOC and SMC facility is surrounded by a minimum 8-foot high chain link security fence, which the exception of a 60-foot section that is the main driveway access point to the SMC facility parking lot from Willowbrook Avenue in the southwestern corner of the property. The property is under video surveillance and a security guard is on duty 24-hours a day, seven days a week. The guard is present in the guard house located in the southwestern portion of the property immediately adjacent to and with a sightline to the unfenced portion of the SMC facility and parking lot in the southwest corner along Willowbrook Avenue.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, the remedial processes will be considered to be completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives. The remaining PCB soil contamination present within the AOC above the remedial action objectives is not expected to meet remedial objectives as PCBs do not naturally degrade.

2.2.2.1 Cover System

The cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals. The cover system will be maintained as follows.

- Concrete cover – Minor cracking or spalling of the concrete is acceptable. If spalling or cracking in the concrete has occurred and the sub-base beneath the concrete is exposed, repairs will be required.

- Asphalt cover - Minor cracking or raveling of the asphalt is acceptable. If raveling or cracking in the asphalt has occurred and the sub-base beneath the asphalt is exposed, repairs will be required.
- Vegetative cover – The vegetative cover (i.e., grass) will be maintained. Lack of grass cover will increase the potential for erosion and exposure to subsurface soils. Grass seed will be placed on soil exposed areas greater than 1 square foot and monitored weekly to verify grass growth. If soil exposed areas increase in size or is initially greater than 9 square feet, then an assessment should be done to determine the reason for the lack of the vegetative cover.

2.2.2.2 Security Fencing

The 8-foot high chain link security fence is a permanent control and the quality and integrity of the fence will be inspected as defined in Section 3.1.2. The fencing system will be maintained as follows.

- Minor rusting and deterioration of the fencing is acceptable. However, if separation in the links become large enough that a small child could fit though the separation, the fence will be patched with another piece of fencing or the section of fence will be replaced.
- If a breech in the fencing system occurs by either activities at the SMC facility or vandalism, the fence section will be patched with another piece of fencing or the section of the breech will be replaced.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the Environmental Easement to: (1) implement, maintain and monitor Engineering Control systems; (2) limit future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to commercial or industrial uses only. Adherence to these Institutional Controls on the AOC is required by the Environmental Easement and will be implemented under this SMP. These Institutional Controls are:

- Compliance with the Environmental Easement by the Grantor[4] and the Grantor's successors and assigns with elements of this SMP.
- Engineering Controls must be operated and maintained as specified in this SMP.
- Engineering Controls for the AOC must be inspected and certified at a frequency and in a manner defined in the SMP.

[4] For purposes of this SMP, the Grantor is considered to be the Chautauqua County Industrial Development Agency and Special Metals Corporation. Chautauqua County Industrial Development Agency holds the fee title and Special Metals Corporation holds the beneficial interest.

- Data and information pertinent to Site Management for the AOC must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The AOC has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming, including cattle and dairy farming, on the property are prohibited;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended purpose;
- Future activities on the property that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with this SMP;
- The property may only be used for commercial or industrial use provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a less restrictive use without additional remediation or an amendment of the Environmental Easement.
- The Site owner or remedial party will submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable that certifies[5], under penalty of perjury, that: (1) controls employed at the AOC are unchanged from the previous certification or that changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the AOC at time with proper notification to SMC, in order to evaluate the continued maintenance of and controls. This certification shall be submitted tri-annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

Any defined "change in site use"[6] that are proposed will require a 60-day advance notice (see 6NYCRR Section 375-1.11(d)). The SMC owner or their representative will notify the Department. Currently, this notification will be made to:

[5] Certify is defined as a statement or declaration of a professional opinion based on the information, data and/or facts known at the time such certification is made.

[6] As defined in 6 NYCRR Section2.2(a); "Change of use" means the erection of any structure on a site, the paving of a site for use as a roadway or parking lot, the creation of a park or other recreational facility on a site, any activity that is likely to disrupt or expose contamination or increase direct human or environmental exposure, or any other conduct that will or may tend to prevent or significantly interfere with a proposed, ongoing, or completed remedial program.

NYSDEC
Region 9 Regional Hazardous Waste Remediation Engineer
270 Michigan Avenue,
Buffalo, New York 14203, 716-851-7220

2.4 EXCAVATION PLAN

The AOC remedy allows for commercial or industrial use. Future intrusive work that will penetrate, encounter or disturb the remaining contamination within the AOC, and modifications or repairs to the existing AOC cover system will be performed in compliance with this Excavation Plan (EP). Intrusive construction work must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the AOC. A sample HASP is attached as Appendix B to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section 2.4.1 below. Intrusive construction work, within the AOC, will be performed in compliance with the EP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 2.6).

2.4.1 Notification

At least 10 days prior to the start of activity, within the AOC defined by the Environmental Easement, that is reasonably anticipated to encounter remaining contamination (that is invasive work), the SMC owner or their representative will notify the Department. Currently, this notification will be made to:

NYSDEC
Region 9 Regional Hazardous Waste Remediation Engineer
270 Michigan Avenue
Buffalo, New York 14203, 716-851-7220

This notification will include:

- A detailed description of the work to be performed, including the location and aerial extent, plans for site re-grading, intrusive elements or utilities to be installed below the AOC soil cover, or work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for pre-construction sampling;
- A schedule for the work, detailing the start and completion of intrusive work,
- A statement that the work will be performed in compliance with this EP and 29 CFR 1910.120,

- A copy of the contractor's health and safety plan, in electronic format,
- Identification of disposal facilities for potential waste streams,
- Identification of sources of anticipated backfill, along with required chemical testing results.

Notwithstanding the foregoing, in the event of an emergency (that is, a situation vital to plant operations or threat to human health, environment or property), SMC will proceed with an excavation within the AOC as soon as possible and notify NYSDEC within 24 hours of the emergency excavation work (or sooner if the emergency arises out of a chemical or petroleum spill that requires earlier notification under applicable law or regulations).

2.4.2 Soil Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include excavation and invasive work performed within the AOC during development, such as excavations for foundations and utility work, after the date of the NYSDEC approval of the Final Engineering Report.

Soils from the AOC will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

2.4.3 Stockpile Methods

AOC soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the SMC facility and available for inspection by NYSDEC.

2.4.4 Materials Excavation and Load Out

A qualified environmental professional or person under their supervision will oversee invasive work and/or the excavation and load-out of excavated material.

The owner of the property and its contractors are solely responsible for the safe execution of invasive and other work performed under this Plan.

The presence of utilities and easements on the AOC will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the AOC.

Polyethylene sheeting will be placed on the ground beneath the truck loading area. The location of the truck loading area will be determined based on the location of the planned excavation activities. Prior to leaving the loading area, the polyethylene lined loading area along with the tires of the truck will be inspected. Soil observed on the polyethylene sheeting that may contaminate equipment or trucks will be removed and placed back into the excavation. Trucks will not be allowed to leave the loading area if their tires have contacted contaminated soil without being cleaned. Cleaning will consist of using a brush to scrub the tires with a solution of alconox and water. The solution used to clean and water used to rinse the tires will be containerized for proper disposal. Additionally, the rails and/or relief features of the trucks will also be observed for loose soil. Loose soil will be removed before the trucks can leave the loading area. The polyethylene sheeting used in the soil loading area will be replaced as it becomes soiled or torn. If the polyethylene sheeting requires replacement, the sheeting will be placed in one of the trucks with soil being transported to the disposal facility.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and other applicable transportation requirements).

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for checking that egress points for truck and equipment transport from the AOC are clean of dirt and other materials derived from the AOC during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to AOC-derived materials.

2.4.5 Materials Transport Off-Site

The transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the AOC will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Trucks will be inspected for loose soil prior to leaving the AOC. If loose soil is observed, it will be removed prior to leaving the polyethylene lined loading area.

Truck transport routes will be identified that will: (a) limit transport through residential areas and past sensitive sites; (b) use city-mapped truck routes; (c) minimize off-site queuing of trucks entering the facility; (d) limit total distance to major highways; and (e) promote safety in access to highways.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site. Egress points for truck and equipment transport from the AOC will be kept clean of dirt and other materials during site remediation and development.

Due to limited available space at the SMC facility, some off-site queuing of trucks may be necessary. The number and duration of trucks lined up outside the site entrance will be minimized through efficient scheduling and staging at a remote location.

2.4.6 Materials Disposal Off-Site

SMC completed an IRM that included the excavation and disposal of about 6,700 tons of soil from the AOC. This soil was replaced with crushed stone when the limits of the excavation were reached based on the analytical testing results. Therefore, previously unexcavated soil/fill/solid waste excavated and removed from within the limits of the AOC identified in the environmental easement will be treated as contaminated and regulated material and will be transported and disposed in accordance with local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from the AOC is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this AOC will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at a minimum, as a Municipal Solid Waste pursuant to 6NYCRR Part 360-1.2. Material that does not meet the lower of the SCOs for residential use or groundwater protection will not be taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility) without a beneficial use determination issued by NYSDEC.

2.4.7 Materials Reuse On-Site

SMC completed an IRM that included the excavation and disposal of about 6,700 tons of soil from the AOC. This soil was replaced with crushed stone when the limits of

the excavation were reached based on the analytical testing results. Crushed stone backfill material encountered during excavation activities within the AOC will be stockpiled for reuse. Soil material within the AOC not previously excavated will be staged on polyethylene and sampled to determine if the soil can be reused on-site and disposed of off-site. The following table identifies the sampling frequency to be utilized for soil characterization.

Soil Quantity (Cubic Yard)	Number of Grab Samples	Number of Composite Samples
0 – 50	1	1
50 – 100	2	1
100 – 200	3	1
200 - 300	4	1
300 – 400	4	2
400 – 500	5	2
500 – 800	6	2
800 – 1,000	7	2

Laboratory analyses shall be performed by a laboratory having the applicable New York State and US EPA certifications/licenses for waste characterization testing. The soil will be considered for reuse on-site if sample analysis indicates compound concentrations do not exceed those listed in the NYSDEC Part 375 Commercial Soil Cleanup Objectives (CSCOs). If soil exceeding the CSCOs, but below the ISCOs, is to be used as backfill on-site, it must be covered by at least 1 foot of soil meeting the CSCOs, pavement or a building slab. NYSDEC Regional Engineer shall be notified when impacted soils are identified within the AOC and copies of laboratory results will be submitted to the NYSDEC.

Excess soil, which will not be reused on-site, shall be transported to an off-site regulated solid waste (landfill) facility by SMC. No materials shall be shipped off-site without prior approval of its final disposition location by SMC. Soil disposal requires the approval of the disposal facility that is accepting the regulated material, prior to transport. NYSDEC shall also be notified of the disposal location.

Excavation of subsurface materials may include environmentally impacted and contaminated materials, along with previously backfilled materials, which will require different handling and stockpiling. The excavation and material handling will be conducted in a manner that limits mixing materials with potentially different types of contamination or reuse.

Chemical criteria for reuse of material have been approved by NYSDEC and are listed in Table 1, which are the NYSDEC Part 375 CSCOs and ISCOs. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated

on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the AOC will not be reused on-site.

2.4.8 Fluids Management

Liquids to be removed from the AOC, including excavation dewatering will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering will not be recharged back to the land surface or subsurface of the AOC, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

2.4.9 Cover System Restoration

After the completion of soil removal and other invasive activities within the AOC identified in the Environmental Easement, the cover system will be restored in a manner that is consistent with those remaining after the completion of the AOC IRM. The demarcation layer, consisting of polyethylene sheeting will be placed to provide a visual reference to the top of the 'Remaining Contamination Zone', that was not addressed by the soil removal activities. The "Remaining Contamination Zone" refers to the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), as shown on Figure 6, this will constitute a modification of the cover element of the remedy and the upper surface of the "Remaining Contamination Zone". A figure showing the modified surface will be included in the subsequent Periodic Review Report and in updates to the SMP.

2.4.10 Backfill from Off-Site Sources

Materials to be utilized as backfill from off-site sources will consist of the following:

- Off-site fill material brought to the AOC for filling and grading purposes shall be from an acceptable borrow source free of industrial and/or other potential sources of chemical or petroleum contamination.
- Off-site soil intended for use as AOC backfill cannot otherwise be defined as a solid waste in accordance with 6 NYCRR Part 360-1.2(a).

- Soils will be tested via collection of one composite sample per 500 tons of material from each source area. If more than 1,000 tons of soil are borrowed from a given off-site soil source area and results of chemical analysis on both samples of the first 1,000 tons meet Part 375 Unrestricted SCOs, then the sample collection frequency will be reduced to one composite sample for every 2,500 tons of additional soil from the same source, up to 5,000 cubic yards. For borrow sources greater than 5,000 tons, sampling frequency may be reduced to one sample per 5,000 tons, provided earlier samples meet Part 375 Unrestricted SCOs.

Materials proposed for import onto the AOC will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP, applicable regulations (6NYCRR 375-6.7(d)) and guidance (DER-10) prior to receipt at the AOC.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the AOC.

Imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards for imported backfill are listed in Table 2, which are the Part 375 Unrestricted SCOs. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for the AOC, will not be imported onto the AOC without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the AOC with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

2.4.11 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. Necessary repairs shall be made as soon as practical.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

Undercutting or erosion of the silt fence toe anchor shall be repaired as soon as possible with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to check that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area within the AOC.

2.4.12 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC Regional Engineer. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in daily and periodic electronic media reports.

2.4.13 Community Air Monitoring Plan

If contaminated soils are encountered in the AOC, community air monitoring for particulates and volatile organic compound levels at the perimeter of the work area will be conducted as follows during intrusive activities below existing pre-construction ground elevations, within the AOC.

Volatile organic compounds shall be monitored at the downwind perimeter of the work area on a continuous basis with equipment that is able to calculate 15-minute running average concentrations.

- If total organic vapor levels exceed 5 ppm above background, for the 15-minute average, work activities shall be temporarily halted until readings decrease below the 5 ppm threshold.
- If total organic vapor levels exceed 5 ppm but are less than 25 ppm for the 15-minute average, work activities shall be halted and the source of vapors identified, corrective actions taken and monitoring continued. Work activities can continue provided the total organic vapor level 200-feet downwind or half the distance to

the nearest receptor or residential/commercial structure (whichever is less) is below 5 ppm for the 15-minute average.

- If the organic vapor level is above 25 ppm at the downwind perimeter of the work area, work activities must be halted.

If, following the cessation of the work activities, or as a result of an emergency, organic levels persist above 5 ppm above background 200-feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20-feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone). If efforts to abate the emission source are unsuccessful and levels at 5 ppm or greater above background persist for more than 30 minutes in the 20 Foot Zone, then the following shall automatically be placed into effect.

- The local police authorities, fire department, Special Metals Corporation staff and contractor will immediately be contacted by the Special Metals Corporation Safety Officer and advised of the situation.
- Frequent air monitoring will be conducted at 30-minute intervals within the 20 Foot Zone.
- If two successive readings below action levels are measured, air monitoring may be halted or modified.

Community air monitoring for particulates (dust) shall be monitored at an upwind and downwind location continuously during excavation activities within the AOC. Particulate monitoring shall be done using equipment that is capable of measuring particle size in the 10-micrometer range (PM-10) and can integrate measurements over a 15-minute time frame. The equipment shall also have an audible alarm indicating an exceedance of the action level.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind) for the 15-minute average period or if visible air borne dust is noted leaving the work area, then dust suppression techniques (wetting, lower drop heights, etc) shall be employed.
- If downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must stop and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls (if needed) are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration from the work area.

Equipment is to be calibrated daily. 15-minute recordings for organic vapor and particulates shall be recorded and a copy maintained on-Site.

A map showing the location of air sampling stations based on generally prevailing wind conditions is shown in Figure 8. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two

downwind monitoring stations. Exceedances of action levels listed in the CAMP will be reported to NYSDEC Regional Engineer.

2.4.14 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site. Based on the work completed as part of the AOC IRM, which included the excavation and removal of about 6,700 tons of soil, nuisance odors are not expected to be a concern.

Specific odor control methods to be used on a routine basis will include minimizing the generation of vapors and/or odors. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until nuisance odors have been abated. NYSDEC Regional Engineer will be notified of odor events and of other complaints about the project. Implementation of odor controls, including the halt of work, is the responsibility of SMC Environmental Coordinator's, and measures that are implemented will be discussed in the Periodic Review Report.

SMC and/or its subcontractor shall employ the necessary means to limit on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

2.4.15 Dust Control Plan

A dust suppression plan that addresses dust management during invasive AOC work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of on-site water for road wetting. Equipment shall be capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing of vegetation will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Use of on-site roads will be limited to minimize the area required for water sprinkling.

2.5 INSPECTIONS AND NOTIFICATIONS

2.5.1 Periodic Inspections

Periodic inspections of remedial components (cover system within the AOC and Site security fencing) installed within the AOC will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted semi-annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- In-place Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement; and
- If site records are complete and up to date.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3), using the AOC Inspection Form included in Appendix C. The reporting requirements are outlined in the Site Management Reporting Plan (Section 2.6).

If an emergency, such as a natural disaster or an unforeseen failure of the ECs occurs, an inspection of the AOC will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the AOC by a qualified environmental professional as determined by NYSDEC.

2.5.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 10-day advance notice of proposed ground-intrusive activities within the AOC.
- Notice within 48-hours of damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise action to be taken to mitigate the damage or defect.
- Notice within 48-hours of emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the AOC, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Order on Consent, and the Final Engineering Report, which includes this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

Notifications will be made to the NYSDEC Region 9 Regional Engineer, (716) 851-7220, 270 Michigan Avenue, Buffalo, New York. In the event that NYSDEC develops a centralized notification system, that system will be used instead.

2.5.3 Evaluation and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the AOC RAWP and AOC FER.

2.6 REPORTING PLAN

2.6.1 Introduction

A Periodic Review Report will be submitted to NYSDEC every third year, beginning fifteen months after the date of NYSDEC approval of the Final Engineering Report. The Periodic Review Report will be prepared in accordance with NYSDEC DER-10 "Technical Guidance for Site Investigation and Remediation". The frequency of submittal of the Periodic Review Report may be modified with the approval of the NYSDEC.

This report will include the following:

- Identification of EC/ICs required by the Environmental Easement for the AOC;
- An assessment of the effectiveness of Institutional and Engineering Controls for the AOC;
- An evaluation of the Engineering and Institutional Control Plan and the Monitoring Plan for adequacy in meeting remedial goals;

- Results of the required annual site inspections and severe condition inspections, if any;
- A compilation of deliverables generated during the reporting period, as specified in Section 2 EC/IC Plan and Section 3 Monitoring Plan; and
- Certification of the EC/ICs.

2.6.2 Certification of Engineering and Institutional Controls

Inspection of the EC/ICs will occur at the frequency described in Section 3 (Monitoring Plan) and Section 4 (Operation and Maintenance Plan). After the last inspection of the reporting period, a qualified environmental professional will prepare a Periodic Review Report which certifies that:

- AOC ECs/ICs are unchanged from the previous certification;
- They remain in-place and are effective;
- The systems are performing as designed;
- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with operation and maintenance plan for such controls;
- Access is available to the site by NYSDEC and NYSDOH to evaluate continued maintenance of such controls; and
- AOC use is compliant with the environmental easement.

2.6.3 Periodic Review Report

A Periodic Review Report will be submitted every third year, beginning fifteen months after the date of the NYSDEC approval of the Final Engineering Report. The report will be submitted within 45 days of the end of each certification period. The report will include:

- EC/IC certification;
- Applicable inspection forms and other records generated for the AOC during the reporting period;
- A summary of AOC information generated during the reporting period with comments and conclusions;
- Results of analyses, copies of laboratory data sheets, and the required laboratory data deliverables for samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- An AOC evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific Decision Document (Section 13 of the Final Engineering Report);
    - The operation and the effectiveness of the cover system, including identification of needed repairs or modifications;

- new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
- Recommendations regarding necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Regional Office located closest to the site, and in electronic format to NYSDEC Central Office and the NYSDOH Bureau of Environmental Exposure Investigation.

2.7 CONTINGENCY PLAN/EMERGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

In the event of an emergency (that is a situation vital to plant operations or threat to human health, environment or property) that requires excavation within the AOC, SMC will proceed with an excavation soon as possible and notify NYSDEC within 24 hours of the emergency excavation work (or sooner if the emergency arises out of a chemical or petroleum spill that requires earlier notification under applicable law or regulations).

2.7.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to SMC Emergency Response Coordinator. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 3: Emergency Contact Numbers

Medical, Fire, and Police:	911
Special Metals Security	716-366-5663 Ext 238
Dale Delcamp – Emergency Response Coordinator	Office: 716-366-5663 Ext. 227 Cell: 716-410-0742
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills (National Response Center):	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 4: Contact Numbers

Robert Van Deusen – EHS/Facilities Engineer	Office: 716-366-5663 Ext 235 Cell: 716-410-5159
Joe Mack – Safety Manager	Office: 716-798-2098 Cell: 315-734-5956
Jeff Moore – EH&S Director	Cell: 216-755-3047

* Note: Contact numbers subject to change and should be updated as necessary

2.7.2 Map and Directions to Nearest Health Facility

Site Location: 100 Willowbrook Avenue, Dunkirk, NY 14048
(identified as “A” on map below)

Nearest Hospital Name: Brooks Memorial Hospital

Hospital Location: 529 Central Avenue, Dunkirk, NY 14048
(identified as “B” on map below)

Hospital Telephone: 716-366-1111

Directions to the Hospital:

1. Head east on Willowbrook Avenue to Central Avenue, 0.3 miles

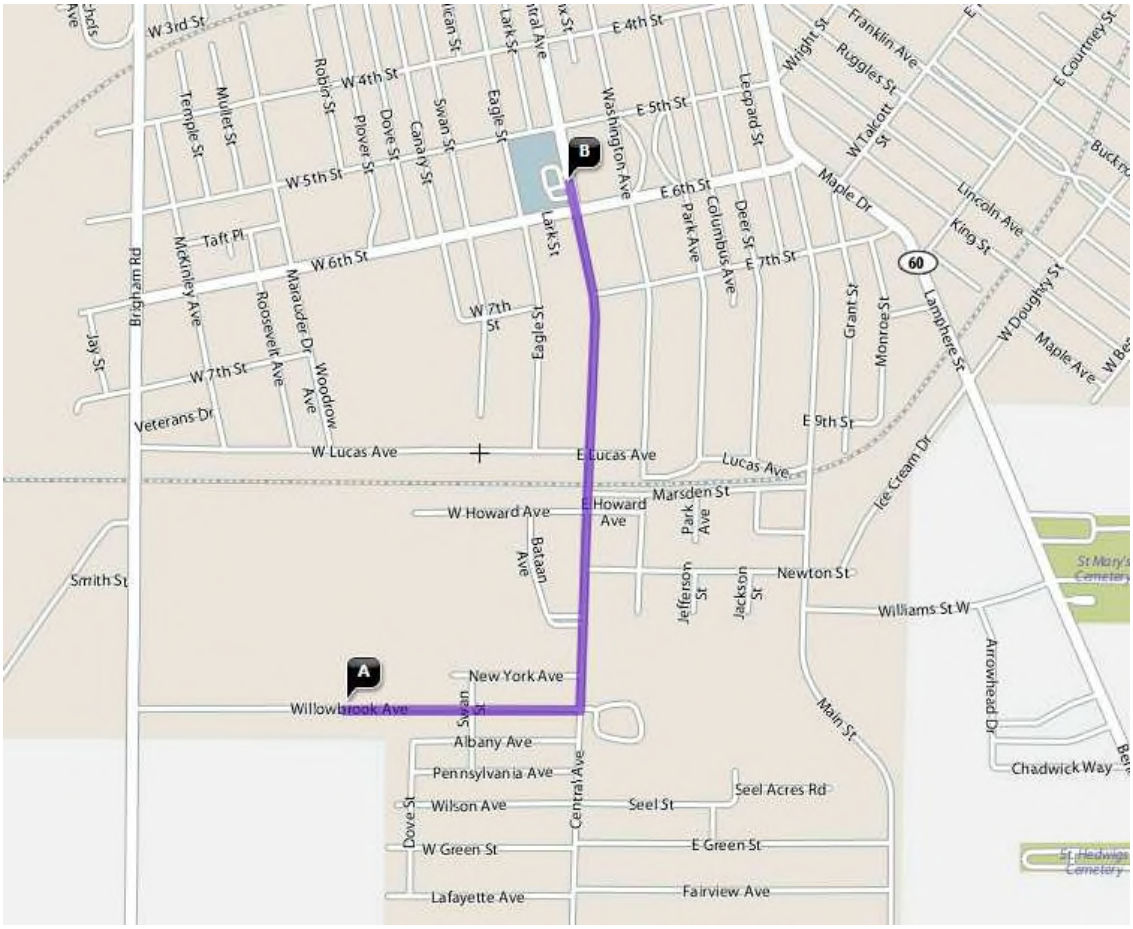
2. Turn Left on to Central and go 0.8 miles north.

3. Turn left to arrive at 529 Central Avenue.

Total Distance: 1.1 miles

Total Estimated Time: 4 minutes

Map Showing Route from the site to the Hospital:



2.7.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan/Emergency Plan (Table 3). The list will be readily available to all personnel at all times.

Spill Procedures

The following spill procedure has been developed and is in place at the SMC facility.

- If a liquid spill were to occur, attempts would be made to contain it either locally or by a spill cleanup contractor. An employee witnessing a chemical spill or release is to call the area supervisor or security guard immediately to report the incident. The supervisor or guard will contact necessary management personnel (Safety Manager and/or Facilities Manager) and wait instruction.

- The Safety Manager and/or Facilities Manager will conduct a preliminary assessment of the situation and determine what resources are necessary, including the need for assistance from outside emergency services. Attention shall be given to the identification of the released material(s) and its containment, to prevent the spread and entry into buildings or outdoor drainage paths.

- A permanent record of a spill will be maintained by the facility emergency coordinator to insure that cleanup complies with environmental requirements.

Evacuation Plan

The following evacuation plan has been developed and is in place at the SMC facility.

- If an employee has identified an emergency situation (i.e., fire), the employee is to contact Security and provide the following information:

    - Type of emergency/nature of emergency;
    - Location; and
    - Employee name

- Security will record the information, contact the outside fire department (call 911) and gives the evacuation announcement, repeating it three (3) times.

- Employees will exist the closest safe exist from their work location.

Evacuation routes are posted throughout the facility. Employees will proceed to the southwest corner of the property and meet in the employee parking lot. Some designated employees may be required to shut-down power and critical operations. These designated employees must exist as soon as critical shut down is complete and report to the southwest corner of the property. And meet in the employee parking lot.

- The shift supervisor will take a head count and report missing employees to fire department on scene. Employees will proceed to the southwest corner of the property and meet in the employee parking lot.

3.0 MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the implemented ECs to reduce or mitigate contamination within the AOC. ECs within the AOC include a cover system and security fence. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Evaluating AOC information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Reporting requirements;
- Inspection and maintenance requirements of the cover system and security fence; and
- Tri-Annual submittal of the Periodic Review Report certification.

Semi-annual monitoring of the performance of the remedy will be conducted for the first 5 years. The frequency thereafter will be determined by NYSDEC.

3.2 ENGINEERING CONTROL SYSTEM MONITORING

Cover System

The cover system consists of crushed stone backfill and the surface restoration of the areas excavated within the AOC. Figure 6 identifies the type of surface cover within the AOC. Generally, a minimum of 2 feet of soil was excavated and backfilled from Excavations 1, 2, 3, 4 and 6. Excavation 5 was done in the drainage swale along Willowbrook Avenue and was completed to an approximate depth of 4-inches below grade.

The excavation work done as part of the AOC IRM was completed in August 2007 and the surface restorations (i.e., asphalt and/or topsoil with grass seed) were completed in late 2007. The purpose of the cover system is to reduce the potential for exposure to the remaining contamination above unrestricted use criteria for PCBs by acting as a barrier. Areas of PCB contamination remaining above ISCOs in the AOC are under the existing buildings or at the Property limits, as show on Figure 7.

Security Fence

The AOC is surrounded by a minimum 6-foot high chain link security fence, which the exception of a 60-foot section that is the main driveway access point to the SMC facility. The property is under video surveillance and a security guard is on duty 24-hours a day, seven days a week. The guard is present in the guard house located in the southwestern portion of the property with a sightline to the unfenced portion of the SMC facility. The security fence along with the security guard will prevent trespassing onto the SMC facility and AOC.

3.2.1 Inspection Schedule

The cover system was installed in late 2007 and is in good condition. Semi-annual inspections of the cover system will be made to verify its integrity. Due to the amount of snow fall typical of western New York, these inspections will be made in May, after the snow melt and November, prior to snow arrival.

Inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or repair may take place when a suspected failure of the cover system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Monitoring deliverables for the cover system are specified later in this Plan. NYSDEC will be made aware in writing of a cover system failure[7] and the steps taken to repair the system.

3.3 MONITORING REPORTING REQUIREMENTS

Forms and other information generated during regular inspections will be kept on file at the SMC facility. Forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

The engineering control system inspection results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. The report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;

[7] A cover system failure is defined as a breech in the cover system that exposes the remaining contamination present within the AOC.

- Description of the activities performed;
- Copies of field forms completed inspection checklists, etc.);
- A figure illustrating the area inspected;
- Photographic documentation of the AOC cover system;
- Observations, conclusions, or recommendations; and
- A determination as to whether the cover system conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 5 below.

Table 5: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Cover System and Security Fence Inspection	Semi-Annually (in May & November each year)
Submittal of Periodic Review Report	Tri-Annually: (every 3 years)

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The AOC remedy does not rely on mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

Inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, an AOC inspection will be conducted semi-annually. Inspections of remedial components (i.e., cover system and/or security fencing) will also be conducted when a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

Inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in Appendices C. An AOC inspection form will be completed during the AOC inspection (see Appendix C). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective in preventing exposure;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items, and
- The AOC remedy continues to be protective of public health and the environment and is performing as designed in the AOC FER.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the Periodic Review Report reporting period, a qualified environmental professional will prepare the following certification:

For each institutional or engineering control identified for the site, I certify[8] that all of the following statements are true:

- The inspection of the AOC to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this AOC is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the AOC will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the AOC, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of Special Metals Corporation, am certifying as Owner's Designated Site Representative for the AOC.

The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every third year, beginning fifteen months after the date of the NYSDEC approval of the Final Engineering Report. In the event that the AOC is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the AOC described in Appendix A (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each

[8] Certify means to state or declare a professional opinion.

certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of ECs/ICs required by the remedy for the AOC;
- Results of the required semi-annual AOC inspections and severe condition inspections, if applicable;
- Applicable inspection forms and other records generated for the AOC during the reporting period in electronic format;
- A summary of the discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of the compounds analyzed, along with the applicable standards, with exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of analyses, copies of laboratory data sheets, and the required laboratory data deliverables for samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- An AOC evaluation, which includes the following:

    - The compliance of the remedy with the requirements of the site-specific Decision Document;
    - New conclusions or observations regarding AOC contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the AOC is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If components of the remedy are found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

TABLES

TABLE 1
Chemical Criteria for Reuse of Excavated Material
Site Management Plan
Special Metals Corporation
Dunkirk, New York

Polychlorinated biphenyls & Pesticides

Contaminant	CSCO (ppm)	ISCO (ppm)
2,4,5-TP Acid (Silvex)	500	1,000
4,4'-DDE	62	120
4,4'-DDT	47	94
4,4'-DDD	92	180
Aldrin	0.68	1.4
alpha-BHC	3.4	6.8
beta-BHC	3	14
Chlordane (alpha)	24	47
delta-BHC	500	1,000
Dibenzofuran	350	1,000
Dieldrin	1.4	2.8
Endosulfan I	200	920
Endosulfan II	200	920
Endosulfan sulfate	200	920
Endrin	89	410
Heptachlor	15	29
Lindane	9.2	23
Polychlorinated biphenyls	1	25

Semi-Volatile Organic Compounds

Contaminant	SCO (ppm)	SCO (ppm)
Acenaphthene	500	1,000
Acenapthylene	500	1,000
Anthracene	500	1,000
Benzo(a)anthracene	5.6	11
Benzo(a)pyrene	1	1.1
Benzo(b)fluorancene	5.6	11
Benzo(g,h,i)perylene	500	1,000
Benzo(k)fluoranthene	56	110
Chrysene	56	110
Dibenz(a,h)anthracene	0.56	1.1
Fluoranthene	500	1,000
Fluorene	500	1,000
Indeno(1,2,3-cd)pyrene	5.6	11
m-Cresol	500	1,000
Naphthalene	500	1,000
o-Cresol	500	1,000
p-Cresol	500	1,000
Pentachlorophenol	6.7	55
Phenanthrene	500	1,000
Phenol	500	1,000
Pyrene	500	1,000

Volatile Organic compounds

Contaminant	CSCO (ppm)	ISCO (ppm)
1,1,1-Trichloroethane	500	1,000
1,1-Dichloroethane	240	480
1,1-Dichloroethene	500	1,000
1,2-Dichlorobenzene	500	1,000
1,2-Dichloroethane	30	60
cis-1,2-Dichloroethene	500	1,000
trans-1,2-Dichloroethane	500	1,000
1,3-Dichlorobenzene	280	560
1,4-Dichlorobenzene	130	250
1,4-Dioxane	130	250
Acetone	500	1,000
Benzene	44	89
Butylbenzene	500	1,000
Carbon tetrachloride	22	44
Chlorobenzene	500	1,000
Chloroform	350	700
Ethylbenzene	390	780
Hexachlorobenzene	6	12
Methyl ethyl keytone	500	1,000
Methyl tert-butyl ether	500	1,000
Methylene chloride	500	1,000
n-Propylbenzene	500	1,000
sec-Butylbenzene	500	1,000
tert-Butylbenzene	500	1,000
Tetrachloroethene	150	300
Toluene	500	1,000
Trichloroethene	200	400
1,2,4-Trimethylbenzene	190	380
1,3,5-Trimethylbenzene	190	380
Vinyl chloride	13	27
xylene (mixed)	500	1,000

METALS

Contaminant	SCO (ppm)	SCO (ppm)
Arsenic	16	16
Barium	400	10,000
Beryllium	590	2,700
Cadmium	9.3	60
Chromium (hexavalent)	400	800
Chromium (trivalent)	1,500	6,800
Copper	270	10,000
Total Cyanide	27	10,000
Lead	1,000	3,900
Manganese	10,000	10,000
Total Mercury	2.8	5.7
Nickel	310	10,000
Selenium	1,500	6,800
Silver	1,500	6,800
Zinc	10,000	10,000

TABLE 2
Chemical Criteria for Imported Backfill Material
Site Management Plan
Special Metals Corporation
Dunkirk, New York

Polychlorinated biphenyls & Pesticides

Contaminant	SCO (ppm)
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	0.0033
4,4'-DDT	0.0033
4,4'-DDD	0.0033
Aldrin	0.005
alpha-BHC	0.02
beta-BHC	0.036
Chlordane (alpha)	0.094
delta-BHC	0.04
Dibenzofuran	7
Dieldrin	0.005
Endosulfan I	2.4
Endosulfan II	2.4
Endosulfan sulfate	2.4
Endrin	0.014
Heptachlor	0.042
Lindane	0.1
Polychlorinated biphenyls	0.1

Semi-Volatile Organic Compounds

Contaminant	SCO (ppm)
Acenaphthene	20
Acenapthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluorancene	1
Benzo(g,h,i)perylene	100
Benzo(k)fluoranthene	0.8
Chrysene	1
Dibenz(a,h)anthracene	0.33
Fluoranthene	100
Fluorene	30
Indeno(1,2,3-cd)pyrene	0.5
m-Cresol	0.33
Naphthalene	12
o-Cresol	0.33
p-Cresol	0.33
Pentachlorophenol	0.8
Phenanthrene	100
Phenol	0.33
Pyrene	100

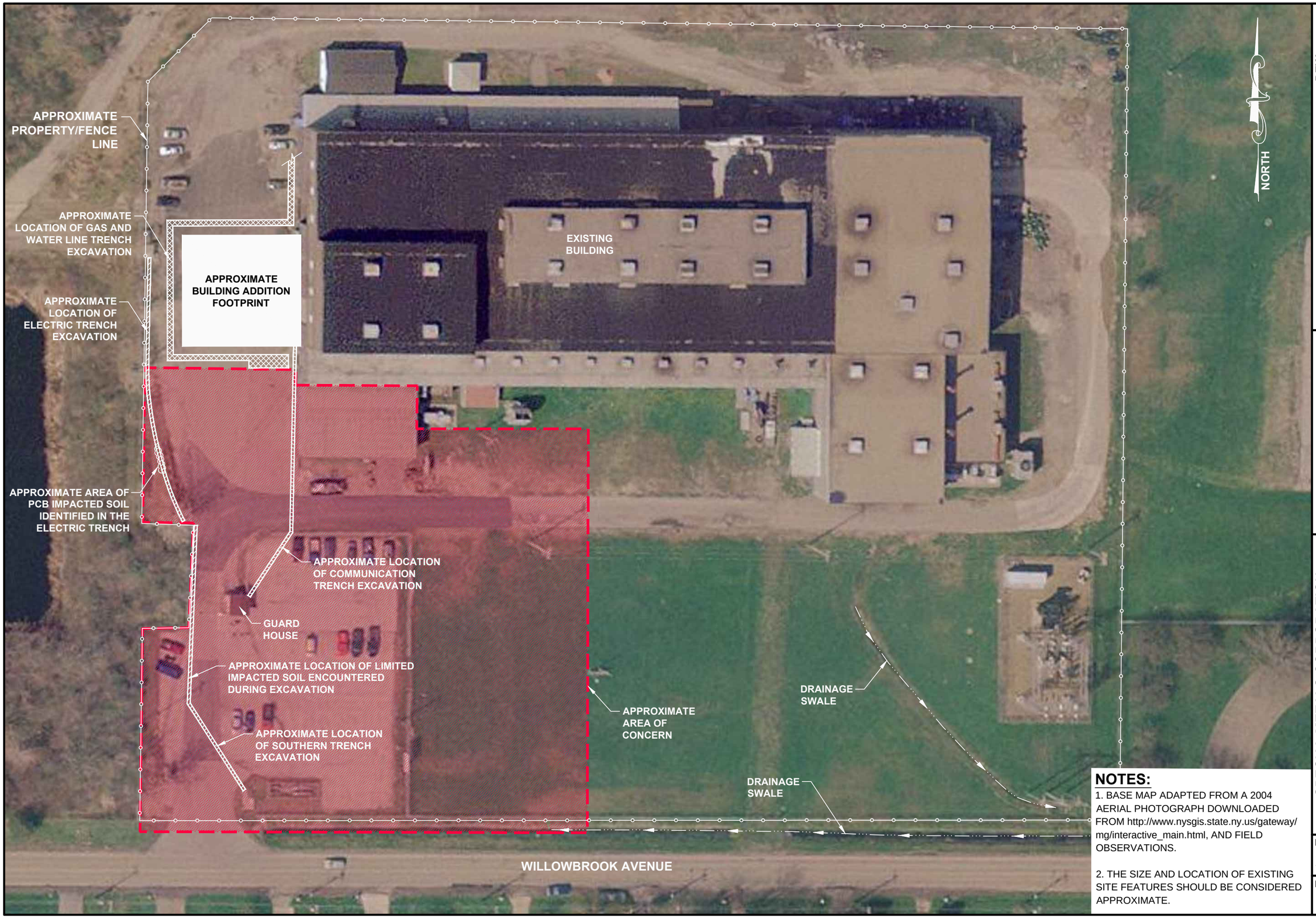
Volatile Organic compounds

Contaminant	SCO (ppm)
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.33
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
cis-1,2-Dichloroethene	0.25
trans-1,2-Dichloroethane	0.19
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1
Acetone	0.05
Benzene	0.06
Butylbenzene	12
Carbon tetrachloride	0.76
Chlorobenzene	1.1
Chloroform	0.37
Ethylbenzene	1
Hexachlorobenzene	0.33
Methyl ethyl keytone	0.12
Methyl tert-butyl ether	0.93
Methylene chloride	0.05
n-Propylbenzene	3.9
sec-Butylbenzene	11
tert-Butylbenzene	5.9
Tetrachloroethene	1.3
Toluene	0.7
Trichloroethene	0.47
1,2,4-Trimethylbenzene	3.6
1,3,5-Trimethylbenzene	8.4
Vinyl chloride	0.02
xylene (mixed)	0.26

METALS

Contaminant	SCO (ppm)
Arsenic	13
Barium	350
Beryllium	7.2
Cadmium	2.5
Chromium (hexavalent)	1
Chromium (trivalent)	30
Copper	50
Total Cyanide	27
Lead	63
Manganese	1,600
Total Mercury	0.18
Nickel	30
Selenium	3.9
Silver	2
Zinc	109

FIGURES



NOTES:

1. BASE MAP ADAPTED FROM A 2004 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html, AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: **DEW**

DATE: **APRIL 2014**

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

0 30 60 120

SPECIAL METALS CORPORATION

DUNKIRK FACILITY

100 WILLOWBROOK AVENUE

DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

SMC FACILITY PLAN AND AREA OF CONCERN

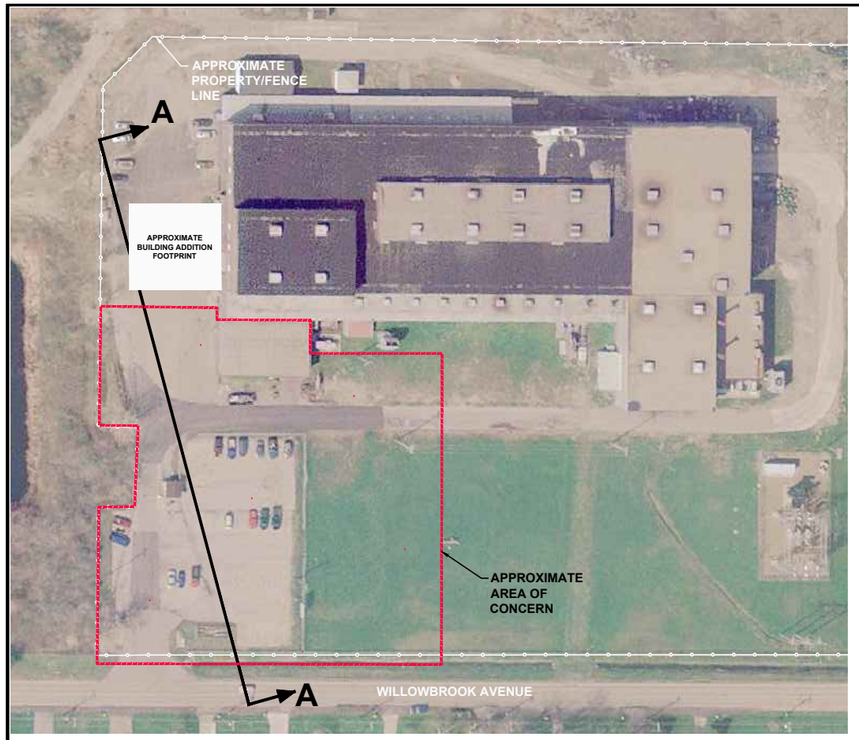
PROJECT No.

21.0056196.40

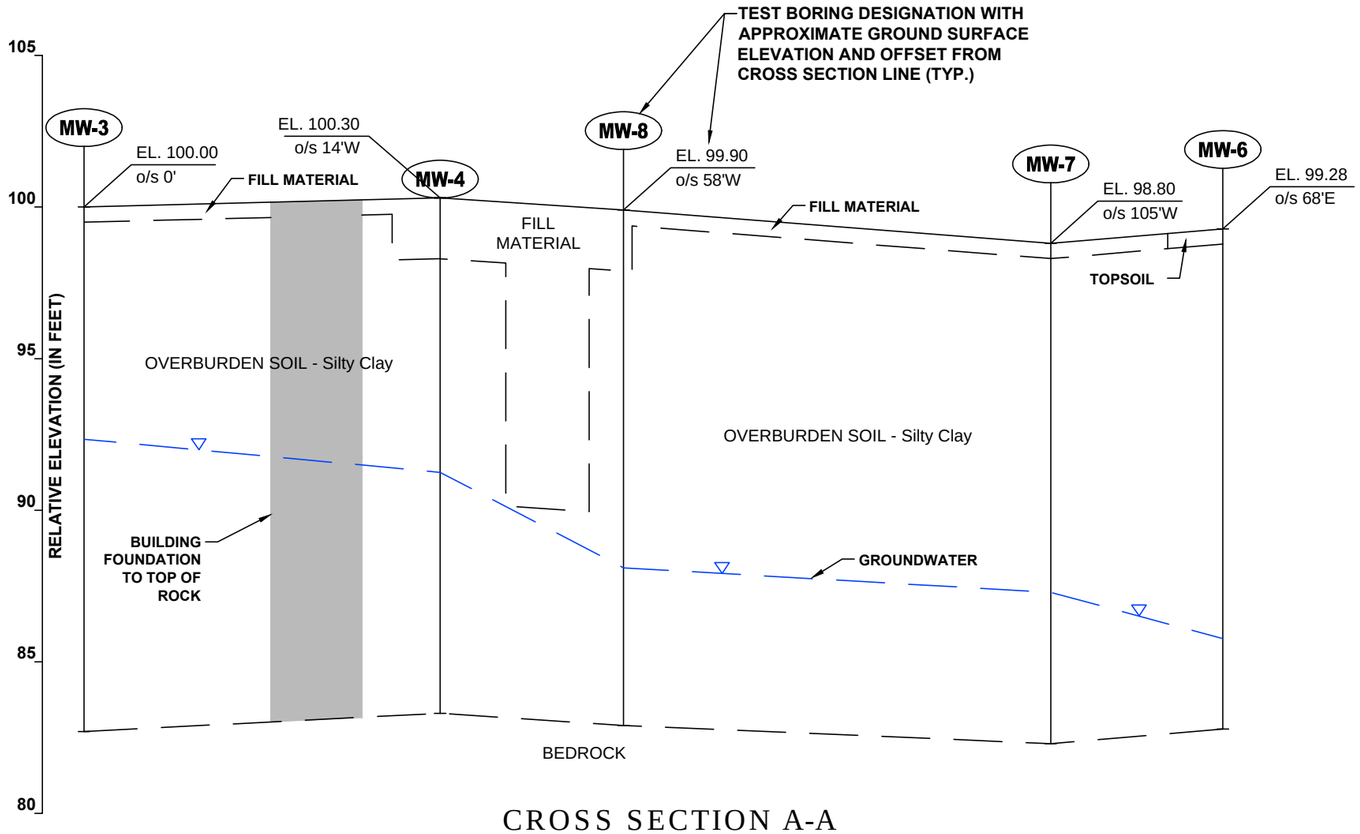
FIGURE No.

1

GZA-K:\PROJECTS\56100s\56196.40 SPECIAL METALS SMP_ENVIRONMENTAL EASEMENT\Site Management Plan\FIGURE 1.dwg [Figure 1] March 24, 2014 - 3:44pm daniel.wulf



KEY MAP



CROSS SECTION A-A

NOTES:

1. EXPLORATION LOCATIONS AND GROUND SURFACE ELEVATIONS FOR TEST BORINGS ARE BASED ON FIELD MEASUREMENTS MADE BY GZA USING A SURVEY LEVEL AND STADIA READINGS, THEN REFERENCED TO A RELATIVE BENCHMARK ELEVATION OF 100.0' (SEE FIGURE 1 FOR APPROXIMATE BENCHMARK LOCATION). THESE LOCATIONS AND ELEVATIONS SHOULD BE CONSIDERED ACCURATE TO THE DEGREE IMPLIED BY THE METHODS USED.

2. THE GENERALIZED SOIL PROFILE SHOWN IS INTENDED TO CONVEY TRENDS IN SUBSURFACE CONDITIONS. THE BOUNDARIES BETWEEN STRATA ARE APPROXIMATE AND IDEALIZED AND HAVE BEEN DEVELOPED BY INTERPRETATIONS OF WIDELY SPACED EXPLORATIONS.

DRAWN BY: MDK

DATE: APRIL 2014

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

HORIZONTAL 0 30 60 120

VERTICAL 0 2.5 5 10

SPECIAL METALS CORPORATION
DUNKIRK FACILITY
100 WILLOWBROOK AVENUE
DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

CROSS SECTIONS A-A'

PROJECT No.
21.0056196.40

FIGURE No.
2

MW-1 (92.3)

MW-2 (92.4)

MW-3 (92.3)

MW-4 (88.7)

MW-5 (88.2)

MW-6 (85.8)

MW-7 (87.3)

MW-8 (88.1)

APPROXIMATE PROPERTY/FENCE LINE

APPROXIMATE LOCATION OF GAS AND WATER LINE TRENCH EXCAVATION

APPROXIMATE LOCATION OF ELECTRIC TRENCH EXCAVATION

APPROXIMATE BUILDING ADDITION FOOTPRINT

EXISTING BUILDING

CORNER OF CONCRETE PAD RELATIVE ELEVATION 100.00'

APPROXIMATE AREA OF PCB IMPACTED SOIL IDENTIFIED IN THE ELECTRIC TRENCH

APPROXIMATE LOCATION OF COMMUNICATION TRENCH EXCAVATION

APPROXIMATE AREA OF CONCERN

GUARD HOUSE

APPROXIMATE LOCATION OF LIMITED IMPACTED SOIL ENCOUNTERED DURING EXCAVATION

APPROXIMATE LOCATION OF SOUTHERN TRENCH EXCAVATION

92

91

90

89

88

87

86

WILLOWBROOK AVENUE

NORTH

LEGEND:

MW-1 (92.3) — APPROXIMATE LOCATION MONITORING WELL AND GROUNDWATER ELEVATION SEE NOTE 3.

87 — GROUNDWATER CONTOUR ELEVATION AND GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP ADAPTED FROM A 2004 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html, AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

3. EXPLORATION LOCATIONS AND ELEVATIONS FOR MONITORING WELLS ARE BASED ON FIELD MEASUREMENTS MADE BY GZA USING A SURVEY LEVEL AND STADIA READING, THEN REFERENCED TO A RELATIVE EXISTING CONCRETE PAD ASSIGNED A RELATIVE ELEVATION OF 100.00' (SEE BENCHMARK LOCATION). THESE ELEVATIONS SHOULD BE CONSIDERED ACCURATE TO THE DEGREE IMPLIED BY THE METHOD USED.

DRAWN BY: DEW

DATE: APRIL 2014

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

0 30 60 120

SPECIAL METALS CORPORATION
DUNKIRK FACILITY
100 WILLOWBROOK AVENUE
DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

GROUNDWATER ELEVATION CONTOUR (5/22/07)

PROJECT No.
21.0056196.40

FIGURE No.
3

MW-1

MW-2

MW-3

APPROXIMATE PROPERTY/FENCE LINE

APPROXIMATE LOCATION OF GAS AND WATER LINE TRENCH EXCAVATION

APPROXIMATE LOCATION OF ELECTRIC TRENCH EXCAVATION

APPROXIMATE BUILDING ADDITION FOOTPRINT

EXISTING BUILDING

MW-4

MW-5

APPROXIMATE AREA OF PCB IMPACTED SOIL IDENTIFIED IN THE ELECTRIC TRENCH

MW-8

APPROXIMATE LOCATION OF COMMUNICATION TRENCH EXCAVATION

GUARD HOUSE

SPR-4

SPR-5

SPR-3

SPR-7

SPR-2

SPR-6

SPR-1

APPROXIMATE LOCATION OF LIMITED IMPACTED SOIL ENCOUNTERED DURING EXCAVATION

APPROXIMATE LOCATION OF SOUTHERN TRENCH EXCAVATION

MW-7

MW-6

SS-7 (ND)

SS-6 (ND)

APPROXIMATE AREA OF CONCERN

APPROXIMATE LIMITS OF BEAUTIFICATION BERM

WILLOWBROOK AVENUE

NORTH

LEGEND:

- MW-1 — APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL
- SPR-6 — APPROXIMATE LOCATION AND DESIGNATION OF SOIL BORING
- SS-6 — APPROXIMATE LOCATION AND DESIGNATION OF SWALE SURFACE SOIL SAMPLE

NOTES:

1. BASE MAP ADAPTED FROM A 2004 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html, AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: **DEW**

DATE: **APRIL 2014**

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

0 30 60 120

SPECIAL METALS CORPORATION
DUNKIRK FACILITY
100 WILLOWBROOK AVENUE
DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

REMEDIAL INVESTIGATION SITE PLAN

PROJECT No.
21.0056196.40

FIGURE No.
4

APPROXIMATE PROPERTY/FENCE LINE

APPROXIMATE LOCATION OF GAS AND WATER LINE TRENCH EXCAVATION

APPROXIMATE LOCATION OF ELECTRIC TRENCH EXCAVATION

APPROXIMATE BUILDING ADDITION FOOTPRINT

EXISTING BUILDING

APPROXIMATE AREA OF EXCAVATION

EXCAVATION #1

EXCAVATION #2

APPROXIMATE AREA OF PCB IMPACTED SOIL IDENTIFIED IN THE ELECTRIC TRENCH

APPROXIMATE AREA OF EXCAVATION

EXCAVATION #3

APPROXIMATE LOCATION OF COMMUNICATION TRENCH EXCAVATION

APPROXIMATE AREA OF CONCERN

GUARD HOUSE

APPROXIMATE LOCATION OF LIMITED IMPACTED SOIL ENCOUNTERED DURING EXCAVATION

APPROXIMATE LIMITS OF BEAUTIFICATION BERM

APPROXIMATE LIMITS OF EXCAVATION #6

APPROXIMATE LOCATION OF SOUTHERN TRENCH EXCAVATION

EXCAVATION #4

EXCAVATION #5

WILLOWBROOK AVENUE

NORTH

APPROXIMATE SCALE IN FEET

0 30 60 120

LEGEND:

APPROXIMATE LIMIT OF IRM EXCAVATION

APPROXIMATE LIMIT OF AREA OF CONCERN

NOTES:

1. BASE MAP ADAPTED FROM A 2004 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html, AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: **DEW**

DATE: **APRIL 2014**

GZA GeoEnvironmental of New York

SPECIAL METALS CORPORATION
DUNKIRK FACILITY
100 WILLOWBROOK AVENUE
DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

IRM EXCAVATION LOCATION PLAN

PROJECT No.
21.0056196.40

FIGURE No.
5

APPROXIMATE PROPERTY/FENCE LINE

APPROXIMATE BUILDING ADDITION FOOTPRINT

EXISTING BUILDING

APPROXIMATE AREA OF EXCAVATION

EXCAVATION #1

EXCAVATION #2

APPROXIMATE AREA OF EXCAVATION

EXCAVATION #3

APPROXIMATE AREA OF CONCERN

GUARD HOUSE

APPROXIMATE LIMITS OF BEAUTIFICATION BERM

APPROXIMATE LIMITS OF EXCAVATION #6

EXCAVATION #4

EXCAVATION #5

WILLOWBROOK AVENUE

NORTH

APPROXIMATE SCALE IN FEET

0 30 60 120

LEGEND:

- APPROXIMATE AREA OF GRASS RESTORATION
- APPROXIMATE AREA OF ASPHALT RESTORATION
- APPROXIMATE LIMIT OF IRM EXCAVATION
- APPROXIMATE LIMIT OF AREA OF CONCERN

NOTES:

1. BASE MAP ADAPTED FROM A 2004 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html, AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: DEW

DATE: APRIL 2014

GZA GeoEnvironmental of New York

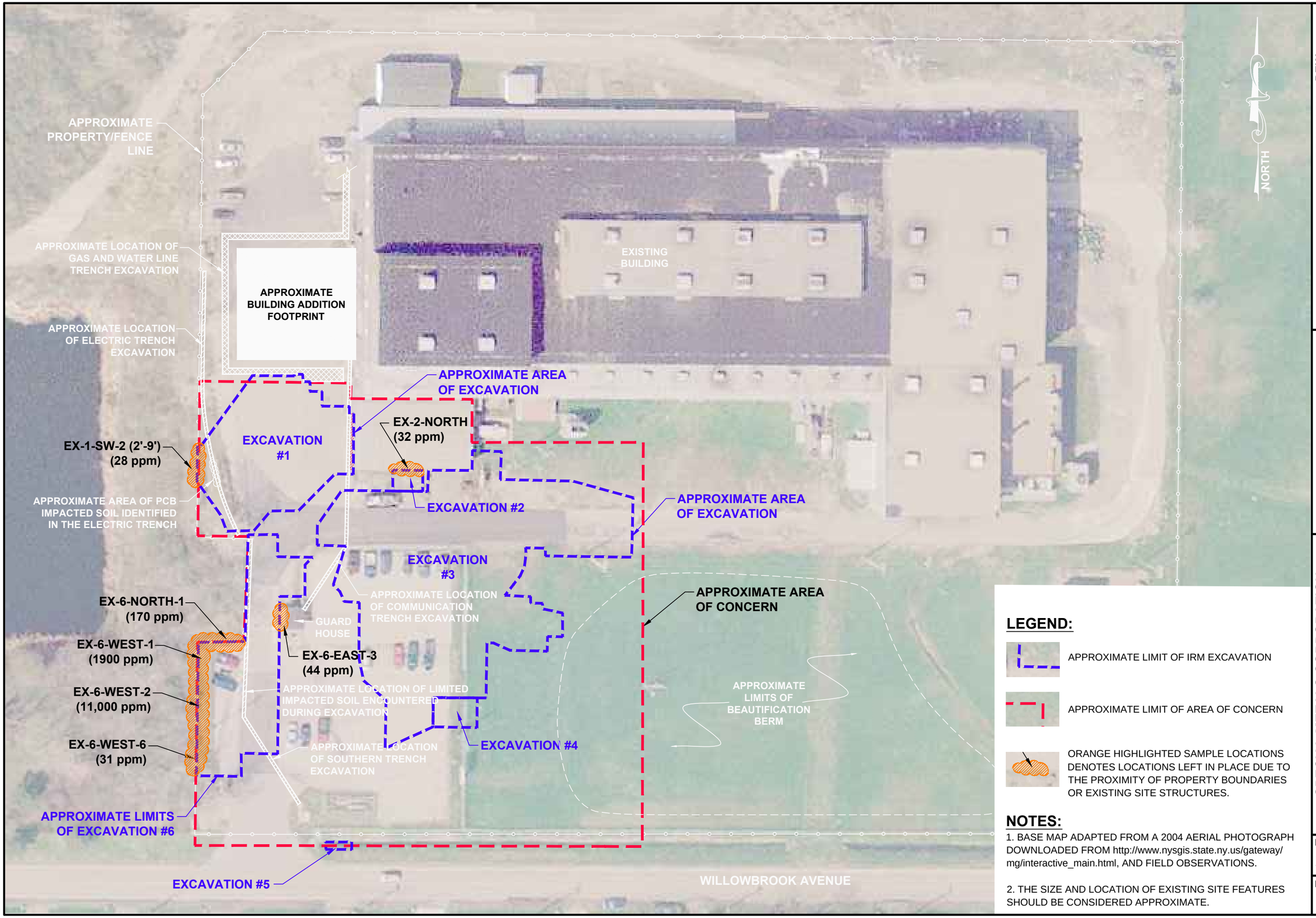
SPECIAL METALS CORPORATION
DUNKIRK FACILITY
100 WILLOWBROOK AVENUE
DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

SURFACE RESTORATION OF EXCAVATION AREAS PLAN

PROJECT No.
21.0056196.40

FIGURE No.
6



LEGEND:

- APPROXIMATE LIMIT OF IRM EXCAVATION
- APPROXIMATE LIMIT OF AREA OF CONCERN
- ORANGE HIGHLIGHTED SAMPLE LOCATIONS DENOTES LOCATIONS LEFT IN PLACE DUE TO THE PROXIMITY OF PROPERTY BOUNDARIES OR EXISTING SITE STRUCTURES.

NOTES:

1. BASE MAP ADAPTED FROM A 2004 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html, AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: **DEW**

DATE: **APRIL 2014**

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

0 30 60 120

SPECIAL METALS CORPORATION
DUNKIRK FACILITY
100 WILLOWBROOK AVENUE
DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

LOCATION OF PCB CONTAMINATION EXCEEDING NYSDEC PART 375 INDUSTRIAL SCOs

PROJECT No.
21.0056196.40

FIGURE No.
7

GZA-K:\PROJECTS\56100\56196.40 SPECIAL METALS SMP_ENVIRONMENTAL EASEMENT\Site Management Plan\FIGURE 7.dwg [Figure 7] March 24, 2014 - 3:52pm daniel.wulf

APPROXIMATE PROPERTY/FENCE LINE

APPROXIMATE BUILDING ADDITION FOOTPRINT

EXISTING BUILDING

DOWNWIND MONITORING LOCATION

ASSUMED SOUTH WEST PREVAILING WIND DIRECTION

DOWNWIND MONITORING LOCATION

APPROXIMATE AREA OF CONCERN

UPWIND MONITORING LOCATION

WILLOWBROOK AVENUE

NORTH

NOTES:

1. BASE MAP ADAPTED FROM A 2004 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html, AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: **DEW**

DATE: **APRIL 2014**

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

0 30 60 120

SPECIAL METALS CORPORATION

DUNKIRK FACILITY

100 WILLOWBROOK AVENUE

DUNKIRK, NEW YORK

SITE MANAGEMENT PLAN

AIR MONITORING LOCATION PLAN

PROJECT No.

21.0056196.40

FIGURE No.

8

APPENDIX A

ENVIRONMENTAL EASEMENT & METES AND BOUNDS

APPENDIX B

EXAMPLE HEALTH & SAFETY PLAN

HEALTH AND SAFETY PLAN
SPECIAL METALS CORPORATION
PCB SOIL REMEDIATION
DUNKIRK, NEW YORK

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1.0 INTRODUCTION

1.1 OVERVIEW

This Site-Specific Health and Safety Plan (HASP) has been developed by GZA GeoEnvironmental of New York (GZA) to establish the health and safety procedures required to protect on-site personnel, and off-site receptors from potential hazards resulting from activities within the specified scope of work for PCB remedial activities at the Special Metals Corporation, Dunkirk Facility, (SMC) located at 100 Willowbrook Drive in Dunkirk, New York (see Figure 1 of the Work Plan). The provisions of this plan apply to Site personnel involved with the PCB soil remedial activities that may be exposed to safety and/or health hazards related to activities described in Section 3.0 of this document. The procedures in this plan have been developed based on current knowledge regarding the hazards, which are known or anticipated for the operations to be conducted at this Site.

The following sections (1.1.1 to 1.2) present a brief summary of information from the body of this HASP. This information is intended as a guide to assist the reader and is not intended to be all-inclusive.

1.1.1 Project Scope

This project involves the excavation/disposal of PCB impacted soil, sample collection/screening and backfilling of the excavation. Figure 4 within the Work Plan identifies the area of the PCB impacted soil to be excavated and disposed.

1.1.2 Site Hazards

The primary hazards anticipated at the Site are the physical hazards associated with operation of mechanical equipment (e.g., excavator or dump truck) and potential exposure to soil containing hazardous levels of PCBs. Levels of chromium were also detected in soils at concentrations above New York State recommended soil cleanup objectives (RSCOs). The concentration of chromium detected is considered a minor impact. Exposure to the physical hazards by remedial personnel can be controlled by keeping a safe distance from heavy equipment during operation.

Exposure hazards that may potentially result from the presence of hazardous levels of PCBs in the soil will be minimized by wearing proper personnel protective equipment (PPE) while working in and around the excavation area and by conducting air monitoring (particulate and organic vapor) up and down wind of the excavation area.

1.1.3 Levels of Protection

Excavation and monitoring activities described within the scope of this HASP will require Level D protection. Environmental sampling, which may require contact with impacted soil will require a modified Level D protection (i.e., disposable boot covers).

1.2 PROJECT TEAM

The personnel responsible for the completion of this project and monitoring compliance with this HASP are:

Name	Project Title/Assigned Role	Office Phone Numbers	Cellular Phone Numbers
Bob DiFondi	SMC Environmental Coordinator Project Oversight	(315) 768-7530	(315) 525-4340
Chris Boron	GZA - Project Manager (Excavation Oversight, Environmental Monitoring, Sample Collection & Report Preparation)	(716) 685-2300 ext 3309	(716) 570-5990
Dean Cattieu	Waste Technology Services – Project Manger (Waste Disposal Coordination)	(716) 754-5400	(716) 870-6771
Dave Weaver	Pinto Construction – Project Manager (Earthwork Contractor)	(716) 825-6666	(716) 570-7220

Activities covered in this HASP must be conducted in complete compliance with this HASP and with all applicable federal, state and local health and safety regulations, including 29 CFR 1910.120. Each remedial activities employee must sign a copy of the HASP Orientation Verification Form (included in Attachment 1) verifying that he or she has read it and understands its requirements. Personnel covered by this HASP who cannot or will not comply must be excluded from Site activities.

2.0 BACKGROUND

The Site is an approximate 8-acre industrial property in Dunkirk, New York operated by SMC at 100 Willowbrook Avenue. The Site is utilized for the manufacture of alloys for the aerospace industry. An expansion on the western portion of the existing building for the installation of a new rotary forge is currently underway. This expansion, includes construction of a new building addition over an area of about 72-feet (north-south) by 87-feet to the west.

As part of the building expansion, a trench for the placement of an electrical conduit was excavated along the western portion of the property from an electrical pole to the building expansion area (the "Electric Trench"). During the Electric Trench excavation (August 30, 2006), odors were detected within a portion of the trench. SMC requested that its earthwork contractor stockpile the soil excavated from the trench on the asphalt surface and collect soil samples for analytical testing. Two soil samples were collected (designated Electric Trench 1 and Electric Trench 2, see Work Plan Table 1).

Results of the sampling indicated that PCBs were present at a concentration of 140 parts per million (ppm) and 31 ppm in samples Electric Trench 1 and Electric Trench 2, respectively. Other compounds were also detected, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals. The detected levels of VOCs and SVOCs are relatively minor, but the PCB concentration of 140 ppm is above the 50 ppm threshold for the material to be considered hazardous waste in New York. 6 NYCRR § 371.4(e).

Of the metals detected, chromium was the one that posed a concern due to its detection at a concentration above the New York State Department of Environmental Conservation (NYSDEC) RSCO guidance. Subsequent toxicity characteristic leachate procedure (TCLP) testing that was done on samples collected as part of the soil probe delineation did not indicate the presence of chromium above the hazardous waste threshold.

The soil stockpiled from the Electric Trench was placed in a roll-off and disposed of at the landfill facility operated by CWM Chemical Services in Model City, NY on September 22, 2006. Approximately 16 tons (14,545 kg) of soil were disposed and Waste Technology Services, Inc. (WTS) assisted SMC in making the disposal arrangements.

Subsurface soils probes were conducted in the vicinity of the Electric Trench to delineate the extent of the PCB contamination on two separate events. Groundwater was not encountered in any of the soil probe work.

Soil samples were collected in two feet intervals and were field and headspace screened for organic vapors using an organic vapor meter (OVM) equipped with a photoionization detector (PID). No significant headspace readings were noted.

Select soil samples were field screened using a Dexsil L2000 DX PCB Analyzer (see Figure 3 in Work Plan) for a comparison of the field screening results and analytical results). Based on the findings of the field screening, olfactory observations and for broader coverage, 56 soil samples were selected and sent for analysis that included PCBs via USEPA Method 8082, RCRA 8 Metals via USEPA Method 6010B17470, Total Compound List (TCL) VOCs via USEPA Method 8260 and TCLP Chromium via USEPA Method 1311/6010B.

Results of the analysis from the delineation effort were consistent with the Electric Trench samples in that PCBs are the primary parameters of concern. VOC and SVOC contamination was detected but not at levels of concern.

Based on the two rounds of the soil probe delineation work, the area of PCB-impacted soil to be addressed has been identified using the 10 ppm subsurface PCB standard found in TAGM 4046. The remedial area has an approximate 6,400 square foot footprint (see Figure 4 within the Work Plan).

3.0 SCOPE OF WORK

Field activities during this PCB soil remedial project shall be comprised of intrusive activities and non-intrusive activities. Non-intrusive activities will consist of site meetings, utility location, and air monitoring and are not expected to result in significant exposure to contamination. Intrusive activities are those activities that will result excavation and handling of PCB impacted soils (screening and sampling). The field activities planned are briefly described below.

3.1 NON-INTRUSIVE ACTIVITIES

3.1.1 Site Meeting

A Site meeting will be held with the entire project team prior to the start of the project to familiarize the parties involved with the Site and various remedial investigation activities.

3.1.2 Air Monitoring

Air monitoring will be conducted to monitor for particulate (up and down wind of the excavation area) and organic vapors.

3.1.3 Utility Location

Pinto Construction shall be responsible to identify subsurface utilities in the area of the proposed excavation. Utility lines will be marked out approximately one week prior to the start of the excavation activities and the marking will be checked on a daily basis for visibility.

3.2 Intrusive Activities

3.2.1 PCB Soil Excavation

SMC has retained an earthwork subcontractor, Pinto Construction, to perform the PCB soil excavation and backfill. GZA will provide oversight and collect samples for field screening and laboratory analysis. WTS will be responsible for the coordination of the PCB-impacted soil disposal.

A hydraulic excavator will be used to remove soils from the area shown on Figure 4. It is estimated that approximately 1,000 tons of soil will be disposed of as a hazardous waste. Soil excavated will be loaded into trucks for transportation to the disposal facility. Polyethylene sheeting will be placed on the ground beneath the truck loading area. Prior to leaving the AOC, the polyethylene lined loading area along with the tires of the truck will be inspected. Soil observed on the polyethylene sheeting that may contaminate equipment operating on the sheeting will be removed. Trucks will not be allowed to leave the loading area if their tires have contacted contaminated soil without being cleaned.

A GZA field engineer/geologist will observe the excavation efforts, maintain a log of the air monitoring results for organic vapor/particulate, collect field screening and confirmatory samples and maintain a drawing of excavation limits along with the field and confirmatory sample locations. On-Site personnel will be outfitted in modified Level D personnel protection (hardhat, safety glasses, coveralls, work boots and gloves). Work zone air monitoring will be done using an organic vapor meter and particulate monitor. Detections of 5 parts per million (ppm) above background for organic vapors or 150 ug/m^3 above background for particulate during air monitoring will require that the excavation be stopped until air monitoring levels decrease to background levels.

4.0 HAZARD ASSESSMENT

The following chemical, physical, and biological hazard assessment applies only to the activities within the specified scope of this HASP.

4.1 CHEMICAL HAZARDS

The potential chemical hazards at the Site are polychlorinated biphenyls, semi-volatile organic compounds and metal compounds based on previous investigation and sampling in the remedial area. The following discusses actual and potential hazards associated with the work to be conducted.

4.1.1 Volatile Organic Compounds

Exposure to the vapors of many VOCs above their respective permissible exposure limits (PELs), as defined by the Occupational Safety and Health Administration (OSHA), may produce irritation of the mucous membranes of the upper respiratory tract, nose and mouth. Overexposure may also result in the depression of the central nervous system. Symptoms of such exposure include drowsiness, headache, fatigue and drunken-like behavior. Some VOCs are considered to be potential human carcinogens.

The vapor pressures of many of these compounds are high enough to generate significant quantities of airborne vapor. On sites where high concentrations of these compounds are present, this can result in a potential inhalation hazard to the field team during subsurface investigations. To reduce the potential for exposure to the vapors of organic compounds, respiratory protection may be required. Because this Site is open and the anticipated quantities of contamination are relatively small, the potential for overexposure is expected to be small.

4.1.1.1 Chlorinated Organic Compounds

Exposure to vapors of many chlorinated organic compounds such as vinyl chloride, tetrachloroethene, 1,1,1 trichloroethane, trichlorethene and 1,2 dichloroethene above their respective PELs will result in similar symptoms. Exposure to chlorinated compounds can cause symptoms such as irritation of the eyes, nose and throat. Over exposure may also result in symptoms such as drowsiness, dizziness, headache, etc. Skin contact with the liquid may cause dermatitis. If splashed in the eyes, the liquid may cause burning, irritation and damage. Vinyl chloride is a known carcinogen.

4.1.1.2 Petroleum Hydrocarbons

Petroleum hydrocarbons (PHCs) such as fuel oil are generally considered to be of low toxicity. Recommended airborne exposure limits have not been established for these vapors. However, inhalation of low concentrations of the vapor may cause mucous membrane irritation. Inhalation of high concentrations of the vapors may cause pulmonary edema. Repeated or prolonged direct skin contact with the oil may produce skin irritation as a result of defatting. Protective measures, such as wearing chemically

resistant gloves, to minimize contact are addressed elsewhere in this plan. Because of relatively low vapor pressures associated with PHCs, an inhalation hazard in outdoor an environment is not likely.

4.1.2 Metal Compounds

Overexposure to metals has been associated with a variety of health hazards, both acute and chronic in nature, with chronic effects being most significant. Direct contact with dust of some metal compounds can result in contact or allergic dermatitis. The American Conference of Governmental Industrial Hygienists (ACGIH) has established inhalation exposure limits, expressed as Threshold Limit Values (TLVs), to which most workers can be exposed (on an 8-hour time-weighted average (TWA) basis) without adverse affect. To limit potential exposure visible clouds of dust should be controlled as required and workers and observers will remain upwind of intrusive activities.

Hexavalent chromium compounds, upon contact with the skin can cause ulceration and possibly an allergic reaction. Inhalation of hexavalent chromium dust is irritating and corrosive to the mucous membranes of the upper respiratory tract. Chrome ulcers and chrome dermatitis are common occupational health effects from prolonged and repeated exposure to hexavalent chromium compounds. Acute exposures to hexavalent chromium dusts may cause coughing or weezing, pain on deep inspiration, tearing, inflammation of the conjunctiva, nasal itch and soreness or ulceration of the nasal septum. Certain forms of hexavalent chromium have been found to cause increased respiratory cancer among workers. Inhalation of copper and zinc dusts above their established PEL's may result in flu-like symptoms known as "metal fume fever".

Similarly, ingestion of quantities likely to result in any harmful effects are unlikely to occur within the scope of activities covered in this HASP. Incidental ingestion of minor amounts through hand-to-mouth contact can be avoided with good personal hygiene habits.

The most significant route of exposure is likely to be skin contact with the contaminated soils. Protective measures, such as the wearing of chemically resistant gloves, to minimize contact are addressed in Section 6.0 of this plan.

4.1.3 Polychlorinated Biphenyls

Prolonged skin contact with PCBs may cause a condition known as chloracne. PCBs are considered to be suspect carcinogens and may also cause reproductive damage.

It should be noted that PCBs have extremely low vapor pressures. This makes it unlikely that any significant vapor concentration (i.e. exposures above the OSHA PEL) will be created in the ambient environment. This minimizes the potential for any health hazards to arise due to

inhalation unless the source is heated or generates significant airborn particulate. Based on sample information from previous work done at the Site, hazardous levels of PCBs are present in the area of the investigation.

4.1.4 Pesticides

Pesticides can be grouped into three major categories; organophosphates, carbamate and chlorinated hydrocarbons. The actual PEL as set by OSHA, vary depending on the specific compound. Organophosphates, including Diazinon, Malathion and Parathion, are quickly absorbed into the body by inhalation, ingestion and direct skin contact. The symptoms of exposure include headache, fatigue, dizziness, blurred vision, sweating, cramps, nausea and vomiting. More severe symptoms can include tightness of the chest, muscle spasms, seizures and unconsciousness. It should also be noted that the Malathion and Parathion PELs both carry the *Skin* notation, indicating that these compounds adversely effect or penetrate the skin. OSHA specifies that skin exposure to substances carrying this designation be prevented or reduced through the use of the appropriate personal protective equipment (PPE).

Chlorinated hydrocarbons such as Chlordane, DDT and Heptachlor can cause dizziness, nausea, abdominal pain and vomiting. The more severe symptoms include epileptic like seizures, rapid heart beat, coma and death. These compounds also carry the OSHA *Skin* notation.

The symptoms of exposure to carbamate such as Carbaryl (also known as Sevin), are similar to those described for the organophosphates.

4.1.5 Methane

Methane is an odorless, colorless, tasteless gas, and is a significant fire and explosion hazard. It also acts primarily as a simple asphyxiate when present in high concentrations. Methane has a lower explosive limit (LEL) of 5% and an upper explosive limit of 15%.

4.1.6 Hydrogen Sulfide

Hydrogen sulfide, characterized by its "rotten egg" odor, is produced by decomposition of organic matter. In many instances, hydrogen sulfide is found in the same area as methane gas. An important characteristic of hydrogen sulfide is its ability to cause a decrease in ones ability to detect its presence by smell. So although you may no longer smell it, it still may be present in harmful concentrations.

The symptoms of over exposure include headaches, dizziness, staggering and nausea. Severe over exposure can cause respiratory failure, coma and death. The OSHA PEL is 10 ppm.

4.1.7 Chemicals Subject to OSHA Hazard Communication

Chemicals brought on-Site such as solvents, reagents, decontamination solutions, or other hazardous chemicals must be accompanied by the required labels, Material Safety Data Sheets (MSDS), and employee training documentation (OSHA 1910.120). GZA will maintain these documents on-Site. For additional information refer to the GZA Hazard Communication Program contained in GZA's Health and Safety Program Manual.

4.2 PHYSICAL HAZARDS

Personnel on-Site should be provided with the information and training necessary to avoid accidental injury. This includes assuring that the Site is maintained in such a way that slip, trip and fall hazards as well as cut, puncture and abrasion hazards such as nails, scrap metal, rusted containers and construction derbies are recognized and eliminated or controlled. Basic personal protective equipment (i.e, hard hat and safety glasses) is required by SMC prior to entering the Site.

4.2.1 Construction Hazards, Construction Equipment and Excavators

The use of construction equipment represent potentially serious construction hazards. Whenever such equipment is used, personnel in the vicinity should be limited to those who must be there to complete their assigned duties. All personnel must avoid standing within the turning radius of the equipment or below any suspended load. Job sites must be kept as clean, orderly and sanitary as possible. When water is used, care must be taken to avoid creating muddy or slippery conditions. If slippery conditions are unavoidable, barriers and warning signs must be used to warn of these dangers.

Procedures that will be implemented to limit physical hazard impacts include the following. Never turn your back to operating machinery when in the machine's operational area. Never wear loose clothing, jewelry, hair or other personal items around rotating equipment or other equipment that could catch or ensnare loose items. Always stand far enough away from operating machinery to prevent accidental contact which may result from mechanical or human error.

Additionally, the following basic personal protective measures must be observed: Hard Hats must be worn to protect against bumps or falling objects. Safety glasses must be worn by all workers in the vicinity of drill rigs or other sources of flying objects. Goggles, face shields or other forms of eye protection must be worn when necessary to protect against chemicals or other hazards. Steel toed safety shoes or boots are also required. The shoes must be chemically resistant or protected with appropriately selected boots/coverings where necessary. Unless otherwise specified, normal work clothes must be worn. Gloves are also required whenever

necessary to protect against hazardous contact, cuts, abrasions or other possible skin hazards.

4.2.2 Trenching and Excavation

OSHA requires that a competent person, who is trained to recognize the hazards associated with trenching and excavating activities and has authority to control these hazards within the limits established by OSHA Trenching and Excavation Standard (29 CFR 1926.650-652) be present at all times. Trenching and excavating will be done by Pinto Construction. Excavation work will be completed in accordance with OSHA regulations (29 CFR 1926 Subpart P).

4.2.3 Fire and Explosion

The possibility of flammable materials being encountered during field activities must be recognized. Therefore, the appropriate steps necessary to minimize fire and explosion must be observed. This includes situations where excessive organic vapors or free product are encountered. When this occurs, monitoring with a combustible gas indicator (CGI) and OVM, is required.

Excessive organic vapors can cause an explosion hazard. Therefore, whenever excessive organic vapors are detected using an OVM, monitoring should be done for the presence of explosive gases.

Fire, explosion and hazardous chemical release should be regarded as one of, if not the, most significant hazard associated with drilling operations and other intrusive work conducted at sites where possible reactive and/or toxic waste may be encountered. Accordingly, all sources of ignition must be fully controlled. Failure to control ignition sources could result in fire, explosion and pose a serious threat to life and health. Fire extinguishers will be located near each intrusive activity.

4.2.4 Noise

Noise exposure can be affected by many factors including the number and types of noise sources (continuous vs intermittent or impact), and the proximity to noise intensifying structures such as walls or building which cause noise to bounce back or echo. The single most important factor affecting total noise exposure is distance from the source. The closer one is to the source the louder the noise. The operation of an excavator or other mechanical equipment can be sources of significant noise exposure. In order to reduce the exposure to this noise, personnel working in areas of excessive noise must use hearing protectors (ear plugs or ear muffs). If hearing protection is worn, hand signals will be implemented as needed.

4.2.5 Heat and Cold Stress

Overexposure to temperature extremes can represent significant risks to personnel if simple precautions are not observed. Typical control measures designed to prevent heat stress include dressing properly, drinking plenty of the right fluids, and establishing an appropriate work/break regimen. Typical control measures designed to prevent cold stress also include dressing properly, and establishing an appropriate work/break regimen.

4.2.6 Electrical

OSHA regulations require that employees who may be exposed to electrical equipment be trained to recognize the associated hazards and the appropriate control methods. All extension cords used for portable tools or other equipment must be designed for hard or extra usage and be (three wire) grounded. All 120 volt, single-phase 15 and 20 ampere receptacle outlets on construction sites and other locations where moisture/water contact may occur must be equipped with ground-fault circuit interrupters (GFCI) units. GFCI units must be attached directly to or as close as possible to the receptacle. GFCI units located away from the receptacle will not protect any wiring between the receptacle and the GFCI unit. Only the wiring plugged into the GFCI unit and outward will be protected by the GFCI. All (temporary lighting) lamps for general illumination must be protected from accidental breakage. Metal case sockets must be grounded. Portable lighting in wet or conductive locations should be 12 volt or less. GZA does not anticipate the need for temporary lighting for this project. GZA assumes that all the work will be completed during the daylight hours.

4.2.7 Moving Vehicles, Traffic Safety

All vehicular traffic routes which could impact worker safety must be identified and communicated. Whenever necessary, barriers or other methods must be established to prevent injury from moving vehicles. This is particularly important when field activities are conducted in parking lots, driveways, or roadways.

The uncontrolled presence of pedestrians on an excavation site can be hazardous to both pedestrians and site workers. Prior to the initiation of Site activities, the Site should be surveyed to determine if, when and where pedestrians may gain access. This includes walkways, parking lots, gates and doorways. Barriers or caution tape should be used to exclude all pedestrians. Exclusion of pedestrian traffic is intended to prevent injury to the pedestrian and eliminate distractions which could cause injury to GZA personnel or other site workers.

4.2.8 Overhead Utilities and Hazards

Overhead hazards can include low hanging structures which can cause injury due to bumping into them. Other overhead hazards include falling objects, suspended loads, swinging loads and rotating equipment. Hard-hats must be worn by personnel in areas were these types of physical hazards may be encountered. Barriers or other methods must also be used to exclude personnel from these areas were appropriate. Electrical wires are another significant overhead hazard. According to OSHA (29 CFR 1926.550), the minimum clearance which must be maintained from overhead electrical wires is 10 feet from an electrical source rated $\leq$ 50 kV. Sources rated > 50 kV require a minimum clearance of 10 feet plus 0.4 inches per kV above 50 kV.

4.2.9 Underground Utilities and Hazards

The identification of underground pipes, utilities and other underground hazards is critically important prior to excavating and other intrusive activities. In accordance with OSHA 29 CFR 1926.650, the estimated location of utility installations, such as sewer, telephone, electric, water lines and other underground installations that may reasonably be expected to be encountered during excavation work, must be determined prior to opening an excavation. In New York State, the "Dig Safe" notification phone number is 1-800-962-7962. Additionally, a utility locating company will be subcontracted to assist in identifying on-Site utilities prior to the start of the excavation work. The mark-outs provided by the utility subcontractor will be maintained on a regular basis until the excavation work is complete.

4.2.10 Confined Space

Confined space entry activities, such as entering sewer systems requires specialized procedures beyond the scope of this plan. Therefore, if circumstances require such activities, this plan must be modified accordingly.

4.3 BIOLOGICAL HAZARDS

All personnel on site should be provided with the information and training necessary to avoid accidental injury or illness which can result from exposure to biological hazards. This includes assuring that the Site is carefully assessed so that the hazards associated with poisonous plants, insects or other sources of biological contamination (i.e., septic systems) are recognized and eliminated or controlled. In most cases this can be done by using proper PPE. Due to the current site conditions and time of year, biological hazards are not expected to be encountered.

5.0 AIR MONITORING

Air Monitoring falls into three separate categories; real time monitoring, community air monitoring and personal exposure monitoring. Real time monitoring will be conducted within the exclusion zone (EZ). Community air monitoring will be done at the down wind perimeter of the EZ. Table 1 summarizes the type of environmental monitoring as well as appropriate response actions applicable to the Site. Additional details regarding air monitoring are presented below.

5.1 REAL TIME MONITORING

The real time monitoring required to determine the airborne concentrations of the representative compounds and the corresponding response action for the Site, will be conducted using the instruments indicated in Table 1. Although the data provided by these instruments can be used to determine the appropriate control actions and PPE requirements, the data may be inappropriate for use in determining employee time weighted average exposures as required by OSHA.

Monitoring with the specified instruments will be conducted at a frequency necessary to adequately characterize airborne contamination levels around the excavation area. Initial monitoring will be most frequent and will be either continuous or at intervals of once every 15 minutes as directed by the GZA's field representative. Monitoring shall be conducted in close proximity to the excavation as described in this HASP. If instruments indicate the presence of elevated levels of organic vapors or particulate in the work area, the general breathing zone in the EZ should then be monitored to determine appropriate response action in accordance with the action levels specified in this section.

Equipment calibration must be performed in accordance with the manufacturer's instructions. Field checks using the appropriate reference standards must be made on-Site at the minimum frequency of twice per shift (pre- and post-sampling). A daily log of all instrument readings, as well as all field reference checks and calibration information, and corrective actions must be maintained.

5.1.1 Total Volatiles Organics

An OVM with a PID, equipped with a 10.2 ev lamp calibrated to a standard referenced to benzene in air, will be used to monitor the breathing zone of workers performing remedial activities to assess the potential presence of organic vapors. If elevated levels (> 5 ppm) are sustained (greater than 1 minute) in the work area, work will be suspended until the situation can be assessed and the potential source of the organic vapors determined.

5.1.2 Particulate Monitoring

Particulate monitoring will be done using one up wind monitor to establish background concentrations and two down wind monitoring locations. If particulate monitoring data exceeds 150 ug/m^3 above background, dust control be used (i.e., wet down the material).

5.2 COMMUNITY AIR MONITORING

Real-time air monitoring, for organic compound levels at the perimeter of the work area will be conducted as follows. Volatile organic compounds shall be monitored at the downwind perimeter of the work area at a minimum of once per hour. If total organic vapor levels exceed 5 ppm above background, work activities must be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings shall be recorded and will be available for review.

5.2.1 Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume. If the organic vapor levels are greater the 5 ppm over background but less then 25 ppm over background at the perimeter of the work area, activities can resume provided that the organic vapor level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the GZA's field representative will be implemented.

5.2.2 Major Vapor Emissions

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, work activities must be halted.

If, following the cessation of the work activities, or as a result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If efforts to abate the emission source are unsuccessful and levels above 5 ppm above background persist for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect (See Section 5.2.3).

5.2.3 Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken.

1. All Emergency Response Contacts as listed in the Health and Safety Plan will go into effect (See Section 11.2).

2. The local police authorities will immediately be contacted and advised of the situation.

3. Frequent air monitoring will be conducted at 30 minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified.

5.3 PERSONAL EXPOSURE MONITORING

Determinations regarding individual exposure potentials will be based on the work area monitoring described above. Separate personal air sampling will not be conducted.

6.0 PERSONAL PROTECTIVE EQUIPMENT

PPE will be donned as described below for the activities covered by this HASP. Non-intrusive activities within the scope of this HASP will require Level D protection. All intrusive activities will be initiated in modified Level D which will included boot covers or Tyvek coveralls for personnel working in the excavation. Level C protection is outside the scope of this HASP.

6.1 NON-INTRUSIVE ACTIVITIES

Non-intrusive activities, which include Site meetings, air monitoring and utility location will require Level D protective equipment. This equipment is defined as:

- Hard hat;
- Steel-toed work boots;
- Work clothes;
- Hearing protection (if necessary); and,
- Eye protection - contact lenses may not be worn on site.

- Disposable latex gloves (as needed).

6.2 INTRUSIVE ACTIVITIES

Intrusive activities, which includes excavation of PCB impacted soil will require modified Level D protective equipment for personnel working in the excavation. This equipment is defined as:

- Hard hat;
- Boot covers or Tyvek coveralls;
- Steel-toed work boots;
- Disposable latex gloves;
- Eye protection; and,
- Hearing protection (see Section 4.2.4).

If air monitoring results indicate the need to upgrade to Level C respiratory protection, work will be stopped and the excavation covered with polyethylene sheeting until the situation can be assessed. Due to number of employees and construction workers at the Site, unrelated to the PCB excavation work, an update to Level C would not be prudent until the situation can be properly assessed and the well being of the entire work force at the Site be taken into consideration.

7.0 SITE CONTROL

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas along with personal protective equipment requirements will be clearly identified as suggested in the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," NIOSH/OSHA/USCG/EPA, November, 1985. They recommend the area surrounding the work areas to be divided into three zones; the exclusion or "Hot" zone, contamination reduction zone (CRZ), and the support zone.

7.1 EXCLUSION ZONE

Due to size of the excavation in the limited area in the southwest corner of the Site, this portion of the Site will be closed to workers and activities unrelated to the PCB soil removal. Therefore, the exclusion zones (EZ) are to consist of the limits of the excavation and the truck loading area. Site personnel will be advised of these locations as part of the routine Site safety meetings described in Section 9.0.

The EZ will consist of the active work area where excavation and soil loading are taking place.

A 15-foot radius will attempt to be established around the perimeter of this zone; however, this may be decrease due to the limited area in the southeastern corner of the Site and to minimize disruption to ongoing Site operations. The perimeter of the zone will be established using concrete barriers. All personnel entering these areas must wear the prescribed level of protective equipment.

7.2 CONTAMINATION REDUCTION ZONE

The contamination reduction zone (CRZ) will be a clearly marked area between the exclusion and support zone. The actual location of the CRZ area will be north of the excavation area where soil is not expected to be excavated. The CRZ is where personnel will begin the sequential decontamination process when exiting the EZ. To prevent cross contamination and for accountability purposes, all personnel must enter and leave the exclusion zone through the CRZ. A separate heavy equipment decontamination zone will also be established at the Site.

7.3 SUPPORT ZONE

The support zone (SZ) will coincide with the project command post, and will consist of an area outside the exclusion zone and CRZ where support equipment will be staged. Eating, drinking and smoking will be allowed only in this area. Sanitary facilities will be located within the SZ. In addition, potable water and water and soap for hand washing will be available at the site, along with containers for solid waste for use by the PCB excavation personnel. The containers will be removed from the Site and properly disposed. Hazardous, or potentially hazardous, materials (i.e., new waste stream, water in contact with impacted soils) will be containerized, labeled and stored for future disposal. Latex gloves and Tyvek suits will be disposed with the soil that is taken to the landfill on a daily basis.

7.4 OTHER SITE CONTROL AND SAFETY MEASURES

The following measures are designed to augment the specific health and safety guidelines provided in this plan.

- The "buddy system" will be used at all times by all field personnel. No one is to perform field work alone. The standby project team member must be intimately familiar with the procedures for initiating an emergency response.

- Avoidance of contamination is of the utmost importance. Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces or materials. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or set equipment on the ground. Protect air monitoring equipment from water by bagging.

- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking or any other activities.

- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited except in the support zone after proper decontamination.

- The use of alcohol or drugs is prohibited during the conduct of field operations.

- All equipment must be decontaminated or properly discarded before leaving the Site.

- Safety equipment (PPE) described in Section 6.0 will be required for all field personnel unless otherwise approved by the local/regional health and safety representative.

7.5 SITE SECURITY

SMC has on-Site 24 hours a day, seven days a week and all personnel entering and exiting the Site are required to sign in and out.

Equipment left on-Site during off hours must be locked, immobilized and/or otherwise secured to prevent theft or unauthorized use or access.

8.0 DECONTAMINATION

To the extent possible, the sampling methods and equipment have been selected to minimize both the need for decontamination and the volume of waste material to be generated. Used PPE will be disposed on a daily basis with the PCB impacted soil.

8.1 PERSONNEL DECONTAMINATION

Personnel decontamination will be accomplished by following a systematic procedure of cleaning and removal personal protective clothing (PPE). Contaminated PPE such as latex gloves, boot covers or Tyvek coveralls will be removed in the CRZ and disposed of. The following decontamination sequence in the re-useable PPE

8.1.1 Decontamination Sequence

Steps required will depend on the level of protection worn in accordance with Section 6.0:

1. Remove and wipe clean hard hat.
2a. Rinse outer boots and outer gloves (if used) of gross contamination.
2b. Scrub boots and gloves clean.
2c. Rinse boots and gloves.
3. Remove outer protective boots .
4. Remove outer gloves.
5. Remove tyvek coveralls.
6. Remove respirator, wipe clean and store.
7. Remove inner gloves.

Boots that have been decontaminated or protected with disposable boot covers can be worn into the support zone.

8.2 EQUIPMENT DECONTAMINATION

To the extent possible, measures should be taken to prevent contamination of sampling and monitoring equipment. Sampling devices become contaminated, but monitoring instruments, unless they are splashed, usually do not. Once contaminated, instruments are difficult to clean without damaging them. Delicate instrument which cannot be easily decontaminated should be protected while it is being used. It should be placed in a clear plastic bag, and the bag taped and secured around the instrument. Openings are made in the bag for sample intake and exhaust.

If solvents are used for decontamination of equipment all safety precautions specified on the manufacturer's warning label and MSDS must be observed. Rinsate generated during the decontamination process will be containerized, labeled, sampled and properly disposed.

The excavator to be used to complete the soil excavation can be difficult to decontaminate. The method generally used is to wash them with water under high pressure or to scrub accessible parts with detergent/water solution under pressure. To minimize the amount of decontamination necessary, the following procedures will be used.

- A decontamination pad will be constructed on-site for the bucket of the excavators and equipment decontamination.
- A separate excavator bucket will be used to place clean backfill. The PCB soil excavation bucket will be placed in the decontamination pad until it is needed again to remove impacted soil. The backfill excavation bucket will be kept in an area where it

will not be exposed to impacted soil or materials.

- Polyethylene sheeting or plywood will be placed in the excavation, if the excavator is required to enter the excavation and may contact impacted soil.
- Once the excavation is complete, shovels, buckets, etc will require complete contamination prior to leaving the Site. Water and alconox will be used to decontaminate the equipment and a water rinse will be used to remove the detergent and remaining contamination. Particular care must be given to those components in direct contact with contaminants. Personnel doing the decontamination must be adequately protected for the methods used since these can generate contaminated mists or splashing.

9.0 MEDICAL MONITORING AND TRAINING REQUIREMENTS

9.1 MEDICAL

All personnel covered by this HASP must comply with 29 CFR 1910.120(f). Each individual must have completed an annual surveillance examination and/or an initial baseline examination within the last year prior to performing any work on the Site covered by this HASP. Documentation of the examination must include a physician's statement indicating the employee is fit and capable of performing their duties.

9.2 TRAINING

All personnel covered by this HASP must have completed the appropriate training requirements specified in 29 CFR 1910.120 Hazard Communication and 29 CFR 1910.120(e). Each individual must have completed an annual 8-hour refresher training course and/or initial 40-hour training course within the last year prior to performing any work on the Site covered by this HASP.

9.3 SUBCONTRACTORS

Subcontractors to SMC will be required to provide to GZA specific written documentation that each individual assigned to this project has completed the medical monitoring and training requirements specified above. This information must be provided prior to their performing any work on site.

9.4 SITE SAFETY MEETINGS

Prior to the commencement of the soil excavation, a Site safety meeting will be held to review the specific requirements of this HASP. Sign-off sheets will be collected at this meeting. Short

safety refresher meetings will be conducted by GZA weekly (at a minimum) or as needed throughout the duration of excavation work. In addition, the GZA will ensure that Site visitors have had the required training in accordance with 29 CFR 1910.120 and will provide pre-entry safety briefings.

10.0 EMERGENCY ACTION PLAN

11.1 GENERAL REQUIREMENTS

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." Project personnel covered by this HASP may not participate in any emergency response where there are potential safety or health hazards (i.e., fire, explosion, or chemical exposure). Response actions will be limited to evacuation and medical/first aid as described within this section below.

The basic elements of an emergency evacuation plan include employee training, alarm systems, escape routes, escape procedures, critical operations or equipment, rescue and medical duty assignments, designation of responsible parties, emergency reporting procedures, and methods to account for all employees after evacuation.

11.1.1 Employee Information

General training regarding emergency evacuation procedures are included in the initial and refresher training courses as described above in Section 9.2 of this HASP. Also as described above in Section 9.4, employees must be instructed in the specific aspects of emergency evacuation applicable to the Site as part of the site safety meeting prior to the commencement of all on-Site activities. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed.

11.1.2 Emergency Signal and Alarm Systems

An emergency communication system must be in effect at the Site. The most simple and effective emergency communication system in many situations will be direct verbal communications. The work area must be assessed at the time of initial site activity and periodically as the work progresses. Verbal communications must be supplemented anytime voices can not be clearly perceived above ambient noise levels (i.e., noise from heavy equipment, drilling rigs, etc.) and anytime a clear line-of-sight can not be easily maintained amongst project

personnel because of distance, terrain or other obstructions. When verbal communications must be supplemented, emergency signals (using hand-held portable airhorns) must be implemented.

11.2 EMERGENCY CONTACTS

In the event of an emergency, assistance may be requested using the following telephone numbers:

Police	911
Fire	911
Ambulance	911
Hospital	(716) 366-1111

Hospital Location

The hospital is Brooks Memorial Medical Center located at 529 Central Avenue, Dunkirk, New York. See Figure E-1 (Map of Route to Hospital).

Other Emergency Contact Information

Special Metals Corporation – Bob Difondi (Primary)	315-768-7530 (office) 315-525-4340 (cell)
Special Metals Corporation – Don Borowski (Secondary)	716-336-5663 ext. 229 (office) 716-410-0741 (cell)
GZA GeoEnvironmental – Chris Boron	716-685-2300 ext. 3309 (office); 716-570-5990 (cell)
Dave Weaver – Pinto Construction	716-825-6666 (office) 716-570-7220 (cell)

11.3 INCIDENT REPORTING PROCEDURES

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage requires an accident investigation and report. The investigation should be initiated as soon as emergency conditions are under control. The purpose of this investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided. A copy of the Project Incident Investigation Form is included in Attachment 1.

The investigation should begin while details are still fresh in the mind of anyone involved. The

person administering first aid may be able to start the fact gathering process if the injured are able to speak. Pertinent facts must be determined. Questions beginning with who, what, when, where, and how are usually most effective to discover ways to improve job performance in terms of efficiency and quality of work, as well as safety and health concerns.

TABLE

TABLE E-1
ACTION LEVELS

	Monitoring Type	Concentration	Instrument	Monitoring Location	Monitoring Frequency	Required Action
Real time Monitoring	Total VOCs	< 1 ppm	PID (10.2 ev)	EZ	At least every 15 minutes	Continue monitoring
Real time Monitoring	Total VOCs	> 5 ppm	PID (10.2 ev)	EZ	Continuous	Stop work and assess situation.
Community Air Monitoring (intrusive activities only)	Total VOCs	< 5 ppm above background	PID (10.2 ev)	Down wind of EZ	At least every 1 hour	Continue monitoring of EZ (potential source) and down wind perimeter of the EZ (work zone).
Community Air Monitoring (intrusive activities only)	Total VOCs	> 5 ppm above background	PID (10.2 ev)	Down wind of EZ	Continuous	Stop work. If organic vapors levels are >5ppm over background but less than 25 ppm over background at the perimeter of the work area than work can resume provided the organic vapor level 200 feet down wind of the work area or half the distance to the nearest structure is < 5ppm. If the level is > 5 ppm 200 feet downwind, follow procedures outlined in section 5.2.2 (Major Vapor Emissions) of this plan.
Community Air Monitoring (intrusive activities only)	Total VOCs	> 25 ppm above background	PID (10.2 ev)	Down wind of EZ	Continuous	Stop work. Follow air monitoring procedures outline in section 5.2.2 (Major Vapor Emissions) of this plan.
Real Time Monitoring	Particulate	150 ug/m3 above background	Thermo Anderson pDR-1000AN	One upwind location from EZ and two down wind locations from work area	Continuous	Stop work and reduce dust by wetting the area or changing operation.

EZ= Exclusion Zone (work zone).
VOCs=Volatile organic compounds.

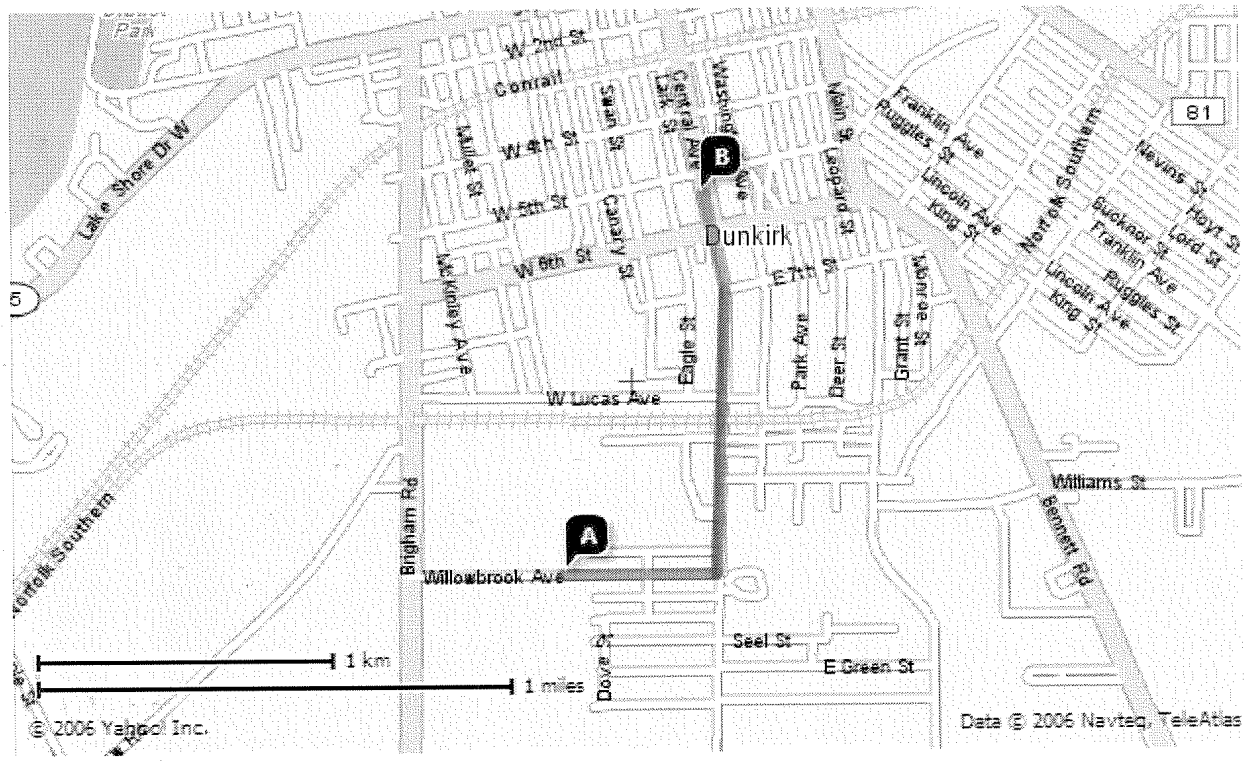
FIGURE

YAHOO! DRIVING DIRECTIONS

A Special Metals Corporation (716) 366-5663
100 Willowbrook Ave., Dunkirk NY

B Brooks Memorial Hospital (716) 366-1111 ★★★☆☆
529 Central Ave., Dunkirk, NY

Total Distance: NaN miles, Total Travel Time: NaN hours NaN mins



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

ATTACHMENT 1

HEALTH AND SAFETY BRIEFING/SITE ORIENTATION RECORD

PROJECT INCIDENT INVESTIGATION FORM

Health and Safety Briefing /Site Orientation Record

Special Metal Corporation
PCB Soil Excavation
Dunkirk, New York

This is to verify that I, the undersigned, have been provided with a site (orientation) briefing regarding the safety and health considerations for the PCB Soil Excavation at the Special Mtals Corporation Site, in Dunkirk, New York. I agree to abide by my project site-specific safety and health plan and other safety or health requirements applicable to the site.

Name (Print)	Signature	Company	Date

Site (orientation) briefing conducted by: _____ Date:_____

PROJECT INCIDENT INVESTIGATION FORM

Employee's Name | Company Name

Project Name | Project Location

Project Number

Building | Room | Other

Time Incident Occurred | Date

Supervisor's Name

Type of Case:

First Aid | Medical Treatment

Lost Time | Fatality | Property Damage

Occupational Illness

Describe the incident (What happened):

Describe the type of first aid or medical treatment provided:

Describe employee activity at time of incident:

Describe any tools or machinery involved:

Describe any personal protective equipment used by employee:

In your opinion, what the probable causes of the incident are:

In your opinion, how this incident could have been prevented:

Changes in process, procedure, or equipment that you would recommend:

How you would classify the apparent causes of this incident:

Human error	Equipment
Material	Personal Protective Equipment
Real Time	Other

Name and signature of person preparing this form:

Distribution:

Branch/Regional Office Manager:
Regional Health and Safety Coordinator:
Corporate Director of Health and Safety:
Other:

Note: If the space provided on this form is insufficient, provide additional information on separate paper and attach.

APPENDIX C

AREA OF CONCERN INSPECTION FORM

TABLES

FIGURES

APPENDIX A

ENVIRONMENTAL EASEMENT & METES AND BOUNDS

APPENDIX B

EXAMPLE HEALTH & SAFETY PLAN

APPENDIX C

AREA OF CONCERN INSPECTION FORM

AREA OF CONCERN INSPECTION FORM
SITE MANAGEMENT PLAN
SPECIAL METALS CORPORATION
DUNKIRK, NEW YORK

NAME: _____	INSPECTION TIME _____		
DATE:	WEATER CONDITIONS		
VISUAL INSPECTION CHECKLIST			
Visually Inspect Area of Concern	YES	NO	
Photographic Documentation	YES	NO	
Is asphalt in parking lot in need of repair?	YES	NO	If YES, expalin in next section.
Is asphalt inside security fence in need of repair?	YES	NO	If YES, expalin in next section.
Is the security fence in need of repair?	YES	NO	If YES, expalin in next section.
Is grass cover in need of repair?	YES	NO	If YES, expalin in next section.
Is floor in Maintenance Shop in need of repair?	YES	NO	If YES, expalin in next section.
Other issues of concern identified?	YES	NO	If YES, expalin in next section.
Areas to be repaired are shown on attached figure	YES	NO	
AREAS IN NEED OF REPAIR			
Area discussed in this section must be shown on a figure and have photographic documentation.			

INTRUSIVE ACTIVITIES PLANNED FOR AREA OF CONCERN	DATE	LOCATION

ADDITIONAL NOTES & COMMENTS