COPYRITE PLASTIC SHEETS SITE

261-315 GRAND CONCOURSE & 270 WALTON AVENUE

BRONX, NEW YORK

INTERIM REMEDIAL MEASURES WORK PLAN (AST REMOVAL)

NYSDEC BCP SITE NO. C203151

JANUARY 2024

Prepared For:

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233
&
Walton Street GC Developments LLC
1201 38th Street
Brooklyn, New York 11219

Prepared By:

AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105

CERTIFICATION

I, Ariel Czemerinski, certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and is substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

076508	1/19/24	
NYS Professional Engineer	Date	Signature

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

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Copyrite Plastic Sheets Site
261-315 GRAND Concourse & 270 Walton Avenue, Bronx, New York

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LIST OF ACRONYMS

AOC	Area of Concern
AWQS	Ambient Water Quality Standards
AGV	Air Guidance Value
ASP	Analytical Services Protocol
ASTM	American Society for Testing and Materials
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BGS	Below Grade Surface
CAMP	Community Air Monitoring Program
COC	Chain of Custody
CPP	Citizen Participation Program
CSM	Conceptual Site Model
DER-10	Department of Remediation Technical Guidance
ELAP	Environmental Laboratory Accreditation Program
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Investigative Remedial Measures
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MDL	Method Detection Limit
NAPL	Non-aqueous Phase Liquid
NYCRR	New York Codes Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation

NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PID	Photo Ionization Detector
QA/QC	Quality Assurance/ Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SVOC	Semi-volatile Organic Compound
TCL	Target Compounds List
TOGS	Technical and Operational Guidance Series
USGS	United States Geological Survey
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Interim Remedial Measures (IRM) Work Plan was prepared on behalf of Walton Street GC Developments LLC (the "Volunteer"). 261 Grand Concourse LLC originally entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate the property located at 261 Grand Concourse in Bronx, New York (the "Site"). The Brownfield Cleanup Agreement (BCA) was executed by the DEC on January 4, 2022 (Site No. C203151), with the Applicant classified as a Volunteer. The ownership entity was then transferred to Walton Street GC Developments LLC on November 23, 2022, and a BCA Amendment and a Change of Use Form for the transfer was submitted to the NYSDEC in May 2023. A major Brownfield Cleanup Program (BCP) amendment was submitted to the NYSDEC to add two new lots to the BCP Site. A new BCA was executed on December 21, 2023.

A Remedial Investigation (RI) was conducted at 261 Grand Concourse in March 2022, and a Supplemental RI (SRI) was conducted at 261 Grand Concourse between October 19, 2022, and November 4, 2022. An RI was conducted at 315 Grand Concourse and 270 Walton Avenue in January 2023. Investigations at the Site confirmed the presence of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals contamination, as well as the presence of aboveground storage tanks (ASTs) at the Site.

This IRM Work Plan describes the strategies and technologies for the removal of ASTs during the demolition activities at the Site. This IRM Work Plan was prepared in accordance with the process and requirements of the BCP and the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).

2.0 SITE BACKGROUND

2.1 Site Location and Current Usage

The Site is located at 261-315 Grand Concourse and 270 Walton Avenue in the Mott Haven section of Bronx County, New York, and is identified as New York City Department of Finance (NYCDOF) Tax Block 2344, Lot 1 (former Lots 1, 11 and 27 are being merged into one new Lot 1). The Site location is shown in Figure 1. The approximately 42,642-square foot Site consists of one vacant tax lot. The southern portion (former Lot 1) of the Site is undeveloped with no structures (former two-story building which was demolished by 2022); the central portion (former Lot 11) of the Site consists of a vacant two-story industrial manufacturing building; and the northern portion (former Lot 27) of the Site consists of a vacant one-story commercial building with a partial cellar.

The current zoning designation for the property is C6-2A, denoting it as a Contextual General Central Commercial Zoning District. C6-2A districts allow for a variety of commercial use buildings, community facilities, and residential buildings and generally consist of large buildings with retail, office, or residential use. Contextual Zoning Districts are required to comply with the Quality Housing Program guidelines when used for residential use.

2.2 Description of Surrounding Property

The Site is located within a primarily mixed residential, commercial, and industrial area of Bronx County. The Site is bounded to the south by East 138th Street, followed by a park; to the northwest by a two-story industrial/manufacturing building within the Site's tax block; to the north by East 140th Street, followed by a two-story commercial/office building and vacant lot; to the west by Walton Avenue, followed by a six-story industrial/manufacturing building and gasoline filling station; to the east by Grand Concourse, followed by a one-story building utilized as parking, a one-story commercial/office building, and multi-story residential use building under development. The underground tracks for the Metropolitan Transportation Authority (MTA) "4" and "5" lines run below Grand Concourse to the east of the Site.

The nearest ecological receptor is the Harlem River located approximately 0.1-miles west of the Site. Other sensitive receptors, as defined in DER-10, within 1,000-feet of the Site include:

- Family Life Academy Charter School III at 370 Gerard Avenue
- Community School for Social Justice at 350 Gerard Avenue

- Health Opportunities High School at 350 Gerard Avenue
- Narco Freedom-Grand Concourse Health Care Facility at 250 Grand Concourse
- Success Academy Charter School at 339 Morris Avenue

Public storm drains and sewers are located within the existing streets on each side of the Site. The surrounding property use map is shown as Figure 3.

2.3 Environmental Setting

2.3.1 Topography

According to the monitoring well survey conducted by Montrose Surveying Co., LLP in 2022, the surface elevation of the Site ranges from approximately 20.39 feet in the southern portion to 31.92 feet in the northern portion (in reference to North American Vertical Datum 1988, which is 1.508 feet below the Bronx Topo Bureau Datum).

2.3.2 Geology

The stratigraphy observed during prior investigations consists of approximately 2.5 feet of historic fill underlain by 2.5 feet of brown/grey fine sand with some weathered rock and gravel and traces of silt underlain by bedrock. Bedrock was encountered between approximately 1.5 to 5 feet bgs during the remedial investigation (RI).

Bedrock was encountered during the investigations and ranged from 1.5 feet to 5 feet bgs. According to geologic maps of the area created by the United States Geologic Survey (USGS), the bedrock in this area of the Bronx is an igneous intrusive classified as the Manhattan and Walloomsac Schist of the lower Ordovician to middle Cambrian age. Unconsolidated sediments overlie the bedrock and consist of Pleistocene aged sand, gravel, and silty clays, deposited by glacial-fluvial activity.

2.3.3 Hydrogeology

Groundwater beneath the Site is not used as a potable (drinking) water source. The potable water supply is provided to the Site by the City of New York and is derived from surface impoundments in the Croton, Catskill, and Delaware watersheds Groundwater head measurements were collected

utilizing a Solinst® 122 Oil/Water Interface probe. The interface probe can measure depths to water to 0.01 inch. No free product was observed within any of the monitoring wells. Groundwater elevations ranged from el. 5.43 feet (NAVD88) to el. 27.98 feet (NAVD88). The groundwater beneath the Site flows north to south. According to the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL), the Site is located outside of the 100-year and 500-year flood plains.

2.4 Redevelopment Plans

The proposed new development consists of the construction of a new residential building with two towers, excavation for two elevator pits, and foundational elements. The proposed northern tower will consist of a 13-story residential building with a partial cellar, and the proposed southern tower will consist of a 14-story residential use building with no cellar.

North Tower

The partial cellar will be utilized for storage, refuse compactor, and utility rooms; the first floor will be utilized as lobby, parking, outdoor and indoor recreation, bike storage, laundry, and residential; the second floor will be utilized as outdoor recreation and residential; the third through ninth, and 13th floors will be utilized as residential; the 11th and 12th floors will be utilized as terrace and residential; and the roof will be utilized as residential, outdoor recreation, and bulkhead use.

South Tower

the first floor will be utilized as lobby, mechanical room, refuse compactor room, bike storage, outdoor use, and parking; the second floor will be utilized as residential, outdoor recreation, terrace, game room, and gym; the third floor will be utilized as residential and terrace; the fourth through tenth floors will be utilized as residential; the 11th floor will be utilized as residential, terrace, and outdoor recreation; 12th through 14th floors will be utilized as residential; and the roof will be utilized for recreational use.

3.0 SITE HISTORY

3.1 Past Uses and Ownership

Based on the available sources, Lot 1 of the Site was undeveloped as early as 1891; and developed in the southern portion with a two-story commercial building utilized as offices by 1908. Lot 1 was developed as part of two separate tax lots at the time. The two-story structure was demolished circa 1935, and the southern portion of the lot was utilized as part of a gasoline station, which occupied the main tax lot. The property was developed into the current tax parcel configuration sometime between 1935 and 1941 as two adjacent tax lots; and redeveloped with a one-story concrete and brick building utilized as a plastic products manufacturing facility in the northern portion in 1947. The use of the building was changed to a warehouse circa 1977. The southern portion of the lot was utilized as parking between 1996 and 1998; and redeveloped as a one-story commercial building between 1998 and 2001. The two one-story buildings appear to be interconnected by 2004. According to the New York City Department of Building (NYCDOB) records, the building appears to be vertically enlarged to two-story circa 2008. Demolition of the structures on Lot 1 occurred by 2022. Lot 1 remains a vacant, undeveloped lot with no structures.

Based on the available sources, Lots 11 and 27 were undeveloped as early as 1891. Lot 11 was developed partially as part of a two-story garage and auto supplies stock sometime between 1928 and 1935; Lot 11 was vacant circa 1944 when the property was configured to its current footprint; and redeveloped with the current two-story warehouse in 2002. Lot 27 was developed as part of a two-story private garage, one-story repair shop, and a one-story automobile sales service shop sometime between 1928 and 1935; it was then developed with a filling station with multiple unground storage tanks circa 1944 when the property was configured to its current footprint; the footprint of the filling station was expanded sometime between 1951 and 1977; the footprint of the structure was expanded once again circa 1992 when the property was converted to a filling station/car wash; and it was finally improved with the current building identified as a car wash in 2003. Lots 11 and 27 are currently vacant.

The Site currently owned by Walton Street GC Developments, LLC.

4.0 SUMMARY OF INTERIM REMEDIAL MEASURES

The IRM proposed herein will address the removal of aboveground storage tanks (ASTs) at the Site. These tasks will facilitate comprehensive site remediation pursuant to a NYSDEC-approved Remedial Action Work Plan (RAWP).

The proposed interim remedial work plan will consist of the following scope of work:

- Development of a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP);
- Implementation of remedial oversight and air monitoring activities during tank removal activities;
- Removal of ASTs within the cellar footprint of the auto car wash and service station;
- IRM activities will be reported in the Construction Completion Report.

4.1 Interim Remedial Measures Activity Oversight

The Remedial Engineer (RE), Ariel Czemerinski, P.E., will oversee the implementation of the IRMWP. The RE is responsible for documenting that the Contractor performs the work as specified in this IRMWP and for providing required documentation to the NYSDEC as part of the Construction Completion Report (CCR) described below in Section 8.2. A field scientist/geologist, under the supervision of the PE, will provide full-time oversight during the implementation of the IRMWP. Work conducted in accordance with this IRMWP will be documented in daily field reports, monthly progress reports, and in the CCR.

4.2 Removal/Closure of Storage Tanks

Five ASTs are present in the partial cellar of the former auto car wash and service station on former Lot 27. These five observed ASTs were identified as one 1,500-gallon steel AST containing waste oil, two 1,500-gallon steel ASTs containing motor oil, one 750-gallon steel AST containing transmission fluid, and one 1,000-gallon steel AST containing motor oil. The NYSDEC will be notified prior to the removal of the ASTs which will be conducted by ABC Tank Cleaning and Repair based out of Brooklyn, New York. The NYSDEC Petroleum Bulk Storage (PBS) registration (PBS #2-402877) will be updated once the tanks are properly cleaned and removed from Site.

The ASTs will be removed in accordance with the applicable procedures described under the NYSDEC Memorandum for the Permanent Abandonment of Petroleum Storage Tanks and Section 5.5 of DER-10 (May 2010) as follows:

- Remove all products to their lowest draw-off point
- Drain and flush piping into the tanks
- Vacuum out the tank bottoms consisting of water product and sludge
- Remove the fill tube and disconnect the fill, gauge, product, and vent lines and pumps. Cap and plug open ends of lines
- Temporarily plug all tank openings, remove the tanks and place them in a secure location
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tanks
- Clean the tanks
- After cleaning, the tanks must be made acceptable for disposal at a scrap yard cleaning the tank interior with a high-pressure rinse and cutting the tanks in several pieces.

AST carcasses will be disposed of as metal scraps, in accordance with Section 5.5 of DER-10. A Fire Department Affidavit will be provided by the Contractor.

During the tank and associated fill/vent line removal, the following field observations should be made and recorded:

- A description and photographic documentation of the tank and fill/vent condition (pitting, holes, staining, leak points, evidence of repairs, etc.)
- Examination of the floor below the tank for physical evidence of contamination (odor, staining, sheen, etc.)

A Community Air Monitoring Program will be implemented during all tank removal activities.

Figure 4 shows the location of the ASTs.

If during tank removal activities a spill is encountered or otherwise discovered, it must be reported to the NYSDEC spill hotline (1-800-457-7362) immediately, but in no case later than two

hours after discharge. Petroleum spills must be reported to the DEC unless they meet all of the following criteria:

- The spill is known to be less than 5 gallons; and
- The spill is contained and under the control of the spiller; and
- The spill has not and will not reach the State's water or any land; and
- The spill is cleaned up within 2 hours of discovery

5.0 SOILS/MATERIAL MANAGEMENT PLAN (SMMP)

5.1 Odor, Dust and Nuisance Control

All necessary means will be employed to prevent on- and off-Site odor nuisances during AST removal activities. At a minimum, procedures will include: (a) limiting the area of work activities; (b) shrouding odorous sources (for example: tank ports and openings) with tarps and other covers; and (c) use of foams to cover exposed odorous sources. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated.

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for AST removal activities.
- Exercise extra care during dry and high-wind periods.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated.

6.0 HEALTH AND SAFETY PLAN

A site-specific Health and Safety Plan (HASP) is prepared for this project. All field personnel involved in investigation and remedial activities will participate in training required under 29 CFR 1910.120, such as 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records. An emergency contact sheet is included in the site-specific HASP.

All investigative and remedial work performed under this IRMWP will comply with all applicable health and safety laws and regulations, including OSHA worker safety requirements and HAZWOPER requirements. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed.

A copy of the site-specific Health and Safety Plan is provided as Appendix A.

7.0 COMMUNITY AIR MONITORING PLAN (CAMP)

Community air monitoring will be performed during the implementation of all activities under this IRMWP as required by the DER-10 (Appendix 1A, NYSDOH, Generic CAMP). Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels will be performed during all AST removal activities. Continuous monitoring will be performed for all AST removal activities.

A detailed Community Air Monitoring Plan is provided as Appendix B.

8.0 REPORTING

8.1 Daily Report

Daily reports providing a general summary of activities for each day of work will be submitted to the NYSDEC Project Manager by the end of the following business day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of interim remedial work performed;
- Quantities of material imported and exported from the Site;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP results noting all excursions; and
- Photograph of notable Site conditions and activities.

Daily reports are not intended to be the primary mode of communication for notification to the NYSDEC of emergencies (accidents, spills, etc.), requests for changes to the IRMWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the IRMWP will be communicated directly to the NYSDEC project manager via telephone call or email.

8.2 Construction Completion Report

A Construction Completion Report (CCR) describing interim remedial activities will be prepared and submitted to the NYSDEC 90 days after completion of remedial actions described in this work plan. The CRR will include specific AST removal and disposal information, manifests, and results of CAMP.

9.0 SCHEDULE

The Work is anticipated to begin as soon as the NYSDEC approves this IRMWP. The estimated duration of the AST removal, and debris removal is 2-3 weeks.

Appendix C provides a schedule for the proposed IRMWP activities and reporting. If the schedule for IRM activities changes, it will be updated and submitted to NYSDEC.

Notification

The NYSDEC will be notified at least one week prior to the start of field work.

FIGURES

vEKtor consultants

Figure 1: Site Location
USGS 7.5 Minute
2019 Central Park, NY
BCP Project: C203151

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f: +1.347.402.7735
e: info@vektorconsultants.com
www.vektorconsultants.com

Legend:

Site Boundary

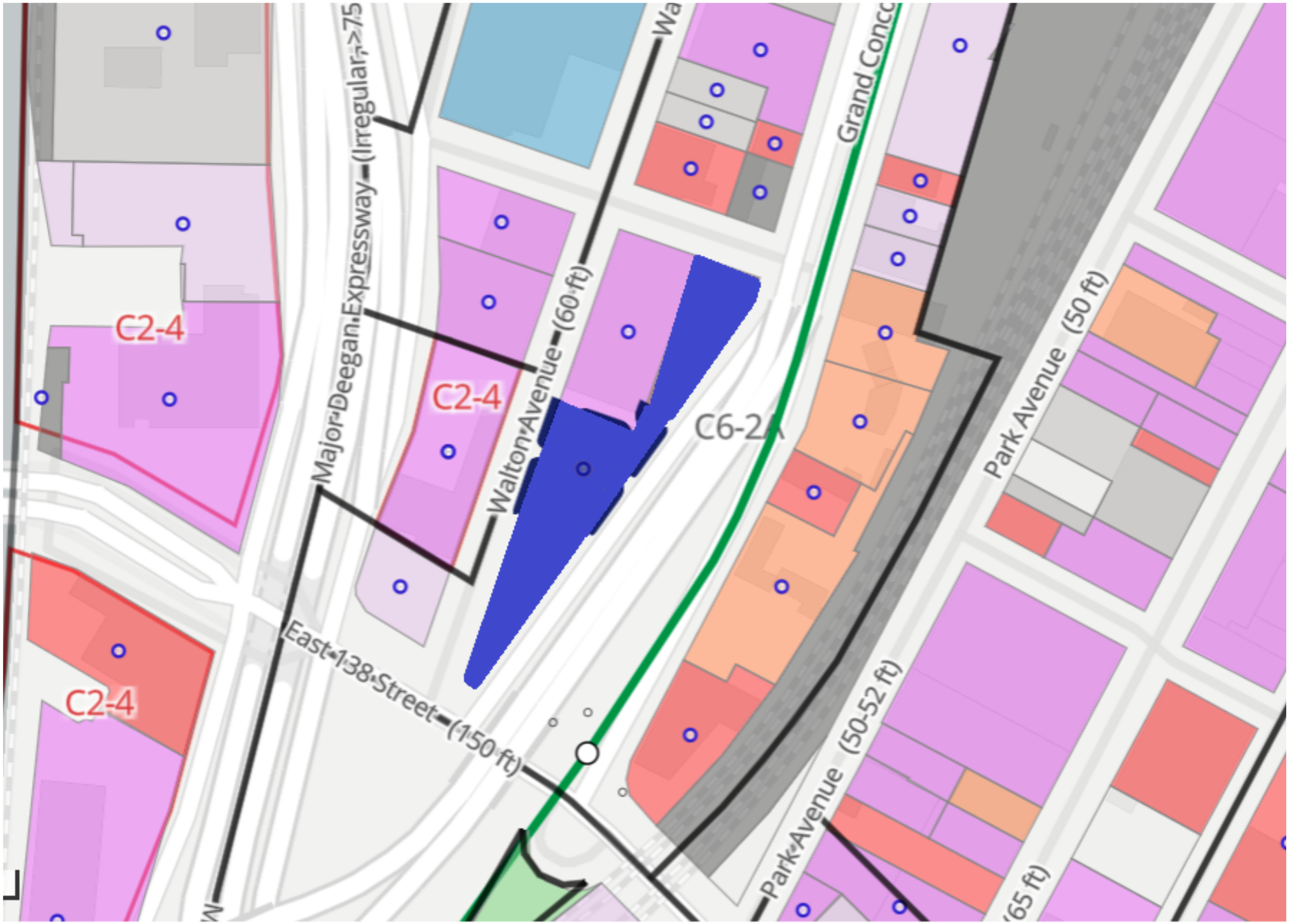
Notes:

1. Base Map provided by Google

Scale:

0 25' 50' 100'

Figure No.	2
Figure Name:	Site Boundary Map
Report:	IRMWP
Date:	1/15/2024
Drawn By:	DK
Site Address:	261 GRAND CONCOURSE, 270 WALTON AVENUE, 315 GRAND CONCOURSE BRONX, NY



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Legend:

Approximate Site Location

Zoning and Land Use

Tax Lots

- One & Two Family Buildings
- Multi-Family Walk-Up Buildings
- Multi-Family Elevator Buildings
- Mixed Residential & Commercial Buildings
- Commercial & Office Buildings
- Industrial & Manufacturing
- Transportation & Utility
- Public Facilities & Institutions
- Open Space & Outdoor Recreation
- Parking Facilities
- Vacant Land
- Other

Base map provided by NYC Zola

Scale: 0 200" 400'

Figure No.	3
Figure Name:	Surrounding Property Use Map
Report:	IRMWP
Date:	1/15/24
Drawn By:	DK
Site Address:	261-315 Grand Concourse and 270 Walton Avenue Bronx, New York

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Legend:

- Site Boundary
- 750-1,500-Gallon Aboveground Storage Tanks (ASTs)
- Basement footprint
- Existing Buildings To Be Demolished

Notes:

1. All feature locations are approximate
2. Base Map provided by Google

Scale: 0 25' 50' 100'

Figure No.	4
Figure Name:	Aboveground Storage Tank Locations
Report:	IRMWP
Date:	1/15/2024
Drawn By:	DK
Site Address:	261-315 GRAND CONCOURSE, 270 WALTON AVENUE BRONX, NY

APPENDICES

APPENDIX A- HASP

vEKtor consultants

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HEALTH AND SAFETY PLAN

Prepared For: Walton Street GC Developments LLC

Project Name: 261-315 Grand Concourse and 270 Walton Avenue

Project Location: 261-315 Grand Concourse and 270 Walton Avenue, Bronx, New York

Date: January 15, 2024

37 West 37th Street, 6th Floor, New York, NY 10018

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Emergency Contacts			
Position	**Name**	**Organization**	**Phone**
Project Director	Ezgi Karayel	Vektor Consultants	(347) 871-0750
Project Manager	David Klein	Vektor Consultants	(347) 871-0750
Field Representative	Peter Rathsack	Vektor Consultants	(347) 871-0750
Site Health and Safety Supervisor	Peter Rathsack	Vektor Consultants	(347) 871-0750
Client Contact	Josh Veiner	Walton Street GC Developments LLC	(718) 977-5666
Emergency Response		FDNY	911
Spill Hotline		NYSDEC	(800) 457-7362

Emergency Medical Facility	
Primary	***Alternate***
Lincoln Medical Center 234 East 149th Street, Bronx, New York Tel: (718) 579-5000 Open 24 Hours	Harlem Hospital 506 Lexington Avenue, New York, New York Tel: (212) 245-3131 Open 24 Hours
Route to emergency medical facility map attached to back of this health & safety plan	

Sign-in Sheet

Name	Signature	Company	Date

1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared on behalf of Walton Street GC Developments LLC for the implementation of an Interim Remedial Measures Work Plan (IRMWP) by AMC Engineering (AMC) and its subcontractors at the property located at 261-315 Grand Concourse and 270 Walton Avenue in Bronx, New York (the Site). The Site is identified by the City of New York as Borough of Bronx, Block 2344 and lots 1 (261 Grand Concourse), lot 11 (270 Walton Avenue) and lot 27 (315 Grand Concourse).

This HASP describes lines of authority, responsibility, and communication as they pertain to health and safety functions at this site in compliance with *29 CFR 1910.120(b)(2) and 29 CFR 1926.65(b)(2)*. This plan also details key personnel who are responsible for the development and implementation of the HASP. Vektor field personnel will implement this HASP during IRM activities.

1.1 Site Location and Description Lincoln Medical Center
234 East 149th Street, Bronx, New York
Tel: (718) 579-5000
Open 24 Hours

The Site is located at 261-315 Grand Concourse and 270 Walton Avenue in the Mott Haven section of Bronx County, New York and is identified as Block 2344 and lots 1 (261 Grand Concourse), lot 11 (270 Walton Avenue) and lot 27 (315 Grand Concourse) on the New York City Tax Map. The Site consists of three adjacent tax lots totaling approximately 42,642-square feet. A site location map is provided as Figure 1.

The Site is currently vacant, and the ground surface is capped by the former concrete building slab. Lot 1 is improved with the former two-story building concrete slab on grade, Lot 11 is improved with a two-story industrial manufacturing building and Lot 27 is improved with a one-story commercial building with a partial cellar.

1.2 Summary of Previous Investigations

The following reports were reviewed during the preparation of this HASP in order to determine potential hazards:

Limited Subsurface Investigation by Gallinger Environmental Management Corp., dated December 19, 2019

- Gallinger Environmental Management Corp. (GEM) prepared this report on behalf of NOBR 261 LLC.

- At the time of the GEM investigation, the subject property consisted of the current two-story commercial building with a parking garage, tool storage area, carpenter shop, loading dock, lobby, and offices.
- GEM's limited investigation consisted of a limited geophysical survey, installation of fourteen soil borings, and collection of six soil samples.
- GEM identified a possible underground storage tank (UST) fill pipe in the former parking garage (i.e.: north-northwest portion of the site). The geophysical scan reportedly revealed a strong signal extending approximately six feet off the pipe, indicative of a UST.
- Select soil samples were analyzed for CP-51 list volatile organic compounds (VOCs) via USEPA Method 8260C and semi-volatile organic compounds (SVOCs) via USEPA Method 8270D.
- Shallow bedrock was encountered across the subject property at depths ranging between 3 and 5 feet bgs. Groundwater was not encountered during the investigation.
- Fill material consisting of sand, brick, concrete, and asphalt was encountered from 1-foot bgs to the bedrock surface.
- No VOCs were detected in the soil samples.
- SVOCs, consisting of polycyclic hydrocarbons (PAHs), were detected in all six soil samples. Of these, benzo(a)anthracene (max. of 8.2 mg/kg), benzo(a)pyrene (max. of 6.9 mg/kg), benzo(b)fluoranthene (max. of 6.4 mg/kg), benzo(k)fluoranthene (max. of 5.7 mg/kg), chrysene (max. of 7.4 mg/kg), dibenzo(a,h)anthracene (max. of 2.1 mg/kg) and indeno(1,2,3-cd)pyrene (max. of 3.9 mg/kg) were detected at concentrations exceeding their respective NYSDEC Part 375 Restricted Use Soil Cleanup Objectives (SCOs) in three of the soil samples.

Based on the limited soil investigation, the primary contaminants of concern are SVOCs. Soil samples obtained during the 2019 investigation were compared to 6 NYCRR Part 375 Unrestricted Use SCOs and Restricted Use SCOs based on the anticipated residential use of the Site.

Phase I Environmental Site Assessment by Vektor Consultants, dated July 9, 2021

- Vektor conducted a Phase I Environmental Site Assessment (ESA) on behalf of the Requestor in accordance with ASTM E1527-13.

- At the time of the site reconnaissance on July 1, 2021, the Site consisted of one irregular-shaped lot that is approximately 10,242-square feet in area and was developed with a two-story slab on grade building. The two-story building was vacant and consisted of an office space in the southern section of the first floor, warehouse space in the northern portion of the first floor, and former offices on the second floor.

The Phase I ESA has revealed the following recognized environmental conditions (RECs) in connection with the site:

- Based on the available review of available Fire Insurance Maps and City Directory listings, the subject property was utilized as part of a gasoline station in 1935, as a plastic products manufacturing facility from 1947 until at least 1951, and as various commercial and industrial uses at least until 2017.

- Presence of SVOCs at concentrations exceeding their respective Unrestricted Use SCOs and Restricted Use SCOs in soil beneath the Site that were identified during the 2019 GEM limited investigation.

This Phase I ESA revealed the following environmental issues in connection with the site:

- Listing on the New York E-Designation database (E-227) for hazardous materials, noise, and air quality as a result of rezoning of the general surrounding area (Lower Concourse Rezoning and Related Actions (CEQR # 08DCP071X)).
- Adjacent properties of environmental concern were identified as follows: the west adjacent properties across Walton Avenue were used as a piano factory and lumber storage facility (1908-1935), auto wrecking yard (1944-1951), cleansers manufacturer (1947), a service center (1956), and a gasoline station (1951-Present); the east adjacent property across Grand Concourse was used as a gasoline station (1935), and auto repair facilities (1944-2017); and the south adjacent property across East 138th Street was used as gasoline stations and auto repairs (1935).

It should be noted that the suspect fill pipe associated with a potential UST was not observed during Vektor's site reconnaissance.

Remedial Investigation Work Plan by Vektor Consultants, dated January 25, 2022, approved by the NYSDEC on March 7, 2022)

The Remedial Investigation Work Plan describes the following scope of work for the site as part of the Remedial Investigation:

- Geophysical survey to locate unidentified underground storage tanks (USTs) and identify utilities in the vicinity of the proposed boring locations,
- Installation of six soil borings to refusal/bedrock (assumed at a maximum of 5 feet bgs) across the Site and collection of twelve soil samples and additional quality assurance /quality control (QA/QC) samples,
- Installation of three monitoring wells and collection of three groundwater samples and additional QA/QC samples,
- Installation of five soil vapor points and collection of five soil vapor samples and one ambient air sample as a QA/QC.

From each boring location, a minimum of two soil samples (total of 12 samples) were collected for laboratory analysis. At these borings, one soil sample was collected from the shallow soils (i.e.: historic fill layer) at 0 to 2 feet bgs interval and one soil sample were collected from the interval immediately above refusal/bedrock.

The soil samples were analyzed for:

- Target Compound List (TCL) volatile organic compounds (VOCs) via Environmental Protection Agency (EPA) Method 8260C/5035
- TCL semi-volatile organic compounds (SVOCs) via EPA Method 8270D
- Total analyte list (TAL) metals via EPA Method 6010D/7471B
- Polychlorinated biphenyls (PCBs) via EPA Method 8082A
- TLC pesticides via EPA Method 8081B
- NYSDEC list per and polyfluoroalkyl substances (PFAS) via EPA Method 537.1
- 1,4-dioxane via EPA Method 8270 SIM.

Three of the proposed soil borings (SB-1, SB-2, and SB-3) were converted into permanent groundwater monitoring wells upon completion of soil sampling. MW-1 through MW-3 were installed to determine the groundwater flow direction and to evaluate the groundwater quality beneath the Site. Three samples were collected from the three monitoring wells, and the groundwater analyzed for:

- Target Compound List (TCL) volatile organic compounds (VOCs) via Environmental Protection Agency (EPA) Method 8260C
- TCL semi-volatile organic compounds (SVOCs) via EPA Method 8270D
- Total analyte list (TAL) metals (filtered and unfiltered) via EPA Method 6010D/7470
- Polychlorinated biphenyls (PCBs) via EPA Method 8082A
- TLC pesticides via EPA Method 8081B
- NYSDEC list per and polyfluoroalkyl substances (PFAS) via EPA Method 537.1
- 1,4-dioxane via EPA Method 8270D SIM.

Five soil vapor points (SV-1 through SV-5) were installed using the same direct-push drill rig mentioned above. Soil vapor points were installed and sampled in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). Soil vapor points were installed immediately above the bedrock. Sample points were constructed of a dedicated stainless-steel screen fitted with ¼-inch outer diameter inert polyethylene, teflon lined, tubing which will be extended above ground surface to allow for purging and sampling. The points were backfilled using glass beads followed by environmental grade silica sand and topped with a bentonite layer to seal the tubing in the hole. One ambient air sample was collected at a breathing height as a background sample. The outdoor air sample was collected over a 2-hour sampling period concurrently with the soil vapor samples. The soil vapor and outdoor air samples were analyzed for VOCs via EPA Method TO-15.

Supplemental Remedial Investigation Work Plan by Vektor Consultants, dated September 26, 2022, approved by NYSDEC on October 3, 2022)

The Supplemental Remedial Investigation Work Plan describes the following scope of work for the site as part of the Supplemental Remedial Investigation:

- Performance of a geophysical survey to identify potential utilities in the vicinity of the proposed boring locations,
- Rock coring at select locations in southern, central, and northern portions (MW-1X, SB-2X and SB-7) to determine bedrock depth across the site.
- Installation of one vertical delineation boring and eight step out horizontal delineation soil borings to bedrock to delineate the extent of lead contamination at the former SB-2 location, and collection of 27 samples. Of these, 10 soil samples were kept on hold for total lead, TCLP lead, and were activated as needed,
- Installation of one vertical delineation boring and eight step out horizontal delineation soil borings to bedrock to delineate chromium and lead contamination at the former SB-5 location, and collection of 18 samples. Of these, eight soil samples were kept on hold for total lead/chromium, hexavalent chromium, TCLP lead/chromium, and were activated as needed,
- Installation of two soil borings to bedrock and collection of one soil sample from each boring at the interval just above bedrock, at the former SB-4 location and an upgradient location (SB-7) to further characterize soil quality, and
- Installation of two on-site monitoring wells (MW-1X and MW-4) and one off-site monitoring well (MW-5), redevelopment of the two previously installed monitoring wells (MW-2 and MW-3) and collection of five groundwater samples and additional QA/QC samples.

Soil samples collected from SB-4 and SB-7 were analyzed for:

- Target Compound List (TCL) volatile organic compounds (VOCs) via Environmental Protection Agency (EPA) Method 8260C/5035
- TCL semi-volatile organic compounds (SVOCs) via EPA Method 8270D
- Total analyte list (TAL) metals via EPA Method 6010D/7471B
- Polychlorinated biphenyls (PCBs) via EPA Method 8082A
- TLC pesticides via EPA Method 8081B
- NYSDEC list per and polyfluoroalkyl substances (PFAS) via EPA Method 537.1

- 1,4-dioxane via EPA Method 8270 SIM.

Soil samples collected from SB-2X and subsequent step out borings were analyzed as necessary for:

- Toxicity Characteristic Leaching Procedure (TCLP) lead via EPA Method 1311/6010D
- Total lead via EPA Method 6010D.

Soil samples collected from SB-5X and subsequent step out borings were analyzed as necessary for:

- TCLP Lead via EPA Method 1311/6010D
- Total lead via EPA Method 6010D
- Hexavalent chromium via EPA Method 7196A.

One of the proposed soil borings (SB-4) was converted into permanent groundwater monitoring well (MW-4) upon completion of soil sampling. MW-1X and MW-4 were installed to determine the groundwater flow direction and to evaluate the groundwater quality beneath the Site. MW-5 was installed to determine upgradient offsite conditions. Eight samples were collected from the five monitoring wells, and the groundwater analyzed for:

- Target Compound List (TCL) volatile organic compounds (VOCs) via Environmental Protection Agency (EPA) Method 8260C
- TCL semi-volatile organic compounds (SVOCs) via EPA Method 8270D
- Total analyte list (TAL) metals (filtered and unfiltered) via EPA Method 6010D/7470
- Polychlorinated biphenyls (PCBs) via EPA Method 8082A
- TLC pesticides via EPA Method 8081B
- NYSDEC list per and polyfluoroalkyl substances (PFAS) via EPA Method 537.1
- 1,4-dioxane via EPA Method 8270D SIM.

The following prior investigations were conducted at Lots 11 and 27 of the Site:

Phase I Screening Summary by Environmental Business Consultants (EBC), dated January 2019:

- EBC conducted this Phase I Screening , and included a site reconnaissance, records review, and interviews.
- EBC identified one recognized environmental condition (REC) as a result of their screening as follows:
    - Information from multiple historic sources indicate that Lot 27 at 315 Grand Concourse was occupied by garages, service stations and/or auto repair shops from at least 1935 through the early-2000s. Sanborn maps and database listings also indicate that at least eight underground storage tanks (USTs) were removed from Lot 27 in 2001, although no formal tank closure reports were provided for review. Lot 27 is also associated with an open/active NYSDEC spill incident dated in 1999. Therefore, the long-term historic use of the Site as a service station/repair shop, the presence of an active spill file, and the undocumented removal of multiple USTs was considered a REC.
- Based upon the above findings and conclusions, EBC recommends following:
    - A geophysical survey (e.g., magnetometer and/or ground penetrating radar surveys) should be conducted on the subject property to evaluate the presence of current and historic USTs, as well as the configurations of existing underground utilities in advance of a soil boring program.
    - If present, any historic USTs should be removed in accordance with New York State Department of Environmental Conservation (NYSDEC) and New York City Fire Department (FDNY) regulations. Any identified geophysical anomalies should be further investigated through the excavation of test pits, with soil samples collected for laboratory analysis as warranted. It is important to note that excavation areas may be necessary to facilitate the geophysical survey and any subsequent sampling.
    - To evaluate potential impacts related to historic usage of the Site, including the former USTs, a subsurface investigation should be performed. At a

minimum, the investigation should include the installation of soil borings with the collection of samples for laboratory analysis to document subsurface conditions and determine the nature and extent of contamination (if present).

- Further, the NYSDEC should be contacted regarding the open/active spill incident. Documents related to the investigation and remediation of the spill should be provided to obtain spill closure. In the event that no documentation is available sampling or other actions may be warranted to obtain closure of the spill file.

- In addition, to the aforementioned REC, two potential environmental issue/Business Environmental Risks (BERs) and one de minimis condition were identified as follows:
  - The Site was listed on the E-Designation database as having E-HazMat, Noise and Air restrictions (E-227), which were determined during the Lower Concourse Rezoning and Related Actions completed by the City in June 2009 (CEQR 08DCP071X). The Hazardous Materials designation indicates that there is a potential for soil and groundwater beneath the Site to be impacted by historic operations at the Site or adjacent properties. As such, the property requires an environmental assessment and review by the NYCOER to determine if the current and/or historic use of a property has impacted the subsurface and if additional investigation/remediation is warranted. The Noise E-Designation requires that any future residential/commercial development must provide a closed-window condition with a minimum 35 decibels (dBA)\window/wall attenuation on all facades to achieve an acceptable indoor noise environment of 45 dBA. In order to maintain a closed-window condition, an alternative means of ventilation must also be provided. Alternative means of ventilation means, but is not limited to, air conditioning. The Air E-Designation requires that any new residential and/or commercial development must use natural gas for HVAC systems or, if fuel oil is used, ensure that the boiler stacks are located at least 45 feet from the lot line facing East 138th Street to avoid any potential significant adverse air quality impacts.

- The HazMat, Air and Noise E-designations require the issuance of a Notice to Proceed by the NYC Office of Environmental Remediation (OER) before the property can be redeveloped. The presence of these E-Designations is considered a Business Environmental Risk.

Remedial Investigation Report by Brussee Environmental Corp (BEC)., dated April 2022:

- BEC conducted a remedial investigation (RI) at the Site on behalf of Heritage Equity Partners under the oversight of Mayor's Office of Environmental Remediation (OER) in March 2022.
- The scope of work included installation of ten soil borings (SB1 through SB10) and collection of ten soil samples and one duplicate sample, sampling of one existing monitoring well, and installation of eight soil vapor implants (SV1 through SV8) and collection of eight soil vapor samples.
- BEC reportedly attempted to install groundwater monitoring wells across the Site utilizing a 6610 Geoprobe. Refusal, due to shallow bedrock, was encountered across the Site at a depth of approximately 2 ft below the surface of the sampling location. One monitoring well (labeled by BEC as MW2E) previously installed to a depth of approximately 11 ft below grade (cored approximately 7 ft through bedrock) as part of a geotechnical investigation was found in the Grand Concourse sidewalk and one groundwater sample was collected for chemical analysis.
- The results of BEC's 2022 RI are as follows:
    - The elevation of the Site varies between 21.53 ft above mean sea level in the southeast corner of the Site to 35.84 ft above mean sea level in the northern end of Lot 27;
    - Depth to groundwater was estimated to be greater than 4.3 ft below sidewalk grade;
    - Depth to bedrock at the Site is approximately 2 ft below the building slab;

- The stratigraphy of the Site, from the surface down, consists of 1 to 2 ft layer of a dark brown sand with gravel, followed by a thin layer of weathered bedrock, and then bedrock.

- Soil/fill samples were collected during the RI and the results were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Restricted Residential Soil Cleanup Objectives (RRSCOs) as presented in 6NYCRR Part 375-6.8 and CP51. Soil/fill samples showed the following:

  - One VOC, acetone (max. of 71 µg/Kg) was detected above UUSCOs within soil boring sample SB8 (0-2'). Several VOCs were detected at a trace concentrations below UUSCOS including 1,3,5-trimethylbenzene (at 2 µg/Kg), benzene (max. of 1.8 µg/Kg), carbon disulfide (at 6.6 µg/Kg), ethylbenzene (max. of 4.5 µg/Kg), m&p-xylenes (max. of 23 µg/Kg), methyl ethyl ketone (max. of 15 µg/Kg), methyl t-butyl ether (MTBE) (at 2 µg/Kg), naphthalene (at 200 µg/Kg), o-xylene (max. of 8.3 µg/Kg), styrene (at 0.67 µg/Kg), tetrachloroethene (max. of 640 µg/Kg in SB1(0-2), and 400 µg/Kg in SB2(0-2)), and toluene (max. of 200 µg/Kg).

  - Two SVOCs including benz(a)anthracene (max. of 1,100 µg/Kg) and indeno(1,2,3- cd)pyrene (max. of 680 µg/Kg) were detected above RRSCOs within three of the ten shallow soil samples. No other SVOCs were detected above UUSCOs.

  - Two pesticides, including 4,4'-DDE (at 9.5 µg/Kg) and 4,4'-DDT (max. of 9.6 µg/Kg) were detected above UUSCOs within two of the soil samples. No pesticides were detected above RRSCOs.

  - One PCB, PCB-1260 (at 420 µg/Kg) was detected above UUSCOs in one soil sample (SB6(0-2)). No PCBs were detected above RRSCOs.

  - Four metals including copper (max. of 68.3 mg/Kg), lead (max. of 165 mg/Kg), mercury (max. of 0.39 mg/Kg), nickel (max. of 32.3 mg/Kg), and zinc (max. of 198mg/Kg) were detected above UUSCOs within soil samples collected across the Site. No metals were detected above RRSCOs.

- No PFAS compounds were detected in the soil sample.

- Groundwater sample results were collected during the RI and the results were compared to New York State 6NYCRR Part 703.5 Class GA groundwater quality standards (GQS). Groundwater samples showed the following:
  - No SVOCs, Pesticides or PCBs were detected at measurable concentrations above GQS.
  - No VOCs were detected at a concentration above GQS within the groundwater samples. Trace concentrations of the VOCs carbon disulfide (2.5 µg/L within the duplicate), methyl t-butyl either (MTBE) (max. of 31 µg/L within the duplicate), and tetrachloroethene (PCE) (at 0.77 µg/L) were present at concentrations below GQS.
  - Several metals were identified in groundwater samples but only sodium (157 mg/L) were detected above GQS within the dissolved groundwater samples.
- Soil vapor results collected during the RI were compared to the compounds listed in Table 3.1 Air Guidance Values derived by the New York State Department of Health (NYSDOH) located in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion, dated October 2006 and the revised NYSDOH Decision Matrices dated May 2017.
  - The soil vapor results indicated low levels of petroleum-related VOCs and low levels of chlorinated VOCs.
  - Total concentrations of petroleum-related VOCs (BTEX) within the soil vapor samples ranged from 3.67 µg/m^3 to 368 µg/m^3.
  - The chlorinated solvents detected include carbon tetrachloride at a maximum concentration of 0.52 µg/m^3, methylene chloride at 3.68 µg/m^3 in one soil vapor sample, tetrachloroethene (PCE) in all eight soil vapor samples ranging from 1.85 µg/m^3 to 827 µg/m^3, and trichloroethene (TCE) in six of the eight soil vapor samples ranging from 0.27 µg/m^3 to 4.32 µg/m^3.

- The chlorinated VOC tetrachloroethene (PCE) was detected above the monitoring level range established within the NYSDOH soil vapor guidance matrix in one sample.

Phase I Environmental Site Assessment by Vektor Consultants (Vektor), dated November 2022:

- Vektor conducted this Phase I ESA on behalf of the Beitel Group in accordance with ASTM E1527-13 and E1527-21.
- The following RECs were identified as a result of this Phase I ESA:
  - Based on the review of available records, Lot 27 was utilized as part of an auto repair shop in 1935 and as a filling station between at least 1944 and 2002. These facilities typically utilize hazardous substances or petroleum products as part of their operations, and potential historic releases from these facilities could have affected the subsurface conditions. A remedial investigation was conducted at the subject in 2022 under the New York City Mayor's Office of Environmental Remediation (NYCOER) oversight, and presence of petroleum-related VOCs (up to 368 $\mu g/m^3$) and chlorinated solvents (i.e., tetrachloroethylene up to 827 $\mu g/m^3$) were identified in the soil vapor beneath the subject property. Furthermore, Lot 27 is identified on NY Spills and Underground Storage Tank (UST) databases for an active spill and undocumented removal of eight USTs, as further described in Section 5.2 of this report. Therefore, the historic uses of the Site as a filling station/auto repair in conjunction with an open spill case (#9909720) associated with former USTs with no supporting documentation represent a REC.
- In addition, to the aforementioned RECs, the following environmental issues were also identified in connection with the Site:
  - The Site is listed on the E-Designation database (E-227) for hazardous materials, noise, and air quality as a result of rezoning of the general surrounding area (Lower Concourse Rezoning and Related Actions (CEQR # 08DCP071X)). An E-Designation is a New York City zoning map designation that indicates the presence of an environmental requirement pertaining to

potential hazardous materials contamination, window/wall noise attenuation, or air quality impacts. Therefore, the listing of the subject property on the NY E-Designation database is considered an environmental concern.

- Lot 27 is listed on the NYSDEC PBS database for four 1,500-gallon and one 1,000-gallon ASTs containing motor/lube oil and waste oil. These ASTs were observed in the basement of the LMC Lube & Car Wash Center (one 1,500-gallon steel AST containing waste oil; two 1,500-gallon steel ASTs containing motor oil; one 750-gallon steel AST containing transmission fluid; and one 1,000-gallon steel AST containing motor oil). With the exception of slight discrepancies regarding their capacity and contents, the observed ASTs are consistent with the database listing. The ASTs were observed to be in good condition.
- Several adjacent properties were historically utilized as auto repair shops, furniture companies/warehouses, drycleaners, and garages. Potential impacts from off-site properties could not be ruled out.

- Based on the findings of this assessment, Vektor recommends the following:
  - Installation of a vapor barrier system and an active sub-slab depressurization system (SSDS) beneath the Site to prevent migration of chlorinated solvents into the buildings. Furthermore, if excavation for a new development is planned, then the soils to be excavated should be tested in accordance with respective disposal facility(s) requirements prior to excavation and disposal.
  - The NYSDEC should be contacted regarding the open spill case (Spill #9909720). The 2022 RIR should be provided to the NYSDEC for their review, and any further investigation and/or remediation activities to obtain closure of the spill case must be coordinated with the NYSDEC.
  - PBS registration be updated to reflect the actual AST capacities and contents.
  - Any future redevelopment and/or alteration work must be coordinated with the New York City Mayor's Office of Environmental Remediation (NYCOER) in order to obtain construction permits from the New York City Department of

Buildings (NYCDOB). A RIR and a Remedial Action Work Plan (RAWP) are already submitted to the NYSDEC by another Applicant.

1.3 Scope of HASP

This HASP includes safety procedures to be used by Vektor staff during the following activities:

- Demolition of standing structures;
- Implementation of remedial oversight and air monitoring activities during tank removal activities;
- Removal of ASTs within the footprint of the auto car wash and service station;

Contractors performing interim remedial construction work will ensure that performance of the work is in compliance with this HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site.

2.0 ORGANIZATIONAL STRUCTURE

Vektor will provide a copy of this HASP to each contractor and subcontractor in accordance with 29 CFR 1910.120(b)(1)(iv) and 29 CFR 1926.65(b)(1)(iv) to inform them of site hazards and emergency procedures. All contractors and subcontractors are solely responsible for the safe and healthful performance of all work by each of its employees and/or support personnel who may enter the Site. Each contractor and subcontractor shall provide its own HASP as required by 29 CFR 1910.120 and 29 CFR 1926.65. However, they need to submit a copy of their HASP to Vektor or they can adopt this HASP during the interim remedial measure work plan activities.

2.1 Site Supervisor

As required by *29 CFR 1910.120(b)(2)(i)(A) and 29 CFR 1926.65(b)(2)(i)(A)*, a Site Supervisor will be assigned to the project prior to the implementation of the Interim Remedial Measures Work Plan. The Site Supervisor is responsible for directing all hazardous waste operations. All other site personnel report directly to the Site Supervisor unless otherwise noted. The Site Supervisor is directly responsible for:

- Ensuring the pre-entry briefing and/or tailgate-safety meetings are held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of site hazards
- Ensuring that all work activities conducted are consistent with this HASP and making any modifications as necessary
- Verifying all Job Hazard Analyses and ensuring that ongoing Hazard Analysis is conducted at this Site
- Overseeing the training program and ensuring that employees are trained for all tasks or operations they are asked to perform
- Providing a copy of this HASP to each contractor and subcontractor
- Updating the Site Control Program as needed
- Granting site workers site and zone access approval
- Registering all site visitors
- Establishing and maintaining security measures for this Site
- Directing how each work zone is adjusted
- Notified if emergency assistance is needed
- Supervising PPE use on this Site
- Approving any changes in PPE used on this Site
- Notified when any hazardous-substance spill occurs
- Evaluating the quality and safety of response activities after every emergency incident or evacuation of this Site

- Providing site workers with notifications and training on changes to the emergency response plan
- Evaluating confined spaces and responsible for the confined space permit program
- Performing initial monitoring to identify and evaluate any hazardous atmospheres during confined space operations
- Implementing the thermal stress program
- Authorizing the hot-work plan and cutting and welding operations
- Inspecting the hot-work permit area before work is authorized
- Monitoring site activities as they pertain to health and safety at this site
- Stopping any unsafe acts that pose an immediate or imminent health and safety hazard to anyone at this site
- Ensuring that all elements of this HASP are followed and correctly implemented
- Updating the Site Health and Safety Supervisor and other applicable personnel as to changes or work progress reports that may pertain to health and safety functions at this site
- Setting up decontamination lines and the solutions appropriate for the type of chemical contamination on Site
- Controlling the decontamination of all equipment, personnel and samples from the contaminated areas
- Ensuring that all required decontamination equipment is available and in working order
- Providing for collection, storage and disposal of decontamination waste (e.g., rinse water, contaminated sediment, etc.)

2.2 Site Health and Safety Supervisor

As required by *29 CFR 1910.120(b)(2)(i)(B) and 29 CFR 1926.65(b)(2)(i)(B)*, Peter Rathsack (or designated alternate) is the Site Health and Safety Supervisor who has the responsibility and authority for all functions that may pertain to health and safety at this site. This is the individual located on a hazardous waste site that is responsible to the Site Supervisor and has the authority and knowledge necessary to implement the HASP and verify compliance with applicable safety and health requirements. The Site Health and Safety Supervisor is directly responsible for:

- Providing a copy of this HASP to each contractor and subcontractor
- Updating the Site Control Program as needed
- Notified if emergency assistance is needed
- Supervising PPE use on this Site
- Approving any changes in PPE used on this Site
- Notified when any hazardous-substance spill occurs
- Providing site workers with notifications and training on changes to the emergency response plan

- Performing initial monitoring to identify and evaluate any hazardous atmospheres during confined space operations
- Developing and implementing the HASP
- Monitoring site activities as they pertain to health and safety at this Site
- Stopping any unsafe acts that pose an immediate or imminent health and safety hazard to anyone at this Site
- Ensuring that all elements of this HASP are followed and correctly implemented
- Verifying compliance of subcontractors with respect to this HASP and reporting deviations to the Site Supervisor
- Evaluating site incidents including spills, releases of hazardous substances
- Determining the appropriate response including site evacuations
- Implementing the Emergency Response Plan
- Coordinating emergency response activities on this Site

2.3 Contractors and Subcontractors

Each contractor and subcontractor shall designate a Contractor Site Representative. The Contractor Site Representative will interface directly with the Site Supervisor, and Vektor Consultants, the Site Health and Safety Supervisor, with regards to all areas that relate to this HASP and safe and healthful performance of work conducted by the contractor and/or subcontractor workforce. Contractor/Subcontractor Site Representatives for this site are listed in the Contact Summary Table at the end of this section.

2.4 Local/State/Federal Agency Representative

Local, state, and/or federal agencies are responsible for ensuring the Site is in compliance with appropriate regulatory requirements, permits, and/or legal ruling(s). Local/State/Federal Agency Representatives for this Site are listed in the Contact Summary Table at the end of this section.

The organizational structure shall be reviewed and updated as necessary to reflect the current status of site operations.

Contact Summary Table

Position	Name	Organization	Phone
Project Director	Ezgi Karayel	Vektor Consultants	(347) 871-0750
Project Manager	David Klein	Vektor Consultants	(347) 871-0750
Field Representative	Peter Rathsack	Vektor Consultants	(347) 871-0750
Site Health and Safety Supervisor	Abe Smilowitz	YHN Construction	(718) 874-3741
Client Contact	Josh Veiner	Walton Street GC Developments LLC	(718) 977-5666
Project Manager	Anthony Perretta	NYSDOH	TBD
Project Manager	Ruth Curley	NYSDEC	(518) 402-9647
Emergency Response		FDNY	911
Spill Hotline		NYSDEC	(800) 457-7362

3.0 HAZARD ANALYSIS

This section describes the safety and health hazards associated with site work and the control measures selected to protect workers in compliance with *29 CFR 1910.120(b)(4)(ii)(A) and 29 CFR 1926.65(b)(4)(ii)(A)*. This is accomplished by creating a specific Job Hazard Analysis for each task and operation to be conducted at the Site.

The purpose of the Job Hazard Analysis is to identify and, to the extent practicable, quantify the health and safety hazards associated with each site task and operation, and to evaluate the risks of each hazard to workers. With this information, appropriate control methods are selected to eliminate the identified risks if possible, or to effectively control them. The control methods are documented in each task-specific Job Hazard Analysis.

Job Hazard Analyses contained in this HASP have been developed by Vektor Consultants, the Site Health and Safety Supervisor. The Site Supervisor is the individual responsible for reviewing and "verifying" that all Job Hazard Analyses are complete and to ensure that ongoing hazard analyses are conducted at this site.

3.1 Hazard Notification Process

The information in the Job Hazard Analysis Worksheets, Hazardous Substance Profiles, and Safety Data Sheets (SDS) is made available to all employees who could be affected in the scope of their work at the Site. This shall be done prior to beginning work activities.

New, or modifications to existing, Job Hazard Analysis Worksheets, Hazardous Substance Profiles, or SDS are communicated during routine briefings.

Consistent with *29 CFR 1910.120(i) and 29 CFR 1926.65(i)*, this information will also be made available to contractors and subcontractors.

The Site Supervisor is the person responsible for providing Site information, this HASP, and any modifications to this HASP to contractors and/or subcontractors working on this Site.

3.2 Phases, Site Tasks and Hazard Analysis

This HASP applies to the implementation of the Interim Remedial Measures Work Plan at the Site. This HASP will apply to the following Tasks and/or Operations that will be accomplished during the implementation of the Interim Remedial Measures Work Plan:

1. Development and implementation of a Health and Safety Plan (HASP) for the protection of on-site workers, and a Community Air Monitoring Plan (CAMP) for protection of community/residents and the environment during interim remedial measure work plan and construction activities.
2. Demolition of standing structures;

3. Implementation of remedial oversight and air monitoring activities during tank removal activities;
4. Removal of ASTs within the footprint of the auto car wash and service station;
5. Preparation of a Final Engineering Report (FER) to document the remedial activities.

3.3 Chemical Hazards

Exposure to chemical hazards should always be avoided. When working around chemical hazards it is important to be protected by administrative and/or engineered controls or, if administrative and/or engineered controls are not practicable or fully protective, by use of proper personal protective equipment (PPE). A direct reading instrument must be used, as necessary, to establish potential worker exposure.

Below is a list of chemical hazards that may be encountered on this site.

Chemical Name	OSHA PEL (ppm)	OSHA PEL (mg/m^3)	NIOSH REL (ppm)	NIOSH REL (mg/m^3)	IDLH (ppm)	IDLH (mg/m^3)
Polycyclic Aromatic Hydrocarbons (PAHs)		5		0.5		50
Volatile Organic Compounds (VOCs)						
Chromium Total (Hexavalent &Trivalent)		1		0.5		250

OSHA PEL. OSHA sets permissible exposure limits (PELs) to protect workers against the health effects of exposure to hazardous substances. PELs are regulatory limits on the amount or concentration of a substance in the air. They may also contain a skin designation. PELs are enforceable. OSHA PELs are based on an 8-hour time weighted average (TWA) exposure.

IDLH. Immediately dangerous to life or health (IDLH) is a regulatory value defined as the maximum exposure concentration in the workplace from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects. This value should be referred to in respirator selection.

More specific chemical information is available in the Hazardous Substance Profiles included in Attachment 1 of this HASP. The Hazardous Substance Profiles are designed to assist with "chemical guidelines" in which further information may be needed, including but not limited to an SDS. This information is not intended to replace an SDS, rather to augment one.

3.4 Physical Hazards

Below is a list of physical hazards that may be encountered the implementation of the Interim Remedial Measures Work Plan at this Site. Personal awareness, strict adherence to

all safety requirements, and the use of proper PPE when applicable will help keep this work site safe.

- Hand Tool Use
- Heavy Manual Lifting/Moving
- Material Handling
- Noise (Sound Pressure Level), dBA
- Sharp Objects
- Slips/Trips/Falls
- Traffic - On or Near Site
- Utilities (electrical, gas, water, etc.) – Overhead
- Utilities (electrical, gas, water, etc.) – Underground

3.5 Biological Hazards

Below is a list of biological hazards that may be encountered during the implementation of the Interim Remedial Measures Work Plan at this Site. Personal awareness, strict adherence to all safety requirements, and the use of proper PPE when applicable will help keep this work site safe.

3.6 Radiological Hazards

Job hazard analysis indicates that workers are not expected to encounter radiological hazards at this Site for the phases, tasks and/or operations and work locations covered by this HASP.

3.7 Job Hazard Analysis Worksheets

The site-specific Job Hazard Analysis Worksheet is included in Attachment 2. A single Job Hazard Analysis Worksheet may be used for multiple locations provided that the task or operation, and hazards and control measures, are the same in each location.

The Job Hazard Analysis Worksheet lists the following information:

- Phase description
- Specific task or operation
- Specific location for task or operation
- Hazard analysis date(s) of task or operation
- Task or operation date(s)
- Person responsible for developing Job Hazard Analysis
- Person responsible for reviewing the Job Hazard Analysis
- Chemical, physical, biological and radiological hazards for each task or operation
- Specific control measures for each task or operation
- Required permit(s), if any

The Job Hazard Analysis Worksheet should be kept updated as information changes and previous copies should be retained.

4.0 TRAINING PROGRAM

The Site Safety and Health Training Program is designed to provide workers with the training necessary to work safely on this Site in compliance with *29 CFR 1910.120(b)(4)(ii)(B) and 29 CFR 1926.65(b)(4)(ii)(B)*. Training requirements for this site are based on the Job Hazard Analysis, contained in Attachment 2 of this HASP, and relevant OSHA requirements. Employees who have not been trained to a level required by their job function and responsibility are not permitted to participate in or supervise field activities.

4.1 Initial HazWoper Training

Initial training requirements for field personnel are based on the personnel's potential for exposure and compliance with the requirements of *29 CFR 1910.120(e)(3) and 29 CFR 1926.65(e)(3)*.

General Site Workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities that expose, or potentially expose, them to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off site, and a minimum of three days of actual field experience under direct supervision of a trained, experienced supervisor as per *29 CFR 1910.120(e)(3)(i) and 29 CFR 1926.65(e)(3)(i)*.

Specific Limited Task Workers on site only occasionally for a specific limited task (such as, but not limited to, field sampling, land surveying, geophysical surveying, or drilling) and who are unlikely to be exposed over permissible exposure limits and published exposure limits shall receive a minimum of 24 hours of instruction off site, and a minimum of one day of actual field experience under direct supervision of a trained, experienced supervisor as per *29 CFR 1910.120(e)(3)(ii) and 29 CFR 1926.65(e)(3)(ii)*.

4.2 Site-Specific Training

In addition to the initial HAZWOPER training requirements outlined above, site personnel shall be trained on the following site-specific elements:

- Names of personnel and alternates responsible for site safety and health
- Health, safety, and other hazards present
- Use of specific personal protective equipment (PPE) detailed in this HASP
- Standard work practices by which the personnel can minimize risks from the hazards detailed in this HASP
- Safe use of administrative and/or engineering controls and equipment detailed in this HASP

- Medical surveillance requirements detailed in this HASP
- Decontamination procedures detailed in this HASP
- The emergency response plan detailed in this HASP
- Heat and cold stress prevention
- Working safely around heavy equipment

4.3 Site Briefings

A site-specific briefing shall be provided to visitors who enter this Site beyond the designated entry point. For visitors, the site-specific briefing shall include information about site hazards, the site layout including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements, as appropriate.

5.0 MEDICAL SURVEILLANCE PROGRAM

The Medical Surveillance Program is designed to medically monitor worker health to ensure that personnel are not adversely affected by site hazards in compliance with *29 CFR 1910.120(b)(4)(ii)(D) and 29 CFR 1926.65(b)(4)(ii)(D)*.

Medical surveillance is not required at this site due to:

- There is NO potential for worker exposure to hazardous substances at levels above OSHA permissible exposure limits or other published limits for 30 days or more per year, without regard to use of respiratory protection.
- Personnel DO NOT wear a respirator for 30 days or more a year or as required by *29 CFR 1910.134 and 29 CFR 1926.103*.

Any worker who is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substances or health hazards on this Site shall receive a medical examination as soon as possible after the occurrence, with follow-up examinations provided as required by the attending physician. Physical Exams shall be consistent with *29 CFR 1910.120(f) and 29 CFR 1926.65(f)*.

6.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) will be used at this Site to protect employees from biological, chemical and physical hazards in compliance with *29 CFR 1910.120(b)(4)(ii)(C) and 29 CFR 1926.65(b)(4)(ii)(C)*. This includes hazards associated with, but not limited to, the implementation of the Interim Remedial Measures Work Plan

With employee safety being the number one priority, site health hazards will be eliminated or reduced to the greatest extent possible through administrative and/or engineering controls and safe work practices. Where hazards are still present, a combination of administrative and/or engineering controls, work practices, and PPE will be used to protect employees.

The Site Supervisor and/or Health and Safety Supervisor are responsible for PPE use on this Site.

6.1 PPE Selection Criteria

PPE shall be selected and used to protect site workers from the hazards and potential hazards they are likely to encounter, as identified during the site characterization and Job Hazard Analysis (see Attachment 2). A PPE ensemble shall be assigned to each work task or operation.

PPE selection shall be based upon many factors. Materials providing the greatest duration of protection shall be used. Tear and seam strength of the PPE shall also be considered to ensure ensemble durability while work is performed.

When necessary, multiple layers of protection shall be used to accommodate the range of hazards that may be encountered. All PPE shall be properly fitted.

PPE selection criteria shall also include:

- Level of PPE required (Level A, B, C, or D)
- PPE components
- Chemical suit and glove compatibility

All PPE ensembles shall be consistent with Appendix B of *29 CFR 1910.120 and 29 CFR 1926.65* and used in accordance with manufacturers' recommendations.

The following criteria were used to select PPE levels at this Site:

<u>Level D Protection was selected due to the following:</u>

- The atmosphere contains no known or suspected hazardous substances at concentrations that meet or exceed the published exposure limits

- Contact with hazardous levels of any chemicals through splashes, immersion, or by other means will not occur
- There is no potential for unexpected inhalation or contact with hazardous levels of any chemical

Training In Use of PPE

Employees receive general training regarding proper selection, use and inspection of PPE during initial HAZWOPER training and subsequent refresher training. Site-specific PPE requirements, including task-specific PPE, ensemble components, cartridge and canister service times, and inspection and maintenance procedures, as applicable, shall be communicated as identified in the Training Program.

Because chemical exposure levels present do not create a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape, positive pressure self-contained breathing apparatus or positive-pressure air-line respirators equipped with an escape air supply are not required.

7.0 ENVIRONMENTAL MONITORING

This section of the HASP describes how site worker exposures to hazardous substances will be monitored in compliance with *29 CFR 1910.120(b)(4)(ii)(E) and 29 CFR 1926.65(b)(4)(ii)(E)*.

7.1 Air Monitoring Procedures

Exposures to airborne hazardous substances shall be fully characterized throughout site operations to ensure that exposure controls are effectively selected and modified as needed. Air monitoring shall be used to identify and quantify airborne levels of hazardous substances and safety and health hazards to determine the appropriate level of site worker protection needed on site. Air monitoring procedures shall be consistent with OSHA requirements in *29 CFR 1910.120(c)(6) and 29 CFR 1926.65(c)(6)*.

Air monitoring shall be conducted using direct-reading instruments. Air monitoring includes:

- Initial monitoring prior to the beginning of interim remedial activities to identify conditions that may cause death or serious harm and to permit preliminary selection of site controls
- Periodic monitoring throughout the implementation of the Interim Remedial Measures Work Plan Work Plan

7.2 Initial Monitoring Procedures

Upon initial entry, representative air monitoring shall be conducted to identify any IDLH condition, exposure over permissible exposure limits or published exposure levels, exposure over a radioactive material's dose limits, or other dangerous condition such as the presence of flammable atmospheres or oxygen-deficient environments.

7.3 Periodic Monitoring

Periodic monitoring shall be conducted when the possibility of an IDLH condition or flammable atmosphere has developed, or when there is indication that exposure may have risen over permissible exposure limits or published exposure levels since previous monitoring was conducted. Situations where it shall be considered that the possibility exposures have risen are as follows:

- When work begins on a portion of the Site that has not been previously monitored
- When contaminants other than those previously identified are being handled
- When a change in environmental conditions exist

- When site workers handle leaking drums or containers, or work in areas with obvious liquid contamination
- When site workers report or exhibit signs of exposure

7.4 Direct-Reading Instrument Monitoring Procedures

Direct-reading instrument monitoring will be used on this site as follows:

- VOCs by photoionization detector (PID)
- Dust particulate by dust monitor

Monitoring equipment calibration and maintenance procedures on this site are:

- Every morning

8.0 DECONTAMINATION

This HASP element describes procedures for decontaminating site workers and equipment when exiting the Exclusion Zone in compliance with *29 CFR 1910.120(b)(4)(ii)(G) and 29 CFR 1926.65(b)(4)(ii)(G)*. This section also describes disposal of waste from decontamination processes. Site decontamination procedures are designed to achieve a safe, logical removal or neutralization of contaminants that may accumulate on site workers and/or equipment. The Site Supervisor is responsible for decontamination procedures at this site.

These procedures are intended to minimize site worker contact with contaminants and protect against the transfer of contamination to clean areas of the site and away from the site. They may also extend the useful life of personal protective equipment (PPE) by reducing the amount of time that contaminants contact and permeate or otherwise affect the surfaces of PPE.

Decontamination procedures shall be communicated to site workers and implemented before any site workers or equipment are permitted to enter areas on site where potential for exposure to hazardous substances exists.

Emergency decontamination procedures are detailed in Section 8, the Emergency Response Plan of this HASP.

The decontamination procedures described below are designed to meet the requirements of *29 CFR 1910.120(k) and 29 CFR 1926.65(k)* and include site-specific information about:

- General and Specific Decontamination Procedures for Personnel and PPE
- General and Specific Decontamination Procedures for Equipment
- Location and Type of Site Decontamination Procedures
- Disposal of Residual Waste from Decontamination
- Monitoring the Effectiveness of Decontamination Procedures

8.1 General and Specific Decontamination Procedures for Site Workers and PPE

All site workers and PPE leaving a contaminated area shall be appropriately decontaminated. General decontamination guidelines for site workers and PPE include:

- Decontamination is required for all site workers exiting a contaminated area. Site workers may only re-enter uncontaminated areas after undergoing the decontamination procedures described in the next section.
- Protective clothing is decontaminated, cleaned, laundered, maintained and/or replaced as needed to ensure its effectiveness.
- PPE used at this site is decontaminated or prepared for proper disposal.

- The site requires and trains site workers that if their permeable clothing is splashed or becomes wetted with a hazardous substance, they will immediately exit the work zone, perform applicable decontamination procedures, shower, and change into uncontaminated clothing.

8.2 General and Specific Decontamination Procedures for Equipment

All contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated. General decontamination guidelines for equipment include:

- Decontamination is required for all equipment exiting a contaminated area. Equipment may only re-enter uncontaminated areas after undergoing specific decontamination as described in the Job Hazard Analysis Worksheets.
- Particular attention is given to decontaminating tires, scoops, and other parts of heavy equipment that are directly exposed to contaminants and contaminated soil.

8.3 Location and Type of Site Decontamination Procedures

Decontamination shall be performed in areas that will minimize the exposure of uncontaminated site workers or equipment to contaminated site workers or equipment. Decontamination on this site shall be conducted in the Contamination Reduction Zone. The Contamination Reduction Zone acts as a buffer between the Exclusion Zone and Support Zone. The location and design of decontamination stations minimize the spread of contamination beyond these stations.

8.4 Disposal of Waste from Decontamination

Procedures for disposal of decontamination waste shall meet applicable local, State, and Federal regulations.

8.5 Monitoring the Effectiveness of Decontamination Procedures

Decontamination procedures shall be monitored by a representative of Vektor Consultants, the Site Health and Safety Supervisor, to determine effectiveness. If procedures are found to be deficient, appropriate steps shall be taken to correct any deficiencies.

9.0 EMERGENCY RESPONSE PLAN

This section describes the site-specific Emergency Response Plan in compliance with *29 CFR 1910.120(b)(4)(ii)(H) and 29 CFR 1926.65(b)(4)(ii)(H)*. Specifically, the Emergency Response Plan addresses potential emergencies at this site, procedures for responding to these emergencies, roles and responsibilities during emergency response, and training. This element also describes the provisions this site has made to coordinate its emergency response planning with other contractors on site and with off-site emergency response organizations.

This Emergency Response Plan shall be available for inspection and copying by site workers, their representatives, OSHA personnel, and other governmental agencies with relevant responsibilities as required by *29 CFR 1910.120(l)(1)(i) and 29 CFR 1926.65(l)(1)(i)*.

In accordance with *29 CFR 1910.120(l)(3)(ii) and 29 CFR 1926.65(l)(3)(ii)*, this Emergency Response Plan is a separate section of the HASP.

9.1 Pre-Emergency Planning

This Emergency Response Plan is compatible and integrated with the disaster, fire and/or emergency response plans of local, state, and federal agencies.

This Site has been evaluated for potential emergency occurrences based on site hazards, the tasks within the work plan, the site topography, and prevailing weather conditions.

9.2 Personnel Roles, Lines of Authority, and Communication

Anyone may activate the Emergency Response Plan; however, Peter Rathsack (or designated alternate), Site Health and Safety Supervisor, is responsible for implementing the Emergency Response Plan and coordinating emergency response activities on this Site. Peter Rathsack (or designated alternate) also provides specific direction for emergency action based upon information available regarding the incident and response capabilities, initiates emergency procedures including protection of the public, and ensures appropriate authorities are notified.

In accordance with *29 CFR 1910.38(a) and 29 CFR 1926.35*, in the event of an emergency, site workers are evacuated and do not participate in emergency response activities.

This Site relies upon the off-site emergency response organizations listed in the Emergency Response Contact Information list to respond to site emergencies. These organizations are appropriately trained, staffed, and equipped to provide emergency response to this site.

These organizations are contacted at least annually to verify the accuracy of phone numbers and contact names.

Communication on this site will be conducted by the following methods:

- Face to face
- Cell phone
- Hand signals

9.3 Site Security and Control

In case of an on-site emergency, site security and control for this site shall be provided by:

- Warning Signs
- Barrier Tape
- Locked Doors and Gates

9.4 Emergency Medical Treatment and First Aid

Any site worker who requires medical care and/or is transferred to a medical facility shall be accompanied by Hazardous Substance Profiles included in Attachment 1 of this HASP and other applicable information to apprise caregivers of the chemicals and hazards to which the victim has potentially been exposed. The emergency medical care facility for this site is:

Lincoln Medical Center
234 East 149th Street, Bronx, New York
Tel: (718) 579-5000
Open 24 Hours

The route to the facility is shown in on the map included in Attachment 3 of this HASP.

Attachment 1

Hazardous Substance Profiles and/or SDS

Material Safety Data Sheet
PAH Contaminated Soil

ACC# 17974

Section 1 - Chemical Product and Company Identification

MSDS Name: PAH Contaminated Soil
Catalog Numbers: SRS103100
Synonyms: API separator sludge
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
Not available	Soil	78-99	unlisted
120-12-7	Anthracene	0-2	204-371-1
129-00-0	Pyrene	0-2	204-927-3
132-64-9	Dibenzofuran	0-2	205-071-3
205-99-2	Benzo(b)fluoranthene	0-2	205-911-9
206-44-0	Fluoranthene	0-2	205-912-4
208-96-8	Acenaphthylene	0-2	205-917-1
218-01-9	1,2-benzphenanthrene	0-2	205-923-4
50-32-8	Benzo(a)pyrene	0-2	200-028-5
56-55-3	1,2-Benzanthracene	0-2	200-280-6
83-32-9	Acenaphthene	0-2	201-469-6
85-01-8	Phenanthrene	0-2	201-581-5
86-73-7	Fluorene	0-2	201-695-5
87-86-5	Pentachlorophenol	0-2	201-778-6
91-20-3	Naphthalene	0-2	202-049-5
91-57-6	2-methylnaphthalene	0-2	202-078-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: not available solid.
Warning! May cause allergic skin reaction. Causes eye and skin irritation. May cause cancer based on animal studies.

Target Organs: Eyes, skin.

Potential Health Effects

Eye: May cause eye irritation.
Skin: May cause skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Naphthalene can cause cataracts, optical neuritis, and cornea injuries. Ingestion of large quantities may cause severe hemolytic anemia and
Inhalation: Causes respiratory tract irritation. May cause effects similar to those described for ingestion.
Chronic: May cause cancer according to animal studies. Prolonged exposure to respirable crystalline quartz may cause delayed lung injury/fibrosis (silicosis).

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: Not published.

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions.

Section 7 - Handling and Storage

Handling: Avoid generating dusty conditions. Use with adequate ventilation. Avoid contact with skin and

eyes. Keep container tightly closed. Avoid ingestion and inhalation.
Storage: Store in a cool, dry place.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Soil	none listed	none listed	none listed
Anthracene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (benzene soluble fraction) (listed under Coal tar pitches).
Pyrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (benzene soluble fraction) (listed under Coal tar pitches).
Dibenzofuran	none listed	none listed	none listed
Benzo(b)fluoranthene	none listed	none listed	none listed
Fluoranthene	none listed	none listed	none listed
Acenaphthylene	none listed	none listed	none listed
1,2-benzphenanthrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (benzene soluble fraction) (listed under Coal tar pitches).
Benzo(a)pyrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (benzene soluble fraction) (listed under Coal tar pitches).
1,2-Benzanthracene	none listed	none listed	none listed
Acenaphthene	none listed	none listed	none listed
Phenanthrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (benzene soluble fraction) (listed under Coal tar pitches).
Fluorene	none listed	none listed	none listed
Pentachlorophenol	0.5 mg/m3 TWA; Skin - potential significant contribution to overall exposure by the cutaneous r oute	0.5 mg/m3 TWA 2.5 mg/m3 IDLH	0.5 mg/m3 TWA
	10 ppm TWA; 15 ppm STEL; Skin - potential	10 ppm TWA; 50 mg/m3	10 ppm TWA; 50 mg/m3

Naphthalene	significant contribution to overall exposure by the cutaneous r oute	TWA 250 ppm IDLH	TWA
2-methylnaphthalene	0.5 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous r oute	none listed	none listed

OSHA Vacated PELs: Soil: No OSHA Vacated PELs are listed for this chemical. Anthracene: No OSHA Vacated PELs are listed for this chemical. Pyrene: No OSHA Vacated PELs are listed for this chemical. Dibenzofuran: No OSHA Vacated PELs are listed for this chemical. Benzo(b)fluoranthene: No OSHA Vacated PELs are listed for this chemical. Fluoranthene: No OSHA Vacated PELs are listed for this chemical. Acenaphthylene: No OSHA Vacated PELs are listed for this chemical. 1,2-benzphenanthrene: No OSHA Vacated PELs are listed for this chemical. Benzo(a)pyrene: No OSHA Vacated PELs are listed for this chemical. 1,2-Benzanthracene: No OSHA Vacated PELs are listed for this chemical. Acenaphthene: No OSHA Vacated PELs are listed for this chemical. Phenanthrene: No OSHA Vacated PELs are listed for this chemical. Fluorene: No OSHA Vacated PELs are listed for this chemical. Pentachlorophenol: 0.5 mg/m3 TWA Naphthalene: 10 ppm TWA; 50 mg/m3 TWA 2-methylnaphthalene: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: not available
Odor: none reported
pH: Not available.
Vapor Pressure: Not applicable.
Vapor Density: Not available.
Evaporation Rate: Not applicable.
Viscosity: Not applicable.
Boiling Point: Not available.
Freezing/Melting Point: Not available.
Decomposition Temperature: Not available.
Solubility: Insoluble in water.
Specific Gravity/Density: Not available.
Molecular Formula: Mixture
Molecular Weight: Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: High temperatures.
Incompatibilities with Other Materials: None reported.

Hazardous Decomposition Products: No data available.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 120-12-7: CA9350000
CAS# 129-00-0: UR2450000; UR2450100
CAS# 132-64-9: HP4430000
CAS# 205-99-2: CU1400000
CAS# 206-44-0: LL4025000
CAS# 208-96-8: AB1254000; AB1254200
CAS# 218-01-9: GC0700000
CAS# 50-32-8: DJ3675000
CAS# 56-55-3: CV9275000
CAS# 83-32-9: AB1000000
CAS# 85-01-8: SF7175000
CAS# 86-73-7: LL5670000
CAS# 87-86-5: SM6300000; SM6314000; SM6321000
CAS# 91-20-3: QJ0525000
CAS# 91-57-6: QJ9635000
LD50/LC50:
CAS# 120-12-7:
Oral, mouse: LD50 = 4900 mg/kg;
.

CAS# 129-00-0:
Draize test, rabbit, skin: 500 mg/24H Mild;
Inhalation, rat: LC50 = 170 mg/m3;
Inhalation, rat: LC50 = 170 mg/m3;
Oral, mouse: LD50 = 800 mg/kg;
Oral, rat: LD50 = 2700 mg/kg;
.

CAS# 132-64-9:
.

CAS# 205-99-2:
.

CAS# 206-44-0:
Oral, rat: LD50 = 2 gm/kg;
Skin, rabbit: LD50 = 3180 mg/kg;
.

CAS# 208-96-8:
Oral, mouse: LD50 = 1760 mg/kg;
.

CAS# 218-01-9:
.

CAS# 50-32-8:
.

CAS# 56-55-3:
.

CAS# 83-32-9:
.

CAS# 85-01-8:
Oral, mouse: LD50 = 700 mg/kg;
Oral, rat: LD50 = 1.8 gm/kg;
.

CAS# 86-73-7:
.

CAS# 87-86-5:
Draize test, rabbit, eye: 100 uL/24H Mild;
Inhalation, mouse: LC50 = 225 mg/m3;
Inhalation, mouse: LC50 = 225 mg/m3;
Inhalation, rat: LC50 = 355 mg/m3;
Inhalation, rat: LC50 = 200 mg/m3;
Inhalation, rat: LC50 = 335 mg/m3;
Oral, mouse: LD50 = 36 mg/kg;
Oral, mouse: LD50 = 117 mg/kg;
Oral, mouse: LD50 = 30 mg/kg;
Oral, rabbit: LD50 = 200 mg/kg;
Oral, rat: LD50 = 27 mg/kg;
Oral, rat: LD50 = 27 mg/kg;
Oral, rat: LD50 = 50 mg/kg;
Skin, rat: LD50 = 96
CAS# 91-20-3:
Draize test, rabbit, eye: 100 mg Mild;
Inhalation, rat: LC50 = >340 mg/m3/1H;
Oral, mouse: LD50 = 316 mg/kg;
Oral, rat: LD50 = 490 mg/kg;
Skin, rabbit: LD50 = >20 gm/kg;
Skin, rat: LD50 = >2500 mg/kg;
.

CAS# 91-57-6:
Oral, rat: LD50 = 1630 mg/kg;
.

Carcinogenicity:
CAS# 120-12-7:

- **ACGIH:** A1 - Confirmed Human Carcinogen (listed as 'Coal tar pitches').
- **California:** Not listed.
- **NTP:** Known carcinogen (listed as Coal tar pitches).
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 129-00-0:

- **ACGIH:** A1 - Confirmed Human Carcinogen (listed as 'Coal tar pitches').
- **California:** Not listed.
- **NTP:** Known carcinogen (listed as Coal tar pitches).
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 132-64-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 205-99-2:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 206-44-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 208-96-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 218-01-9:

- **ACGIH:** A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
- **California:** carcinogen, initial date 1/1/90
- **NTP:** Known carcinogen (listed as Coal tar pitches).
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 50-32-8:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 1 carcinogen

CAS# 56-55-3:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 83-32-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 85-01-8:

- **ACGIH:** A1 - Confirmed Human Carcinogen (listed as 'Coal tar pitches').
- **California:** Not listed.
- **NTP:** Known carcinogen (listed as Coal tar pitches).
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

CAS# 86-73-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 87-86-5:

- **ACGIH:** A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
- **California:** carcinogen, initial date 1/1/90
- **NTP:** Not listed.
- **IARC:** Group 2B carcinogen

CAS# 91-20-3:

- **ACGIH:** Not listed.
- **California:** carcinogen, initial date 4/19/02
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 91-57-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.

Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 206-44-0: waste number U120.
CAS# 218-01-9: waste number U050.
CAS# 50-32-8: waste number U022.
CAS# 56-55-3: waste number U018.
CAS# 91-20-3: waste

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated as a hazardous material	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

Soil is not listed on the TSCA inventory. It is for research and development use only.
CAS# 120-12-7 is listed on the TSCA inventory.
CAS# 129-00-0 is listed on the TSCA inventory.
CAS# 132-64-9 is listed on the TSCA inventory.
CAS# 205-99-2 is not listed on the TSCA inventory. It is for research and development use only.
CAS# 206-44-0 is listed on the TSCA inventory.
CAS# 208-96-8 is listed on the TSCA inventory.
CAS# 218-01-9 is listed on the TSCA inventory.
CAS# 50-32-8 is listed on the TSCA inventory.
CAS# 56-55-3 is listed on the TSCA inventory.
CAS# 83-32-9 is listed on the TSCA inventory.
CAS# 85-01-8 is listed on the TSCA inventory.
CAS# 86-73-7 is listed on the TSCA inventory.

CAS# 87-86-5 is listed on the TSCA inventory.
CAS# 91-20-3 is listed on the TSCA inventory.
CAS# 91-57-6 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 129-00-0: Effective 6/1/87, Sunset 6/1/97 CAS# 91-20-3: Effective 6/1/87, Sunset 6/1/97

Chemical Test Rules

CAS# 91-20-3: 40 CFR 799.5115

Section 12b

CAS# 91-20-3: Section 4, 0.1 % de minimus concentration

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 120-12-7: 5000 lb final RQ; 2270 kg final RQ CAS# 129-00-0: 5000 lb final RQ; 2270 kg final RQ CAS# 132-64-9: 100 lb final RQ; 45.4 kg final RQ CAS# 205-99-2: 1 lb final RQ; 0.454 kg final RQ CAS# 206-44-0: 100 lb final RQ; 45.4 kg final RQ CAS# 208-96-8: 5000 lb final RQ; 2270 kg final RQ CAS# 218-01-9: 100 lb final RQ; 45.4 kg final RQ CAS# 50-32-8: 1 lb final RQ; 0.454 kg final RQ CAS# 56-55-3: 10 lb final RQ; 4.54 kg final RQ CAS# 83-32-9: 100 lb final RQ; 45.4 kg final RQ CAS# 85-01-8: 5000 lb final RQ; 2270 kg final RQ CAS# 86-73-7: 5000 lb final RQ; 2270 kg final RQ CAS# 87-86-5: 10 lb final RQ; 4.54 kg final RQ CAS# 91-20-3: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 129-00-0: 1000 lb lower threshold TPQ; 10000 lb upper threshold T PQ

SARA Codes

CAS # 120-12-7: immediate.
CAS # 129-00-0: immediate, delayed.
CAS # 206-44-0: immediate.
CAS # 50-32-8: immediate, delayed.
CAS # 56-55-3: delayed.
CAS # 83-32-9: immediate.
CAS # 85-01-8: immediate.
CAS # 91-20-3: immediate, delayed, fire.
CAS # 91-57-6: immediate.

Section 313

This material contains Anthracene (CAS# 120-12-7, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Dibenzofuran (CAS# 132-64-9, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Benzo(b)fluoranthene (CAS# 205-99-2, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Fluoranthene (CAS# 206-44-0, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains 1,2-benzphenanthrene (CAS# 218-01-9, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Benzo(a)pyrene (CAS# 50-32-8, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains 1,2-Benzanthracene (CAS# 56-55-3, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Phenanthrene (CAS# 85-01-8, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Pentachlorophenol (CAS# 87-86-5, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

This material contains Naphthalene (CAS# 91-20-3, 0-2%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 132-64-9 is listed as a hazardous air pollutant (HAP).

CAS# 87-86-5 is listed as a hazardous air pollutant (HAP).
CAS# 91-20-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 87-86-5 is listed as a Hazardous Substance under the CWA. CAS# 91-20-3 is listed as a Hazardous Substance under the CWA. CAS# 120-12-7 is listed as a Priority Pollutant under the Clean Water Act. CAS# 129-00-0 is listed as a Priority Pollutant under the Clean Water Act. CAS# 205-99-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 206-44-0 is listed as a Priority Pollutant under the Clean Water Act. CAS# 208-96-8 is listed as a Priority Pollutant under the Clean Water Act. CAS# 218-01-9 is listed as a Priority Pollutant under the Clean Water Act. CAS# 50-32-8 is listed as a Priority Pollutant under the Clean Water Act. CAS# 56-55-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 83-32-9 is listed as a Priority Pollutant under the Clean Water Act. CAS# 85-01-8 is listed as a Priority Pollutant under the Clean Water Act.

CAS# 86-73-7 is listed as a Priority Pollutant under the Clean Water Act. CAS# 87-86-5 is listed as a Priority Pollutant under the Clean Water Act. CAS# 91-20-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 206-44-0 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 83-32-9 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 87-86-5 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 91-20-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 120-12-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Coal tar pitches), Massachusetts.

CAS# 129-00-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Coal tar pitches), Massachusetts.

CAS# 132-64-9 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

CAS# 205-99-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 206-44-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

CAS# 208-96-8 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

CAS# 218-01-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 50-32-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 56-55-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 83-32-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

CAS# 85-01-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Coal tar pitches), Massachusetts.

CAS# 86-73-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

CAS# 87-86-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 91-20-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 91-57-6 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

WARNING: This product contains Benzo(b)fluoranthene, a chemical known to the state of California to cause cancer. WARNING: This product contains 1,2-benzphenanthrene, a chemical known to the state of California to cause cancer. WARNING: This product contains Benzo(a)pyrene, a chemical known to the state of California to cause cancer. WARNING: This product contains 1,2-Benzanthracene, a chemical known to the state of California to cause cancer. WARNING: This product contains Pentachlorophenol, a chemical known to the state of California to cause cancer. WARNING: This product contains Naphthalene, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 205-99-2: 0.096 æg/day NSRL (oral) CAS# 218-01-9: 0.35 æg/day NSRL (oral) CAS# 50-32-8: 0.06 æg/day NSRL CAS# 56-55-3: 0.033 æg/day NSRL (oral) CAS# 87-86-5: 40 æg/day NSRL CAS# 91-20-3: 5.8 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

Not available.

Risk Phrases:

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 120-12-7: 2
CAS# 129-00-0: No information available.
CAS# 132-64-9: No information available.
CAS# 205-99-2: No information available.
CAS# 206-44-0: No information available.
CAS# 208-96-8: No information available.
CAS# 218-01-9: No information available.
CAS# 50-32-8: No information available.
CAS# 56-55-3: No information available.
CAS# 83-32-9: No information available.
CAS# 85-01-8: No information available.
CAS# 86-73-7: No information available.
CAS# 87-86-5: 3
CAS# 91-20-3: 2
CAS# 91-57-6: No information available.

Canada - DSL/NDSL

CAS# 120-12-7 is listed on Canada's DSL List.
CAS# 129-00-0 is listed on Canada's DSL List.
CAS# 132-64-9 is listed on Canada's DSL List.
CAS# 218-01-9 is listed on Canada's DSL List.
CAS# 50-32-8 is listed on Canada's DSL List.
CAS# 83-32-9 is listed on Canada's DSL List.
CAS# 85-01-8 is listed on Canada's DSL List.
CAS# 86-73-7 is listed on Canada's DSL List.
CAS# 87-86-5 is listed on Canada's DSL List.
CAS# 91-20-3 is listed on Canada's DSL List.
CAS# 91-57-6 is listed on Canada's DSL List.
CAS# 206-44-0 is listed on Canada's NDSL List.
CAS# 208-96-8 is listed on Canada's NDSL List.
CAS# 56-55-3 is listed on Canada's NDSL List.

Canada - WHMIS

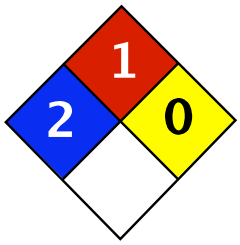
This product has a WHMIS classification of D2A.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 120-12-7 is listed on the Canadian Ingredient Disclosure List.
CAS# 129-00-0 is listed on the Canadian Ingredient Disclosure List.
CAS# 205-99-2 is listed on the Canadian Ingredient Disclosure List.
CAS# 206-44-0 is listed on the Canadian Ingredient Disclosure List.
CAS# 208-96-8 is not listed on the Canadian Ingredient Disclosure List.
CAS# 218-01-9 is listed on the Canadian Ingredient Disclosure List.
CAS# 50-32-8 is listed on the Canadian Ingredient Disclosure List.
CAS# 56-55-3 is listed on the Canadian Ingredient Disclosure List.
CAS# 83-32-9 is listed on the Canadian Ingredient Disclosure List.
CAS# 85-01-8 is listed on the Canadian Ingredient Disclosure List.
CAS# 86-73-7 is not listed on the Canadian Ingredient Disclosure List.
CAS# 87-86-5 is not listed on the Canadian Ingredient Disclosure List.
CAS# 91-20-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997
Revision #5 Date: 11/20/2008



Health	2
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Chromium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Chromium

Catalog Codes: SLC4711, SLC3709

CAS#: 7440-47-3

RTECS: GB4200000

TSCA: TSCA 8(b) inventory: Chromium

CI#: Not applicable.

Synonym: Chromium metal; Chrome; Chromium Metal Chips 2" and finer

Chemical Name: Chromium

Chemical Formula: Cr

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Chromium	7440-47-3	100

Toxicological Data on Ingredients: Chromium LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Slightly hazardous in case of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to kidneys, lungs, liver, upper respiratory tract.
Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 580°C (1076°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat.
Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Moderate fire hazard when it is in the form of a dust (powder) and burns rapidly when heated in flame.
Chromium is attacked vigorously by fused potassium chlorate producing vivid incandescence.
Pyrophoric chromium unites with nitric oxide with incandescence.
Incandescent reaction with nitrogen oxide or sulfur dioxide.

Special Remarks on Explosion Hazards:
Powdered Chromium metal +fused ammonium nitrate may react violently or explosively.
Powdered Chromium will explode spontaneously in air.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.5 (mg/m3) from ACGIH (TLV) [United States]
TWA: 1 (mg/m3) from OSHA (PEL) [United States]
TWA: 0.5 (mg/m3) from NIOSH [United States]
TWA: 0.5 (mg/m3) [United Kingdom (UK)]
TWA: 0.5 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 52 g/mole

Color: Silver-white to Grey.

pH (1% soln/water): Not applicable.

Boiling Point: 2642°C (4787.6°F)

Melting Point: 1900°C (3452°F) +/- !0 deg. C

Critical Temperature: Not available.

Specific Gravity: 7.14 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Insoluble in cold water, hot water.
Soluble in acids (except Nitric), and strong alkalies.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, acids, alkalis.

Corrosivity: Not available.

Special Remarks on Reactivity:
Incompatible with molten Lithium at 180 deg. C, hydrogen peroxide, hydrochloric acid, sulfuric acid, most caustic alkalies and alkali carbonates, potassium chlorate, sulfur dioxide, nitrogen oxide, bromine pentafluoride.
It may react violently or ignite with bromine pentafluoride.
Chromium is rapidly attacked by fused sodium hydroxide + potassium nitrate.
Potentially hazardous incompatibility with strong oxidizers.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available.
LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for

human.) by IARC.
May cause damage to the following organs: kidneys, lungs, liver, upper respiratory tract.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation.
Slightly hazardous in case of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause cancer based on animal data. There is no evidence that exposure to trivalent chromium causes cancer in man.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
May cause skin irritation.
Eyes: May cause mechanical eye irritation.
Inhalation: May cause irritation of the respiratory tract and mucous membranes of the respiratory tract.
Ingestion: May cause gastrointestinal tract irritation with nausea, vomiting, diarrhea.
Chronic Potential Health Effects:
Inhalation: The effects of chronic exposure include irritation , sneezing, reddness of the throat, bronchospasm, asthma, cough, polyps, chronic inflammation, emphysema, chronic bronchitis, pharyngitis, bronchopneumonia, pneumoconoisis. Effects on the nose from chronic chromium exposure include irritation, ulceration, and perforation of the nasal septum. Inflammation and ulceration of the larynx may also occur.
Ingestion or Inhalation: Chronic exposure may cause liver and kidney damage.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Chromium
Illinois toxic substances disclosure to employee act: Chromium
Illinois chemical safety act: Chromium
New York release reporting list: Chromium
Rhode Island RTK hazardous substances: Chromium
Pennsylvania RTK: Chromium
Minnesota: Chromium
Michigan critical material: Chromium
Massachusetts RTK: Chromium
Massachusetts spill list: Chromium
New Jersey: Chromium
New Jersey spill list: Chromium
Louisiana spill reporting: Chromium
California Director's List of Hazardous Substances: Chromium
TSCA 8(b) inventory: Chromium
SARA 313 toxic chemical notification and release reporting: Chromium
CERCLA: Hazardous substances.: Chromium: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
R40- Limited evidence of carcinogenic effect
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves.
Lab coat.
Dust respirator. Be sure to use an approved/certified respirator or equivalent.
Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:16 PM

Last Updated: 10/10/2005 08:16 PM

SAFETY DATA SHEET

Revision Date 24-Feb-2020 **Revision Number** 2

1. Identification

Product Name **Hexavalent Chromium, standard solution, Specpure®, Cr(+6) 1000µg/ml**

Cat No. : **42234**

Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause genetic defects
May cause cancer
May damage fertility or the unborn child

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Water	7732-18-5	99.76
Ammonium bichromate	7789-09-5	0.24

4. First-aid measures

General Advice — If symptoms persist, call a physician.

Eye Contact — Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact — Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation — Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion — Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects — None reasonably foreseeable.

Notes to Physician — Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media — Not combustible.

Unsuitable Extinguishing Media — No information available

Flash Point — No information available

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

None reasonably foreseeable.

Hazardous Combustion Products

Nitrogen oxides (NOx). Ammonia. Chromium oxide.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	-

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required.

Environmental Precautions Should not be released into the environment. See Section 12 for additional Ecological Information. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Ammonium bichromate	TWA: 0.0002 mg/m³ STEL: 0.0005 mg/m³ Skin	(Vacated) Ceiling: 0.1 mg/m³ Ceiling: 0.1 mg/m³	IDLH: 15 mg/m³ TWA: 0.0002 mg/m³	TWA: 0.05 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard

EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	<=1100 hPa @ 50 °C
Vapor Density	No information available
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	(NH4)2 Cr2 O7 in H2 O

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nitrogen oxides (NOx), Ammonia, Chromium oxide

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	
Oral LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50	Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50	Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.
Component Information	

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Ammonium bichromate	LD50 = 48 mg/kg (Rat)	LD50 = 1860 mg/kg (Rabbit)	LC50 = 0.2 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Ammonium bichromate	7789-09-5	Group 1	Known	A1	X	A1

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects California Proposition 65. Reproductive toxicity.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ammonium bichromate	Not listed	LC50: = 136 mg/L, 96h	Not listed	Not listed

		(Gambusia affinis)		

Persistence and Degradability based on information available. May persist

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Water	7732-18-5	X	ACTIVE	-
Ammonium bichromate	7789-09-5	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export

Component	CAS-No	**TSCA 12(b)** - Notices of Export
Ammonium bichromate	7789-09-5	Section 6

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Water	7732-18-5	X	-	231-791-2	X	X	X	X	KE-35400
Ammonium bichromate	7789-09-5	X	-	232-143-1	X	X	X	X	KE-01653

U.S. Federal Regulations

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Ammonium bichromate	7789-09-5	0.24	0.1 1.0

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Ammonium bichromate	X	10 lb	X	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ammonium bichromate	X		-

OSHA - Occupational Safety and Health Administration: Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Ammonium bichromate	5 µg/m³ TWA 2.5 µg/m³ Action Level	-

CERCLA: Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Ammonium bichromate	10 lb	-

California Proposition 65: This product contains the following Proposition 65 chemicals.

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Ammonium bichromate	7789-09-5	Carcinogen Developmental Female Reproductive Male Reproductive	0.001 µg/day	Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Ammonium bichromate	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security: This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade: No information available

16. Other information

Prepared By
Health, Safety and Environmental Department
Email: tech@alfa.com
www.alfa.com

Revision Date 24-Feb-2020
Print Date 24-Feb-2020
Revision Summary SDS authoring systems update, replaces ChemGes SDS No. 2,327.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Attachment 2

Job Hazard Analysis Worksheets

JOB HAZARD ANALYSIS WORKSHEET			
Phase Description:	Interim Remedial Measures Work Plan		
Task or Operation:	Construction, Decontamination, Demolition, Excavation, Inspection, Mobilization, Sampling - subsurface soil, Site survey, Traffic control, Welding, cutting, brazing, AST Removal		
Specific Location:	Entire Site		
Task or Operation Start Date(s):	March 2024	**Task or Operation Duration:**	12 Months
Date of Hazard Analysis:	January 15, 2024		
Job Hazard Analysis Developed by:	DK		
Job Hazard Analysis Reviewed by:	DK		

POTENTIAL HAZARDS DURING THIS TASK and/or OPERATION			
Chemical*	**Physical**	**Biological**	**Radiological**
» VOCs » SVOCs » Metals	» Demolition Operations » Electrical » Excavation/Trenching Operations » Flammable Liquids - Storage and Use » Hand Tool Use » Heavy Manual Lifting/Moving » Hot Surfaces » Ladder Use » Material Handling » Noise (Sound Pressure Level), dBA » Scaffolding Use » Sharp Objects » Slips/Trips/Falls » Traffic - On or Near Site » Utilities (electrical, gas, water, etc.) - Overhead » Utilities (electrical, gas, water, etc.) - Underground » Welding/Cutting/Burn ing Operations	» Metals	

HAZARD CONTROL MEASURES USED DURING THIS TASK and/or OPERATION	
Administrative Controls:	Log In/Out Sheets
Engineering Controls:	Composite Cover System

PPE Description:

Component	Description
Level A Ensemble	
Boots, chemical-resistant, steel toe and shank	
Gloves, inner, chemical-resistant	
Gloves, outer, chemical-resistant	
Supplied Air Respirator - air-line	
Totally-encapsulating vapor tight chemical protective suit	
Level B Ensemble	
Boots, chemical-resistant, steel toe and shank	
Disposable one-piece hooded chemical resistant splash clothing suit	
Gloves, inner, chemical-resistant	
Gloves, outer, chemical-resistant	

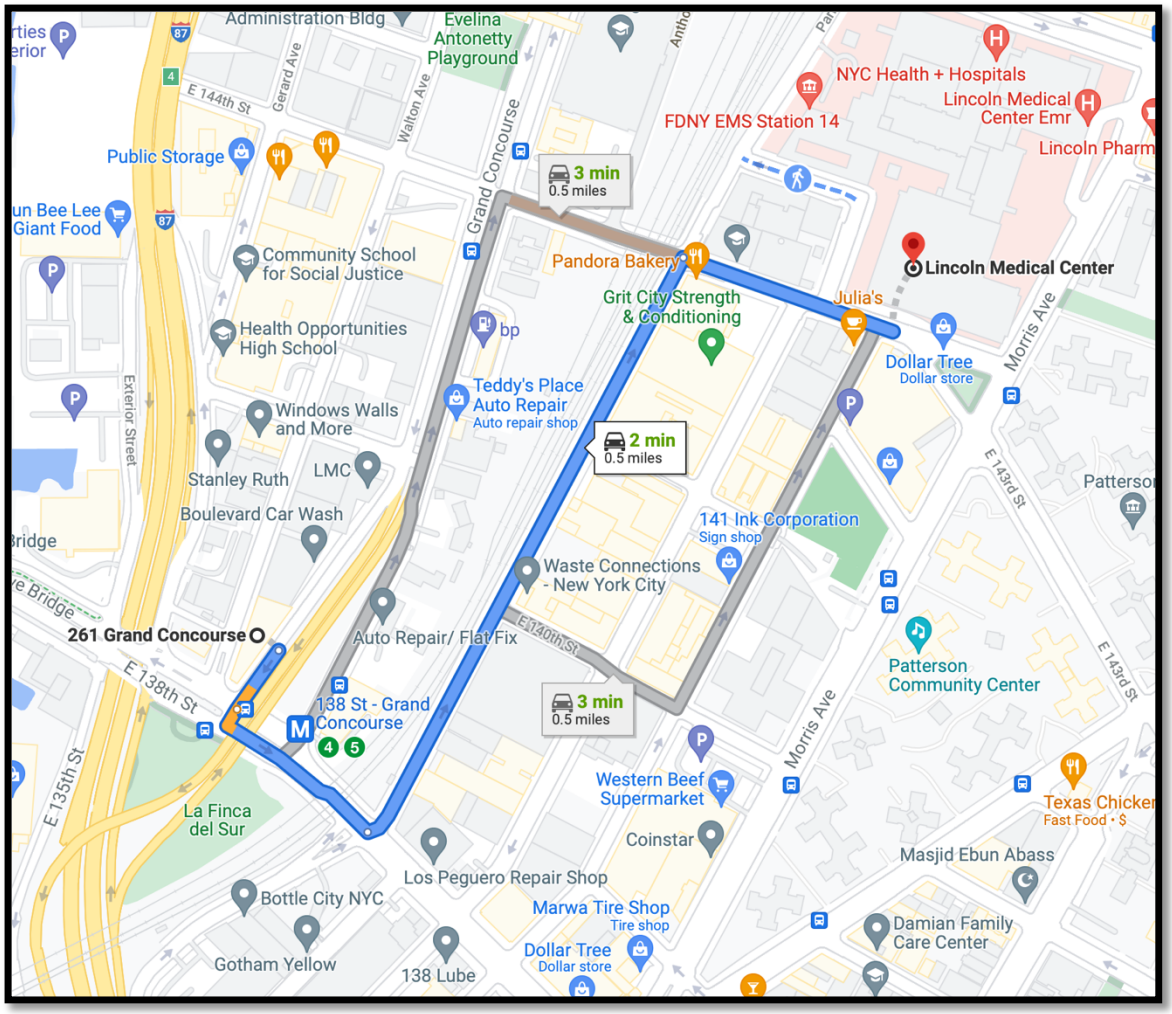
	Supplied Air Respirator - air-line
	Level C Ensemble
	Air purifying respirator - full face
	Boots, chemical-resistant, steel toe and shank
	Coveralls
	Disposable one-piece hooded chemical resistant splash clothing suit
	Escape Mask
	Gloves, inner, chemical-resistant
	Gloves, outer, chemical-resistant
	Level D Ensemble
	Dust Mask
	Escape Mask
Air-Purifying Respirator Cartridge/Canister Change Schedule:	
Decon Procedures for People & Equipment:	Alconox Tap Water Distilled Water
Required Permit(s):	
Other Information:	

*Detailed Chemical Information is listed on attached Hazardous Substance Profiles and/or SDS

Attachment 3

Directions to Hospital

Directions to Hospital



261 Grand Concourse

Bronx, NY 10451

Head southwest on Grand Concourse toward E 138th St

164 ft

Turn left at the 1st cross street onto E 138th St

446 ft

Turn left onto Park Ave

0.3 mi

Turn right onto E 144th St

Destination will be on the left

0.1 mi

Lincoln Medical Center

234 E 149th St, Bronx, NY 10451

APPENDIX B- CAMP

vEKtor consultants

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COMMUNITY AIR MONITORING PLAN

Prepared For: Walton Street GC Developments LLC

Project Name: 261-315 Grand Concourse and 270 Walton Avenue

Project Location: 261-315 Grand Concourse and 270 Walton Avenue, Bronx, New York

Date: January 2024

37 West 37th Street, 6th Floor, New York, NY 10018

Table of Contents

1.0 INTRODUCTION

This site-specific Community Air Monitoring Plan (CAMP) has been prepared on behalf of Walton Street GC Developments, LLC for the implementation of an Interim Remedial Measures Work Plan (IRMWP) by AMC Engineering (AMC) and its subcontractors at the property located at 261-315 Grand Concourse and 270 Walton Avenue in Bronx, New York (the Site). The Site is identified by the City of New York as Borough of Bronx, Block 2344 and lots 1 (261 Grand Concourse), lot 11 (270 Walton Avenue) p lot 27 (315 Grand Concourse).

This CAMP was developed in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan included within DER-10 Technical Guidance for Site Investigation and Remediation (May 2010). All instruments will be operated and calibrated as per the manufacturer's specifications.

A CAMP requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind and upwind perimeters of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

2.0 COMMUNITY AIR MONITORING PLAN

A remedial investigation was conducted by Vektor Consultants, Inc. (Vektor) in 2022 and the findings of their assessments were provided in a Remedial Investigation Report dated February 2023. Based on the results of this investigation, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals are the constituents of concern at the Site. Therefore, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary.

Continuous monitoring will be required for all ground intrusive activities. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings, soil vapor points, or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. APeriodic@ monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

Meteorological monitoring including temperature, wind direction and speed will be conducted by the field personnel and the data will be logged in the field book on a daily basis. CAMP station(s) will be relocated based on the direction of the wind.

3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

Volatile organic compounds (VOCs) must be monitored at the downwind and upwind perimeters of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
- All 15-minute readings must be recorded and be available for the NYSDEC and NYSDOH personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

4.0 PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations (i.e.: DustTrak). The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped, and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls 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.
- All readings must be recorded and be available for the NYSDEC and NYSDOH personnel to review.

Dust suppression will be achieved by applying water as needed.

APPENDIX A

ACTION LIMIT REPORT

CAMP
ACTION LIMIT REPORT

Project Location: 261-315 Grand Concourse and 270 Walton Avenue, Bronx, NY

Date: _____ Time: _____

Name: _____

Contaminant: _____ PM-10: _____ VOC: _____

Wind Speed: _____ Wind Direction: _____

Temperature: _____ Barometric Pressure: _____

DOWNWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

UPWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

BACKGROUND CORRECTED LEVELS

Monitor ID #: Location: _____ Level Reported: Level Reported: _____

ACTIONS TAKEN

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

APPENDIX C- SCHEDULE

TASK	SCHEDULE
IRMWP Submission	January 2024
7-Day Notification to DEC & DOH	January 2024
IRMWP Implementation	Ferbruary-March 2024
Construction Completion Report	April-May 2024