

# TAYSTEE BAKERY REDEVELOPMENT

MANHATTAN, NEW YORK

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## Remedial Action Work Plan

**NYC VCP Number: 15CVCP131M**

**OER Project Number 13EH-A210M**

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# **REMEDIAL ACTION WORK PLAN**

## **TABLE OF CONTENTS**

TABLE OF CONTENTS.....	ii
FIGURES.....	v
TABLES.....	vi
APPENDICES.....	vii
LIST OF ACRONYMS.....	viii
CERTIFICATION.....	1
EXECUTIVE SUMMARY.....	2
Community Protection Statement.....	8
REMEDIAL ACTION WORK PLAN.....	13
1.0    SITE BACKGROUND.....	13
1.1    Site Location and Current usage.....	13
1.2    proposed Redevelopment Plan.....	13
1.3    Description of Surrounding Property.....	14
1.4    remedial investigation.....	15
2.0    REMEDIAL ACTION OBJECTIVES.....	19
Groundwater.....	19
Soil.....	19
Soil Vapor.....	19
3.0    REMEDIAL Alternatives analysis.....	20
3.1 THRESHOLD CRITERIA.....	21
3.2. BALANCING CRITERIA.....	22
4.0    REMEDIAL ACTION.....	29
4.1    Summary of Preferred Remedial Action.....	29
4.2    Soil Cleanup Objectives and soil/Fill management.....	31
Estimated Soil/Fill Removal Quantities.....	32
End-Point Sampling.....	32
Quality Assurance/Quality Control.....	34
Import and Reuse of Soils.....	34
4.3    engineering Controls.....	35

Composite Cover System .....	35
4.4 Institutional Controls .....	35
4.5 Site Management plan.....	36
4.6 qualitative human health exposure assessment.....	37
5.0 REMEDIAL ACTION MANAGEMENT .....	42
5.1 Project Organization and oversight.....	42
5.2 Site Security .....	42
5.3 Work Hours.....	42
5.4 Construction Health and Safety Plan .....	42
5.5 Community Air Monitoring Plan.....	43
VOC Monitoring, Response Levels, and Actions .....	44
Particulate Monitoring, Response Levels, and Actions.....	44
5.6 Agency Approvals .....	45
5.7 Site Preparation.....	45
Pre-Construction Meeting.....	45
Mobilization.....	46
Utility Marker Layouts, Easement Layouts.....	46
Dewatering.....	46
Equipment and Material Staging .....	47
Stabilized Construction Entrance .....	47
Truck Inspection Station.....	47
Extreme Storm Preparedness and Response Contingency Plan .....	47
5.8 Traffic Control .....	49
5.9 Demobilization.....	50
5.10 Reporting and Record Keeping.....	50
Daily Reports .....	50
Record Keeping and Photo-Documentation .....	51
5.11 Complaint Management.....	51
5.12 Deviations from the Remedial Action Work Plan .....	51
5.13 Data usability sUmmary report.....	52
6.0 REMEDIAL ACTION REPORT .....	53
7.0 SCHEDULE .....	55

Appendix 1 Citizen Participation Plan.....	56
Appendix 2 Sustainability statement .....	59
Appendix 3 Soil/Materials Management Plan .....	62
1.1 Soil Screening Methods .....	62
1.2 Stockpile Methods .....	62
1.3 Characterization of Excavated Materials .....	62
1.4 Materials Excavation, Load-Out and Departure .....	63
1.5 Off-Site Materials Transport.....	63
1.6 Materials Disposal Off-Site .....	64
1.7 Materials Reuse On-Site .....	65
1.8 Demarcation.....	66
1.9 import of Backfill Soil from Off-Site Sources.....	66
Source Screening and Testing .....	67
1.10 Fluids Management.....	68
1.11 Storm-water Pollution Prevention.....	68
1.12 Contingency Plan .....	69
1.13 Odor, Dust and Nuisance Control.....	69
Appendix 4 Health and Safety Plan .....	71

# FIGURES

- Figure 1 – Site Location Map
- Figure 2 – Site Aerial Photograph and Boundary
- Figure 3A – Site Redevelopment Plan
- Figure 3B – Site Redevelopment Plan
- Figure 4 – Area of Proposed Excavations
- Figure 5 – Proposed Endpoint Sample Location
- Figure 6A – Proposed Building Foundation Plan
- Figure 6B – Proposed Building Foundation Plan
- Figure 7 – Proposed Truck Route

# **TABLES**

- Table 1 – Track One and Track Two Soil Cleanup Objectives

# APPENDICES

## List of Appendices

- Appendix 1 – Citizen Participation Plan
- Appendix 2 – Sustainability Statement
- Appendix 3 – Soil/Materials Management Plan
- Appendix 4 – Health and Safety Plan

## LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C/D	Construction/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
VCA	Voluntary Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC VCP	New York City Voluntary Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PE	Professional Engineer

PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

# CERTIFICATION

I, Kevin Walsh, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the Taystee Bakery Redevelopment Site OER Site Number 13EH-A210M and VCP Number \_\_\_\_\_.

I, Stephen Kaplan, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the Taystee Bakery Redevelopment Site OER Site Number 13 EH-A210M and VCP Number \_\_\_\_\_.

I certify that this Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

\_\_\_\_\_  
Name

\_\_\_\_\_  
NYS PE License Number

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



\_\_\_\_\_  
QEP Name

\_\_\_\_\_  
QEP Signature

\_\_\_\_\_  
Date

## **EXECUTIVE SUMMARY**

TSTY Create LLC has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a 38,383-square foot site located at 426-458 West 126<sup>th</sup> Street in the Harlem neighborhood of Manhattan, New York. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

### **Site Location and Current Usage**

The Site is located at 426-458 West 126<sup>th</sup> Street in the Harlem neighborhood of Manhattan, New York and is identified as Block 1966 and Lot 95 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 38,383 square feet and is bounded by West 126<sup>th</sup> Street to the north, the rear yards of buildings located on West 125<sup>th</sup> Street to the south, Morningside Avenue to the east, and Amsterdam Avenue to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is comprised of 35,883 sf vacant land getting enrolled in City VCP along 126<sup>th</sup> Street, plus one small vacant building (2500 sf) along 125<sup>th</sup> Street, slated for demolition.

### **Summary of Proposed Redevelopment Plan**

The proposed future use of the Site will consist of new construction of an eleven-story building designated for commercial, industrial, community facility, retail and/or mixed commercial uses. Layout of the proposed site development is presented in Figure 3. The current zoning designation is MX15 which is a Special Mixed-Use District combining M1-5 and R7-2 districts. The proposed use is consistent with existing zoning for the property.

There will be one level below grade that will contain building mechanical systems and permitted uses as per the zoning designation above. The one new building constructed on the site will have an estimated gross area of 261,400 square feet of space above grade or 248,145

square feet for zoning purposes after taking into account mechanical deductions. This is broken down to approximately 56,230 square feet of Community Facility uses and 191,915 square feet of Commercial Uses. The building will be approximately 155' tall. There will be a setback in the rear yard of 20' deep by approximately 100' long plus another open space on the west side of the property running north to south that will be approximately 30' wide by 100' long. All open spaces will include paving and landscaping. All existing buildings, which were part of a long-abandoned bakery complex, have either been demolished or are slated to be demolished shortly. The proposed building will not cover the entire footprint of the site as shown on the site plan. After demolition, the site will be excavated down to a total of approximately 13 feet below grade surface (bgs) in order to install building footings, the basement concrete slab and the cellar floor. In two areas, the site will be excavated to 19 feet bgs to install elevator pits. It is not expected that groundwater will be encountered during excavation, which prior investigations indicate is approximately 23.58 to 24.92 feet bgs. It is estimated that 19,000 tons of material will be generated and removed from the excavation. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

### **Summary of Environmental Findings**

1. Elevation of the property ranges from 26.9 to 28.9 feet.
2. Depth to groundwater ranges from 23.58 to 24.92 feet at the Site.
3. Groundwater flow beneath the Site is generally from the east-to-west, consistent with the regional trend, toward the Hudson River.
4. Bedrock was not encountered during VHB's subsurface investigation.
5. The stratigraphy of the site, from the surface down, revealed the presence of construction and demolition (C&D) debris from zero to approximately 12-to-13-feet below grade surface (bgs), conditions which were primarily uniform throughout the Site. Former building foundations were encountered around 12-to-13 feet bgs. Beneath building foundation generally consisted of red/brown silty sands with traces of gravel down to terminal soil boring depths.

6. Fifteen soil/fill samples were analyzed and results were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives (Track 1) and Restricted Residential Use Soil Cleanup Objectives (Track 2) as presented in 6NYCRR Part 375-6.8. Soil samples collected during the RI revealed no volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) or polychlorinated biphenyls (PCBs) at detectable concentrations and all were below Unrestricted Use Soil Cleanup Objectives. Metals, including aluminum (max. of 15,000 mg/kg), chromium (maximum of 34 mg/kg), iron (max. of 26,000 mg/kg), nickel (max. of 31 mg/kg) and vanadium (max. of 49 mg/kg) were detected above Track 1 Unrestricted Use SCOs, but did not exceed Track 2 Restricted Residential Use SCOs. Two pesticides, 4,4'-DDE (max. of 12.5 µg/kg) and 4,4'-DDT (max. of 22.1 µg/kg) were detected at concentrations above Track 1 Unrestricted Use SCOs in one soil boring. Overall, the soil chemistry is unremarkable and does not indicate any disposal.
7. Five groundwater samples were collected during the RI and results detected no pesticide or PCB exceedances of New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) and guidance values for drinking water (Class GA). Several VOCs, including 1,2-dichloroethene (max. of 41 µg/L), cis-1,2-dichloroethene (max. of 40 µg/L), tetrachloroethene (PCE) (max. of 33 µg/L) and trichloroethene (TCE) (max. of 45 µg/L) were detected above AWQSGVs. Two SVOCs, benzo[a]anthracene (max. of 0.11 µg/L) and chrysene (max. of 0.09 µg/L) were identified above NYSDEC AWQSGVs. Several metals were identified in groundwater, but only manganese (max. of 5.078 µg/L), sodium (max. of 268 µg/L), iron (0.412 µg/L) and magnesium (max. of 62.3 µg/L) were identified above AWQSGVs in dissolved phase. None of these chemical findings appear to be linked to the past usage of the site as a bakery and office and the RI indicates that groundwater is not impacted by site conditions and did not reveal any sources of contaminants onsite.
8. Seven soil vapor samples collected during the RI were compared to the compounds listed in Vapor Intrusion Matrices in the New York State Department of Health

(NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion, dated October 2006. Soil vapor results show petroleum related and associated derivatives at trace concentrations. The maximum concentrations of BTEX compounds were at 71 $\mu\text{g}/\text{m}^3$ . Most compounds were detected at concentrations less than 20  $\mu\text{g}/\text{m}^3$  except for acetone (max. of 447  $\mu\text{g}/\text{m}^3$ ), carbon disulfide (max. of 101 $\mu\text{g}/\text{m}^3$ ), and isopropyl alcohol (max. of 204  $\mu\text{g}/\text{m}^3$ ). The chlorinated VOC, PCE was detected in one of seven samples at 4.3  $\mu\text{g}/\text{m}^3$ . TCA, TCE and carbon tetrachloride were not detected in soil vapor samples. Concentrations of PCE are below the NYSDOH matrix for monitoring.

### **Summary of the Remedy**

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility. A

Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to start of remedial action.

6. Excavation and removal of soil/fill exceeding SCOs. For development purposes, the footprint of new building will require excavation to a depth of approximately 13 feet below grade for the building cellar level, and to 18 feet below grade in elevator pit area. Approximately 19,000 tons of soil will be excavated and removed from this Site.
7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
8. Management of excavated materials including temporarily stockpiling and segregating to prevent co-mingling of contaminated material and non-contaminated materials.
9. Removal of any new known ASTs and any underground storage tanks, including the fuel oil storage tank located beneath the cellar slab in the front portion of the Site, and closure of petroleum spills (if evidence of a spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations.
10. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.
11. Collection and analysis of four end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
12. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
13. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
14. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

15. Submission of a Remedial Action report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP, and if Track 1 SCOs are not achieved, describes all Engineering and Institutional Controls to be implemented at the Site.

If Unrestricted Use SCOs are not achieved, the following construction elements will be implemented and will constitute Engineering and Institutional controls:

16. As part of new development, installation of a waterproofing barrier below the cellar slab of the proposed building

17. As part of development, construction and maintenance of an engineered composite cover consisting of 5-inch thick bottom concrete slab on top of a 6-inch granular fill to prevent human exposure to residual soil/fill remaining under the Site;

18. If either Track 1 or Track 2 is not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual materials, including plans for operation, maintenance, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency;

19. If Track 1 is not achieved, the property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP and, if Track 2 is not achieved, a requirement that management of these controls must be in compliance with an approved SMP. In the latter case, Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

## COMMUNITY PROTECTION STATEMENT

The Office of Environmental Remediation created the New York City Voluntary Cleanup Program (NYC VCP) to provide governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan (“cleanup plan”) describes the findings of prior environmental studies that show the location of contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

**Remedial Investigation and Cleanup Plan.** Under the NYC VCP, a thorough cleanup study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

**Identification of Sensitive Land Uses.** Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

**Qualitative Human Health Exposure Assessment.** An important part of the cleanup planning for the Site is the performance of a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

**Health and Safety Plan.** This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of this plan are in compliance with safety requirements of the United States Occupational Safety and Health Administration (OSHA). This plan includes many protective elements including those discussed below.

**Site Safety Coordinator.** This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator will be designated and the name and phone number of the coordinator provided to NYC OER prior to beginning any remedial work.

**Worker Training.** Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

**Community Air Monitoring Plan.** Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community Air Monitoring Plan or CAMP. Results will be regularly reported to the NYC Office of Environmental Remediation. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a ‘Contingency Plan’).

**Odor, Dust and Noise Control.** This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager Spyros Malkotsis at (917) 751-1183 or (718) 875-8160 or NYC Office of Environmental Remediation Project Manager Eric Ilijevich at (212) 341-2034.

**Quality Assurance.** This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be summarized in the final report, called the Remedial Action Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

**Storm-Water Management.** To limit the potential for soil erosion and discharge, this cleanup plan has provisions for storm-water management. The main elements of the storm water management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

**Hours of Operation.** The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation are Monday through Friday during permitted hours from 7 am through 6 pm and on Saturdays, as needed, during permitted hours from 8 am to 4 pm.

**Signage.** While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYC Voluntary Cleanup Program, provides project contact names and numbers, and locations of project documents can be viewed.

**Complaint Management.** The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager Spyros Malkotsis at (917) 751-1183 or (718) 875-8160, the NYC Office of Environmental Remediation Project Manager Eric Ilijevich at (212) 341-2034, or call 311 and mention the Site is in the NYC Voluntary Cleanup Program.

**Utility Mark-outs.** To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

**Soil and Liquid Disposal.** All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations and required permits will be obtained.

**Soil Chemical Testing and Screening.** All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

**Stockpile Management.** Soil stockpiles will be kept covered with tarps to prevent dust, odors and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed to protect storm water catch basins and other discharge points.

**Trucks and Covers.** Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with all laws and regulations.

**Imported Material.** All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on-Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

**Equipment Decontamination.** All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

**Housekeeping.** Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

**Truck Routing.** Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the

property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

**Final Report.** The results of all cleanup work will be fully documented in a final report (called a Remedial Action Report) that will be available for you to review in the public document repositories located at George Bruce Library, 518 West 125<sup>th</sup> Street, New York, NY 10027.

**Long-Term Site Management.** Since Site already meets Track 2 SCOs, long-term site management will not be required. If neither Track 1 nor Track 2 is achieved, long-term protection will be required after the cleanup is complete and the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are defined in the property's deed or established through a city environmental designation. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

# **REMEDIAL ACTION WORK PLAN**

## **1.0 SITE BACKGROUND**

TSTY Create LLC has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 426-458 West 126<sup>th</sup> Street in the Harlem neighborhood of Manhattan, New York (the “Site”). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

### **1.1 SITE LOCATION AND CURRENT USAGE**

The Site is located at 426-458 West 126<sup>th</sup> Street in the Harlem neighborhood of Manhattan, New York and is identified as Block 1966 and Lot 95 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 38,383 square feet and is bounded by West 126<sup>th</sup> Street to the north, the rear yards of mixed-use buildings located on West 125<sup>th</sup> Street to the south, a parking lot to the east, and a residential building to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is comprised of 35,883 sf vacant land enrolled in City VCP along 126<sup>th</sup> Street, plus one small vacant building (2500 sf) along 125<sup>th</sup> Street, slated for demolition.

### **1.2 PROPOSED REDEVELOPMENT PLAN**

The proposed future use of the Site will consist of new construction of an eleven-story building designated for commercial, industrial, community facility, retail and/or mixed commercial uses. Layout of the proposed site development is presented in Figure 3. The current

zoning designation is MX15 which is a Special Mixed-Use District combining M1-5 and R7-2 districts. The proposed use is consistent with existing zoning for the property.

There will be one level below grade that will contain building mechanical systems and permitted uses as per the zoning designation above. The one new building constructed on the site will have an estimated gross area of 261,400 square feet of space above grade or 248,145 square feet for zoning purposes after taking into account mechanical deductions. This is broken down to approximately 56,230 square feet of Community Facility uses and 191,915 square feet of Commercial Uses. The building will be approximately 155' tall. There will be a setback in the rear yard of 20' deep by approximately 100' long plus another open space on the west side of the property running north to south that will be approximately 30' wide by 100' long. All open spaces will include paving and landscaping. All existing buildings, which were part of a long-abandoned bakery complex, have either been demolished or are slated to be demolished shortly. The proposed building will not cover the entire footprint of the site as shown on the site plan. After demolition, the site will be excavated down to a total of approximately 13 feet below grade surface (bgs) in order to install building footings, the basement concrete slab and the cellar floor. In two areas, the site will be excavated to 19 feet bgs to install elevator pits. It is not expected that groundwater will be encountered during excavation, which prior investigations indicate is approximately 23.58 to 24.92 feet bgs. It is estimated that 19,000 tons of material will be generated and removed from the excavation. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

### **1.3 DESCRIPTION OF SURROUNDING PROPERTY**

The project is located in a mixed-use area in West Harlem. The area includes many existing and former manufacturing, community facility and residential/retail uses. To the north, across West 126<sup>th</sup> Street, there is a community facility for alcohol rehabilitation, a vacant lot that is used as at-grade parking and multi-family residential buildings owned by our neighbors the non-profit organization ECDO. To the east is a vacant lot that is used as an at-grade parking lot for U-Haul rental trucks. To the south are the backyards of a series of multi-family residential buildings that range in height from four-to-six stories with ground floor retail uses. To the west is a five-story multi-family residential building. Figure 2 shows the surrounding land usage.

## 1.4 REMEDIAL INVESTIGATION

A remedial investigation was performed and the results are documented in a companion document called “*Remedial Investigation Report, Taystee Bakery Redevelopment*”, dated April, 2015 (RIR).

A Phase I Environmental Site Assessment (ESA) was prepared by VHB for TSTY Create LLC dated February 2012. As part of the Phase I ESA, VHB was able to establish a history for the Site dating back to 1902. According to a review of New York City records, Sanborn maps, aerial photographs, as well as personnel interviews, the Site was improved with nine small buildings as early as 1902. Between 1902 and 1912, portions of the existing Site were constructed, including the building that was known as 432 through 434 West 126th Street. Between 1912 and 1951, based on a review of Sanborn maps, the remaining portions of the Site were built and connected to the previously existing structures. Specifically, the building that was known as 426 through 430 West 126th Street was constructed in 1916, and the building that was known as 436 through 454 West 126th Street was constructed in 1923. The Site was formerly utilized as a wholesale bakery and associated offices prior to being vacated approximately 40 years ago. The property located at 456 West 126<sup>th</sup> Street was likely renovated circa 2001 into a gourmet food store, which was subsequently vacated between 2010 and 2011.

After completion of the Phase I, Phase II, soil borings around the abandoned-in-place underground petroleum storage tank and site inspection, no Areas of Concern were identified.

### **Summary of the Work Performed under the Remedial Investigation**

TSTY Create LLC using VHB as a contractor performed the following scope of work, as approved by NYCOER:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed eight soil borings across the entire project Site, and collected fifteen soil samples for chemical analysis from the soil borings to evaluate soil quality;

3. Installed five temporary groundwater monitoring wells throughout the Site to establish groundwater flow and collected five groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed seven soil vapor probes around Site perimeter and collected seven samples for chemical analysis.

### **Summary of Environmental Findings**

1. Elevation of the property ranges from 26.9 to 28.9 feet.
2. Depth to groundwater ranges from 23.58 to 24.92 feet at the Site.
3. Groundwater flow beneath the Site is generally from the east-to-west, consistent with the regional trend, toward the Hudson River.
4. Bedrock was not encountered during VHB's subsurface investigation.
5. The stratigraphy of the site, from the surface down, revealed the presence of construction and demolition (C&D) debris from zero to approximately 12-to-13-feet below grade surface (bgs), conditions which were primarily uniform throughout the Site. Former building foundations were encountered around 12-to-13 feet bgs. Beneath building foundation generally consisted of red/brown silty sands with traces of gravel down to terminal soil boring depths.
6. Soil/fill samples results were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives (Track 1) and Restricted Residential Use Soil Cleanup Objectives (Track 2) as presented in 6NYCRR Part 375-6.8. Soil samples collected during the RI revealed no volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) or polychlorinated biphenyls (PCBs) at detectable concentrations and all were below Unrestricted Use Soil Cleanup Objectives. Metals, including aluminum (max. of 15,000 mg/kg), chromium (maximum of 34 mg/kg), iron (max. of 26,000 mg/kg), nickel (max. of 31 mg/kg) and vanadium (max. of 49 mg/kg) were detected above Track 1 Unrestricted Use SCOs, but did not exceed Track 2 Restricted Residential Use SCOs. Two pesticides, 4,4'-DDE (max. of 12.5 µg/kg) and 4,4'-DDT (max. of 22.1 µg/kg) were detected at concentrations above Track 1

Unrestricted Use SCOs in one soil boring. Overall, the soil chemistry is unremarkable and does not indicate any disposal.

7. Groundwater samples collected during the RI showed no pesticide or PCB exceedances of New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS) and guidance values for drinking water (Class GA). Several VOCs, including 1,2-dichloroethene (max. of 41 µg/L), cis-1,2-dichloroethene (max. of 40 µg/L), tetrachloroethene (PCE) (max. of 33 µg/L) and trichloroethene (TCE) (max. of 45 µg/L) were detected above AWQSGVs. Two SVOCs, benzo[a]anthracene (max. of 0.11 µg/L) and chrysene (max. of 0.09 µg/L) were identified above NYSDEC AWQSGVs. Several metals were identified in groundwater, but only manganese (max. of 5.078 µg/L), sodium (max. of 268 µg/L), iron (0.412 µg/L) and magnesium (max. of 62.3 µg/L) were identified above AWQSGVs in dissolved phase. None of these chemical findings appear to be linked to the past usage of the site as a bakery and office and the RI indicates that groundwater is not impacted by site conditions and did not reveal any sources of contaminants onsite.
8. Seven soil vapor samples collected during the RI were compared to the compounds listed in Vapor Intrusion Matrices in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion, dated October 2006. Soil vapor results show petroleum related and associated derivatives at trace concentrations. The maximum concentrations of BTEX compounds were at 71 µg/m<sup>3</sup>. Most compounds were detected at concentrations less than 20 µg/m<sup>3</sup> except for acetone (max. of 447 µg/m<sup>3</sup>), carbon disulfide (max. of 101 µg/m<sup>3</sup>), and isopropyl alcohol (max. of 204 µg/m<sup>3</sup>). The chlorinated VOC, PCE was detected in one of seven samples at 4.3 µg/m<sup>3</sup>. TCA, TCE and carbon tetrachloride were not detected in soil vapor samples. Concentrations of PCE are below the NYSDOH matrix for monitoring.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this site.

## **2.0 REMEDIAL ACTION OBJECTIVES**

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site:

### **Groundwater**

- Prevent direct exposure to groundwater.
- Prevent exposure to contaminants volatilizing from contaminated groundwater.

### **Soil**

- Prevent direct contact with contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

### **Soil Vapor**

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into the occupied structure.

### 3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found that exceed applicable standards, criteria and guidance values. A remedy is then developed based on the following ten criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Ability to Implement the Remedy;
- Cost effectiveness;
- Community Acceptance;
- Land use; and
- Sustainability.

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

*Alternative 1 involves:*

- Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
- Removal of all soil/fill exceeding Unrestricted Use SCOs throughout the Site and confirmation that Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. If soil/fill-containing analytes at concentrations above Unrestricted Use SCOs is still present at the base of the excavation after removal of all soil required for construction is complete, additional excavation will be performed to ensure complete removal of soil that does not meet Track 1 Unrestricted Use SCOs.

- No Engineering or Institutional Controls are required for a Track 1 cleanup but as part of development a waterproofing barrier would be installed beneath the slab of the building.
- As part of development, placement of a final cover over the entire Site.

Alternative 2 involves:

- Establishment of Site-Specific (Track 4) SCOs.
- Removal of all soil/fill exceeding Track 4 SCOs. Excavation for the new building footprint would take place to a depth of approximately 13 feet with a small area excavated to 18 feet below grade which would effectively remove all historic fill at the Site. If soil/fill containing analytes at concentrations above Track 4 Site-Specific SCOs is still present at the base of the excavation after removal of all soil required for construction of the new buildings is complete, additional excavation will be performed to meet Track 4 Site-Specific SCOs.
- Placement of a final cover over the entire Site to prevent exposure to remaining soil/fill.
- Installation of a waterproofing barrier beneath the building slab for the new structure as a part of development.
- Establishment of use restrictions including prohibitions on the use of groundwater from the Site; prohibitions of sensitive Site uses, such as farming or vegetable gardening, to prevent future exposure pathways.

### **3.1 THRESHOLD CRITERIA**

#### **Protection of Public Health and the Environment**

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and the environment by ensuring that remaining soil at the Site meets Unrestricted Use SCOs, thus eliminating potential for direct

contact with contaminated soil/ fill once construction is complete and eliminating the risk of contaminants leaching into groundwater.

Alternative 2 would achieve comparable protections of human health and the environment by removing soil/fill from areas that exceed the Track 4 SCOs and ensuring that remaining soil/fill on-Site meets Track 4 Site-Specific SCOs as well as by placement of institutional and engineering controls, including a composite cover system. The composite cover system would prevent direct contact with any remaining on-Site soil/fill. The waterproofing barrier would provide additional mitigation of any vapor issues. Establishment of Track 4 Site-Specific SCOs would minimize the risk of contamination leaching into groundwater. Implementing institutional controls including registration of the site with an E-designation with the NYC Building Department would ensure that the composite cover system remains intact and protective.

For both Alternatives, potential exposure to contaminated soils during construction would be minimized by implementing a Construction Health and Safety Plan (CHASP), an approved Soil/Materials Management Plan and Community Air Monitoring Plan (CAMP). Potential contact with contaminated groundwater would be prevented as its use is prohibited by city laws and regulations. Furthermore, groundwater is not expected to be encountered as part of the site redevelopment.

### **3.2. BALANCING CRITERIA**

#### **Compliance with Standards, Criteria and Guidance (SCGs)**

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

Alternative 1 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to achieve Track 1 Unrestricted Use SCOs and Groundwater Protection Standards. As part of the development, a 5-inch thick bottom concrete

slab on top of a 6-inch granular fill and a waterproofing barrier beneath the slab will prevent human exposure to residual soil/fill remaining under the Site.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to achieve Track 4 Site-Specific SCOs. Furthermore, as part of the development, a 5-inch thick bottom concrete slab on top of a 6-inch granular fill and a waterproofing barrier beneath the slab will prevent human exposure to residual soil/fill remaining under the Site.

Both remedial alternatives comply with SCGs that involve protection of the public health and environment during the remedial action by implementing and enforcing a site-specific HASP. Occupational Safety and Health Administration (OSHA) requirements for on-site construction safety will be followed by the site contractors. For both remedial alternatives, focused attention on dust control and proper soil handling techniques would aid compliance with applicable SCGs. These measures will protect on-site workers and the surrounding community from exposure to site-derived contaminants.

### **Short-term effectiveness and impacts**

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both Alternatives 1 and 2 have similar short-term effectiveness during their respective implementations, as both alternatives require minimal excavation of soil below the slab level. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic. Short term impacts could potentially be higher for Alternative 1 if excavation of greater amounts of historical fill material is encountered below the excavation depth of the proposed building that required excavation of greater amounts of soil than required for construction. However, focused attention to means and methods during the remedial action, including community air monitoring and appropriate truck

routing, would minimize or negate the overall impact of these activities. The effects of these potential adverse impacts to the community, workers and the environment would be minimized through implementation of corresponding control plans through an approved Health and Safety Plan.

### **Long-term effectiveness and permanence**

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of Engineering Controls.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill above Track 1 Unrestricted Use SCOs. As such, no long term impacts are expected, and no on-site controls would be required. Additionally, the proposed development plan includes the installation of a concrete slab as part of the development.

Alternative 2 would provide long-term effectiveness by removing some on-Site contamination and generally attaining Track 4 Site-Specific SCOs. In addition, if Track 2 SCOs are not achieved, long-term effectiveness would be provided by establishing Engineering Controls including a composite cover system across the Site, establishing Institutional Controls to ensure long-term management including use restrictions, a Site Management Plan (SMP), and registration of the site with a RE designation to memorialize these controls for the long term. In that latter case, the SMP will ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as they were intended assuring that protections designed into the remedy will provide a continuous high level of protection in perpetuity.

### **Reduction of toxicity, mobility, or volume of contaminated material**

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

With regard to Alternative One, all contaminated soils would be removed in order to achieve the most conservative NYSDEC Part 375 Track One Unrestricted Use SCOs. As such, all elements of toxicity and point-source contaminants would be eliminated at the Site.

Implementation of Alternative Two would result in a reduction of toxicity, mobility and volume of contaminated media to the maximum extent practicable to concentrations within the respective SCOs, thereby minimizing or effectively eliminating exposure to future site occupants.

### **Implementability**

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The proposed remedial action described herein under Alternatives One and Two have been proven effective as the best and most feasible means to reduce or eliminate impacted soils to the maximum extent practicable. The techniques, materials and equipment to implement both alternatives are readily available, feasible, implementable, and have been proven effective in remediating the contaminants, if any, associated with the Site. They use standard materials and services and well-established technology. The reliability of each remedy is high. There are no

special difficulties associated with any of the activities proposed. Based on the results of the RIR, Alternative Two would be more feasible to achieve as Track 4 Site-Specific SCOs would be achieved throughout the Site without excavation or additional permits.

### **Cost effectiveness**

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) necessary to ensure the continued effectiveness of a remedial action.

Since historic fill at the Site was found during the RI to extend to a depth of 10 feet and the new development calls for the excavation and removal of soil to the depth of 13 feet and 18 feet in select areas below grade, the costs associated with both Alternative 1 and Alternative 2 will likely be comparable. If additional excavation is conducted to achieve Track 1 Unrestricted Use SCOs, there would be additional disposal costs. Further, there will be additional construction costs to pour concrete to restore the level of the site after subgrade excavation is performed. Long-term costs for Alternative 2 would likely be higher than Alternative 1 based on implementation of a Site Management Plan (if required) as part of Alternative 2.

### **Community Acceptance**

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

As a condition of the NYC VCP and E-Designation program, a public review of this RAP is required. As such, any public or community input that would facilitate additional community acceptance without compromising the goals of the proposed Site redevelopment will be considered. Based on the overall goals of the remedial program and initial permitting associated with the proposed site development, no adverse community opinion is anticipated for either alternative. This RAWP will be subject to a public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternative and the selected remedy. This public comment will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Appendix 1.

## **Land Use**

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas (BOA) pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the site.

The Site was rezoned for mixed uses by the New York City Planning Commission in November 2012. Based upon rezoning, the subject property was listed as an E-Designated site. In order to comply with the Site's E-Designation, site investigations with respect to hazardous materials were conducted in accordance with the E-Designation program. The remedial action alternatives provided herein would eliminate (Alternative One) or greatly reduce (Alternative Two) public exposure to impacted media at the Site. Both alternatives for remedial action at the Site are comparable with respect to the proposed use and to land uses in the vicinity of the Site. Alternative One would result in removal of the E-designation and unlimited uses for the Site.

## **Sustainability of the Remedial Action**

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in *PlaNYC: A Greener, Greater New York*. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

In addition to remediation at the site, there are also sustainability benefits from each of the proposed alternatives. As part of each alternative, where feasible, all soils which are determined to be “non-impacted” or “minimally impacted” within Track One or Track Two SCOs will be eligible for soil banking as part of the NYC VCP. Under the soil banking program, soils would be re-used, if feasible, on alternate sites deemed appropriate by NYC OER, thereby reducing landfill disposal capacity along with reduced truck travel. Alternative Two would also increase efficiency by reducing energy consumption and the volume of material generated from the Site.

## **4.0 REMEDIAL ACTION**

### **4.1 SUMMARY OF PREFERRED REMEDIAL ACTION**

The preferred remedial action alternative is the Track 1 Alternative. The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility. A Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to start of remedial action.
6. Excavation and removal of soil/fill exceeding SCOs. For development purposes, the footprint of new building will require excavation to a depth of approximately 13 feet below grade for the building cellar level, and to 18 feet below grade in elevator pit area. Approximately 19,000 tons of soil will be excavated and removed from this Site.

7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
8. Management of excavated materials including temporarily stockpiling and segregating to prevent co-mingling of contaminated material and non-contaminated materials.
9. Removal of any new known ASTs and any underground storage tanks, including the fuel oil storage tank located beneath the cellar slab in the front portion of the Site, and closure of petroleum spills (if evidence of a spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations.
10. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.
11. Collection and analysis of four end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
12. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
13. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
14. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
15. Submission of a Remedial Action report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP, and if Track 1 SCOs are not achieved, describes all Engineering and Institutional Controls to be implemented at the Site.

If Unrestricted Use SCOs are not achieved, the following construction elements will be implemented and will constitute Engineering and Institutional controls:

16. As part of new development, installation of a waterproofing barrier below the cellar slab of the proposed building;
17. As part of development, construction and maintenance of an engineered composite cover consisting of 5-inch thick bottom concrete slab on top of a 6-inch granular fill to prevent human exposure to residual soil/fill remaining under the Site;
18. If either Track 1 or Track 2 is not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual materials, including plans for operation, maintenance, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency;

If Track 1 is not achieved, the property will continue to be registered with an E-Designation at the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP and, if Track 2 is not achieved, a requirement that management of these controls must be in compliance with an approved SMP. In the latter case, Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

#### 4.2 Soil Cleanup Objectives and soil/Fill management

Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs) are proposed for this project. If 6NYCRR Part 375, Table 6.8(a) Track 1 Unrestricted Use is not achieved, the 6 NYCRR Part 375, Table 6.8(b) Track 2 Restricted Residential SCOs will be used.

The Track 2 Restricted Residential SCOs are also listed in Table 2.

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix 3. The location of planned excavations is shown in Figure 4.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. This information will be provided in the Remedial Action Report.

As a contingency plan, a Track 2 cleanup shall be achieved if the Track 1 cleanup cannot be achieved during remedial action. Based on the current results of environmental testing already performed on the site, no additional remediation will be necessary to achieve a Track 2 cleanup.

**Estimated Soil/Fill Removal Quantities**

The total quantity of soil/fill expected to be excavated and disposed off-Site is 19,000 tons.

Disposal facilities, waste type and estimated quantities will be reported to OER when they are identified and prior to the start of remedial action.

<u>Disposal Facility</u>	<u>Waste Type</u>	<u>Estimated Quantities</u>
To be reported to OER when identified and prior to start of remedial action.	Material disposed, i.e. historic fill and soil	19,000 tons

**End-Point Sampling**

Removal actions for development purposes under this plan will be performed in conjunction with confirmation soil sampling. Four confirmation samples will be collected from the base of the excavation at locations to be determined by OER and the applicant. For comparison to Track 1 SCOs, analytes will include VOCs, SVOC, pesticides, PCBs and metals according to analytical methods described below. For comparison to Track 4 SCOs, analytes will only include trigger compounds and elements established on the Track 4 SCO list.

Hot-spot removal actions, whether established under this RAWP or identified during the remedial program, will be performed in conjunction with post remedial end-point samples to ensure that hot-spots are fully removed. Analytes for end-point sampling will be those parameters that are driving the hot-spot removal action and will be approved by OER. Frequency for hot-spot end-point sample collection, should any hot-spots be identified during remedial action, is as follows:

1. For excavations less than 20 feet in total perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.

2. For excavations 20 to 300 feet in perimeter:

- For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
- For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.

3. For sampling of volatile organics, bottom samples should be taken within 24 hours of excavation, and should be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours should be taken at six to twelve inches.

4. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1-3 above.

Post-remediation end-point sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

New York State ELAP certified labs will be used for all confirmation and end-point sample analyses. Labs performing confirmation and end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all confirmation and end-point sample results and will include all data including non-detects and applicable standards and/or guidance values. End-point samples will be Confirmation samples will be analyzed for compounds and elements as described above utilizing the following methodology:

Soil analytical methods will include:

- Volatile organic compounds by EPA Method 8260;
- Semi-volatile organic compounds by EPA Method 8270;

- Target Analyte List metals; and
- Pesticides/PCBs by EPA Method 8081/8082.

If either LNAPL and/or DNAPL are detected, appropriate samples will be collected for characterization and “finger print analysis” and required regulatory reporting (i.e. spills hotline) will be performed.

Notwithstanding the above, and as coordinated with OER, four post-remedial endpoint samples will be collected and submitted for laboratory analysis from locations where elevated concentrations of the heavy metal chromium have been identified. Figure 5 depicts post remedial endpoint sample locations.

### **Quality Assurance/Quality Control**

Industry standards will be employed when collecting and transporting endpoint samples for laboratory analysis for quality assurance and quality control measures. Endpoint samples will consist of hand/grab samples utilizing appropriate hand protection, or using a stainless steel hand auger, shovel and/or trowel that will be decontaminated between each use. Sampling equipment will be decontaminated between uses with a detergent solution (Alconox and potable water) and potable water rinse. Endpoint samples will be collected and field screened with a PID for the presence of VOCs. Endpoint samples will be further characterized and placed directly into laboratory-supplied glassware. Upon collection, the samples will be placed into a cooler packed with ice and stored at a temperature of 4° Celsius pending transport for laboratory analysis. Soil samples will be transported to the respective laboratory under appropriate chain-of-custody protocols via overnight carrier or laboratory courier.

As an added QA/QC measure, one blind duplicate sample will be collected, if needed to assess laboratory artifacts. Should trip blanks be recommended, same will be utilized during collection of VOC endpoint samples.

### **Import and Reuse of Soils**

Import of soils onto the property and reuse of soils already onsite will be performed in conformance with the Soil/Materials Management Plan in Appendix 3. Given the redevelopment

plans involve a sub-grade cellar level, there are currently no plans to import soils to the Site. However, should the need to import soils at the Site be required, the estimated tonnage of soils proposed for import and/or re-use will be provided to NYC OER.

### **4.3 ENGINEERING CONTROLS**

Track 1 remedial actions do not require Engineering Controls. If Track 1 SCOs are not achieved, the following Engineering Controls will be employed for implementation of Alternative 2 (Track 4 SCOs):

- composite cover system consisting of asphalt covered roads, concrete covered sidewalks, and concrete building slabs;

**consisted of red/brown** Exposure to residual soil/fill will be prevented by an engineered,

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system is comprised of a 5-inch thick bottom concrete slab on top of a 6-inch granular fill to prevent human exposure to residual soil/fill remaining under the site.

Figures 6A and 6B show the proposed building foundation and footings within the lower level (basement/cellar).

#### **Waterproofing Barrier**

Migration of potential soil vapor will be mitigated with a combination of building slab and a waterproofing barrier beneath the new building's basement slab. The specifications for the waterproofing barrier will be detailed and provided to OER before the start of work.

### **4.4 INSTITUTIONAL CONTROLS**

Track 1 and Track 2 remedial actions do not require Engineering Controls. If Track 1 or Track 2 SCOs are not achieved or not be deemed feasible, Institutional Controls (IC) will be utilized in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. Institutional Controls are listed below. Long-term employment of EC/ICs will be implemented under a site-specific Site Management Plan

(SMP) that will be included in the RAR. The property will continue to be registered with an E-Designation by the NYC Buildings Department.

In the event that Track 1 or Track 2 SCOs are not achieved, the Institutional Controls for this remedial action are as follows:

- The property will continue to be registered with an E-Designation by the NYC Buildings Department. This RAWP includes a description of all ECs and ICs.
- Submittal of a Site Management Plan in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs. SMP will require that the property owner and property owner's successors and assigns will submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determined by OER in the SMP and will comply with RCNY §43-1407(1)(3).
- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;
- The Site will not be used for a higher level of use without prior approval by OER.

#### **4.5 SITE MANAGEMENT PLAN**

Site Management is not required for Track 1 or Track 2 remedial actions. However, if Track 1 or Track 2 SCOs are not achieved or is not deemed feasible, a Site Management Plan will be

required. However, the Track 2 SCOs have already been achieved based on the investigations documented in the RIR. Therefore, a Site Management Plan (SMP) is not expected to be required for long term management of the Site.

#### **4.6 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT**

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure to the contaminants of concern (COC) that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur.

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). As part of the VCP process, a QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

##### **Known and Potential Sources**

###### **Soil/fill**

- Metals, including aluminum, chromium, iron, nickel and vanadium were detected above Track 1 Unrestricted Use SCOs, but did not exceed Track 2 Restricted Residential Use SCOs.
- Two pesticides, 4,4'-DDE and 4,4'-DDT were detected but did not exceed Restricted Residential Use SCOs.

## Groundwater

- Several VOCs, including 1,2-dichloroethene, cis-1,2-dichloroethene, tetrachloroethene (PCE) and trichloroethene (TCE) were detected slightly above AWQSGVs.
- Two SVOCs, benzo[a]anthracene and chrysene were identified above NYSDEC AWQSGVs.
- Metals including manganese, sodium, iron and magnesium were identified above AWQSGVs in dissolved phase.

## Soil Vapor:

- Petroleum related and chlorinated VOCs were detected at trace concentrations.

## **Nature, Extent, Fate and Transport of Contaminants**

Low levels of SVOCs and metals were detected throughout in soils. Chlorinated compounds detected in groundwater were not detected in soil and soil vapor. Metals detected in soil (chromium) was not detected in groundwater.

## **Potential Routes of Exposure**

The five elements of an exposure pathway are: (1) a contaminant source; (2) contaminant release and transport mechanisms; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population. An exposure pathway is considered complete when all five elements of an exposure pathway are documented. A potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway cannot be documented. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future. Three potential primary routes exist by which chemicals can enter the body:

- Ingestion of water, fill, or soil;
- Inhalation of vapors and particulates; and

- Dermal contact with water, fill, soil, or building materials.

### **Existence of Human Health Exposure**

*Current Conditions:* The majority of the Site consists of exposed soil cover and is not capped. Therefore the potential for exposure to historic fill material exists. Groundwater is marginally contaminated but is not exposed at the Site, and because the Site is served by the public water supply and groundwater use for potable supply is prohibited, groundwater is not used at the Site and there is no potential for exposure under current conditions. Accumulation of soil vapor into the building located on 125<sup>th</sup> Street is possible.

*Construction/Remediation Activities:* Once redevelopment activities begin, construction workers will come into direct contact with surface and subsurface soils and groundwater, as a result of on-Site construction and excavation activities. On-Site construction workers potentially could ingest, inhale or have dermal contact with any exposed impacted soil, and fill. Similarly, off-Site receptors could be exposed to dust and vapors from on-Site activities. During construction, on-Site and off-Site exposures to contaminated dust from on-Site will be addressed through the Soil/Materials Management Plan, dust controls, and through the implementation of the Community Air-Monitoring Program and a Construction Health and Safety Plan.

*Proposed Future Conditions:* Under future remediated conditions, all soils in excess of Track 4 SCOs will be removed. The site will be fully capped, limiting potential direct exposure to soil and groundwater remaining in place, and engineering controls including the building foundation and a waterproofing barrier will prevent exposure to soil and soil vapor. The site is served by a public water supply, and groundwater is not used at the site. There are no plausible off-site pathways for ingestion, inhalation, or dermal exposure to contaminants derived from the site. Currently, there are no existing site conditions for human exposure to on-site contaminants. Implementation of this RAP will either eliminate or greatly minimize the potential for human exposure to subsurface impacts at the Site.

## **Receptor Populations**

There are two populations of receptors, on-site and off-site. These two populations are characterized as follows:

**On-Site Receptors:** During remedial action and construction, on-site receptors include on-site construction workers and contractors, inspectors and other visitors to the Site. Post redevelopment on-site receptors include on-site workers, permanent and part-time maintenance/superintendent staff and on-site (workers, recreational users, etc.).

**Off-Site Receptors:** Potential off-site receptors within a 0.25-mile radius of the Site include: adult and child residents, and commercial and construction workers, pedestrians, trespassers, and cyclists, based on the following:

1. Commercial Businesses – existing and future
2. Residential Buildings – existing and future
3. Building Construction/Renovation – existing and future
4. Pedestrians, Trespassers, Cyclists– existing and future
5. Schools– existing and future

## **Overall Human Health Exposure Assessment**

Based upon this analysis, exposure pathways are minimized due to the presence of on-site buildings and existing building foundations. Under current conditions, on-Site exposure pathways exist for contractors and others that may access the Site. The potential exposure pathways appear to exist during current conditions and during the remedial action phase. However, the Site is currently underutilized and is proposed for redevelopment. Redevelopment of the Site includes a mixed-use building, site-wide impervious surface cover cap and a subsurface vapor barrier system. Potential post-construction use of groundwater is not considered an option because groundwater in this area of New York City is not used as a potable water source. There are no surface waters in close proximity to the Site that could be impacted or threatened.

During the remedial action, on-site exposure pathways will be eliminated or minimized to the maximum extent practicable by preventing access to the Site, through implementation of soil/materials management, storm water pollution prevention, dust controls, employment of a

community air monitoring plan, and implementation of a Construction Health and Safety Plan. After the remedial action is complete, there will be no remaining exposure pathways to on-Site soil/fill, as soils will be removed to achieve Track 1 or Track 2 SCOs, and the Site will also be fully covered with the concrete building slab which will prevent contact with any residual soils.

## **5.0 REMEDIAL ACTION MANAGEMENT**

### **5.1 PROJECT ORGANIZATION AND OVERSIGHT**

Principal personnel who will participate in the remedial action include Jerry Salama of TSTY Create LLC. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are Kevin Walsh, P.E. and Stephen Kaplan, Senior Project Manager and Bryan Murty, Project Manager of VHB as QEPs.

### **5.2 SITE SECURITY**

Site access will be controlled by gated entrances to the fenced property.

### **5.3 WORK HOURS**

The hours for operation of remedial construction will be during permitted hours from 7 am through 6 pm and on Saturdays, as needed, during permitted hours from 8 am to 4 pm. These hours conform to the New York City Department of Buildings construction code requirements.

### **5.4 CONSTRUCTION HEALTH AND SAFETY PLAN**

The Health and Safety Plan is included in Appendix 4. The Site Safety Coordinator will be designated and provided to NYC OER prior to beginning any remedial work. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, including 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign an HASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the HASP. That document will define the specific project contacts for use in case of emergency.

## **5.5 COMMUNITY AIR MONITORING PLAN**

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will 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. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed 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. Exceedances of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included in the Daily Report.

## **VOC Monitoring, Response Levels, and Actions**

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will 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 will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will 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 will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will 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 will be shutdown.

All 15-minute readings must be recorded and be available for OER personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

## **Particulate Monitoring, Response Levels, and Actions**

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate

monitoring will 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 will 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 ( $\text{mcg}/\text{m}^3$ ) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed  $150 \text{ mcg}/\text{m}^3$  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  $150 \text{ mcg}/\text{m}^3$  above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \text{ mcg}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for OER personnel to review.

## **5.6 AGENCY APPROVALS**

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

## **5.7 SITE PREPARATION**

### **Pre-Construction Meeting**

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

## **Mobilization**

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

## **Utility Marker Layouts, Easement Layouts**

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed in compliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

## **Dewatering**

Based upon the confirmed depth-to-groundwater, same will not be encountered as part of Site redevelopment. Therefore, no dewatering activities are proposed.

## **Equipment and Material Staging**

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations.

## **Stabilized Construction Entrance**

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include use of cleaned asphalt or concrete roads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

## **Truck Inspection Station**

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the NYC VCP Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary.

## **Extreme Storm Preparedness and Response Contingency Plan**

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the enrollee will undertake the following steps for site preparedness prior to the event and response after the event.

### **Storm Preparedness**

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and

generators will be removed from holes, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, haybales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

### **Storm Response**

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to OER at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYS DEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to OER. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Storm-water control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off site to adjacent properties, property owners and OER will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to OER and implemented following approval by OER and granting of site access by the property owner. Impacted offsite areas may require characterization based on site conditions, at the discretion of OER. If onsite petroleum spills are identified, a qualified environmental

professional will determine the nature and extent of the spill and report to NYS DEC's spill hotline at DEC 800-457-7362. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYS DEC.

### **Storm Response Reporting**

A site inspection report will be submitted to OER at the completion of site inspection. An inspection report established by OER is available on OER's website ([www.nyc.gov/oer](http://www.nyc.gov/oer)) and will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the OER project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of onsite or offsite exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYS DEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to OER project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

## **5.8 TRAFFIC CONTROL**

Drivers of trucks leaving the NYC VCP Site with soil/fill will be instructed to proceed without stopping in the vicinity of the site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site is heading west to Amsterdam Avenue. Broadway and Amsterdam Avenue are designated truck routes that will allow drivers of truck to reach the major highways designated on the New York City Department of Transportation 2011 map. The proposed truck route is included as Figure 7.

## 5.9 DEMOBILIZATION

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (e.g., soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

## 5.10 REPORTING AND RECORD KEEPING

### Daily Reports

Daily reports providing a general summary of activities for each day of *active remedial work* will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

### **Record Keeping and Photo-Documentation**

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

### **5.11 COMPLAINT MANAGEMENT**

All complaints from citizens will be promptly reported to OER. Complaints will be addressed and outcomes will also be reported to OER in daily reports. Notices to OER will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

### **5.12 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN**

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and

- Determination that the remedial action with the deviation(s) is protective of public health and the environment.

### **5.13 DATA USABILITY SUMMARY REPORT**

The primary objective of a Data Usability Summary Report (DUSR) is to determine whether or not data meets the site specific criteria for data quality and data use. The DUSR provides an evaluation of analytical data without third party data validation. The DUSR for post-remedial samples collected during implementation of this RAWP will be included in the Remedial Action Report (RAR).

## **6.0 REMEDIAL ACTION REPORT**

A Remedial Action Report (RAR) will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all end point sampling results and all material characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action and DUSR;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;
- Account of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material.
- Account of the origin and required chemical quality testing for material imported onto the Site.
- Continue registration of the property with an E-Designation by the NYC Department of Buildings unless Track 1 is achieved.
- Reports and supporting material will be submitted in digital form.

## **Remedial Action Report Certification**

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

*I, Kevin Walsh, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the Taystee Bakery Redevelopment Site number 13EH-A210M*

*I, Stephen Kaplan, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the Taystee Bakery Redevelopment Site number 13EH-A210M*

*I certify that the OER-approved Remedial Action Work Plan dated April 2015 and Stipulations in a letter if any were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.*

## 7.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a two month remediation period is anticipated.

<b>Schedule Milestone</b>	<b>Weeks from Remedial Action Start</b>	<b>Duration (weeks)</b>
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	1	1
Remedial Excavation	1	6
Demobilization	7	1
Submit Remedial Action Report	14	2

**TABLE 1  
TRACK 1 AND TRACK 2 SOIL CLEANUP OBJECTIVES**

Compounds	Regulatory Criteria	
	NYSDEC Part 375 UUSCO (TRACK ONE SCOs)	NYSDEC Part 375 RUSCO (TRACK TWO SCOs)
<b>TCL VOCs (ug/kg)</b>		
1,2,3-Trichlorobenzene	NA	NA
1,2,4-Trichlorobenzene	20,000*	NA
1,2,4,5-Tetramethylbenzene	NA	NA
1,2,4-Trimethylbenzene	3,600	47,000
1,3,5-Trimethylbenzene	8,400	47,000
1,1,2-Trichloroethane	NA	NA
1,1,1-Trichloroethane	680	100,000
1,2,3-Trichloropropane	20,000*	NA
1,1,1,2-Tetrachloroethane	NA	NA
1,1,2,2-Tetrachloroethane	600*	NA
1,2-Dibromo-3-chloropropane	NA	NA
1,2-Dibromoethane	NA	NA
1,2-Dichlorobenzene	NA	NA
1,3-Dichlorobenzene	2,400	17,000
1,1-Dichloroethene	330	100,000
1,2-Dichloroethene, Total	NA	NA
1,2-Dichloroethane	20	2,300
1,4-Dichlorobenzene	1,800	9,800
1,2-Dichloropropane	700,000*	NA
1,3-Dichloropropane	300*	NA
2,2-Dichloropropane	NA	NA
1,1-Dichloropropene	NA	NA
1,3-Dichloropropene, Total	NA	NA
1,4-Diethylbenzene	NA	NA
2-Butanone (Methyl Ethyl Ketone)	120	100,000
2-Hexanone	NA	NA
Acetone	50	100,000
Acrylonitrile	NA	NA
Benzene	60	2,900
Bromobenzene	NA	NA
Bromochloromethane	NA	NA
Bromodichloromethane	10,000*	NA
Bromoform	NA	NA
Carbon disulfide	2,700*	NA
Carbon Tetrachloride	760	1,400
Chloroform	370	10,000
Chlorobenzene	1,100	100,000
Chloroethane	1,900*	NA
Chloromethane	NA	NA
o-Chlorotoluene	NA	NA
p-Chlorotoluene	NA	NA
cis-1,3-Dichloropropene	NA	NA
cis-1,2-Dichloroethene	250	59,000
Dibromochloromethane	NA	NA
Dibromomethane	NA	NA
Dichlorodifluoromethane	NA	NA
1,4-Dioxane	100	9,800
Isopropylbenzene	2,300*	NA
p-Isopropyltoluene	10,000*	NA
o-Xylene	NA	NA
p- & m- xylenes	NA	NA
Tetrachloroethene (PCE)	1,300	5,500
Xylenes, Total	260	100,000
Bromomethane	NA	NA
Ethylbenzene	1,000	30,000
Ethyl ether	NA	NA
4-Ethyltoluene	NA	NA
Hexachlorobutadiene	NA	NA
4-Methyl-2-pentanone	1,000*	NA
Methylene Chloride	50	51,000
Methyl Tert Butyl Ether (MTBE)	930	62,000
Napthalene	12,000	12,000
n-Butylbenzene	12,000	NA
n-Propylbenzene	3,900	100,000
sec-Butylbenzene	11,000	100,000
Styrene	300,000*	NA
tert-Butylbenzene	5,900	100,000
trans-1,2-Dichloroethene	190	100,000
trans-1,3-Dichloropropene	NA	NA
trans-1,4-Dichloro-2-butene	NA	NA
Toluene	700	100,000
Trichlorofluoromethane	NA	NA
Trichloroethene	470	10,000
Vinyl Acetate	NA	NA
Vinyl chloride	20	210

Notes:

TCL VOCs -Target Compound List for volatile organic compounds.

TCL SVOCs - Target Compound List for semi-volatile organic compounds.

TAL Metals - Target Analyte List for metals.

PCBs - Polychlorinated Biphenyls

NYSDEC Part 375 UUSCO - New York State Department of Environmental Conservation

Unrestricted Use Soil Clean-up Objectives, as outlined in Table 375-6.8(a), December 14, 2006.

NYSDEC Part 375 RUSCO - New York State Department of Environmental Conservation Restricted

Use Soil Clean-up Objectives, as outlined in Table 375-6.8(b), December 14, 2006.

ug/kg - micrograms per kilogram (parts per billion).

mg/kg- milligrams per kilogram (parts per million).

NA - Not analyzed/Not available

\*Analyte not listed in NYSDEC Part 375 UUSCO. NYSDEC Commissioner Policy (CP)-51 Soil Cleanup Guidance, October 21, 2010 used.

**TABLE 1  
TRACK 1 AND TRACK 2 SOIL CLEANUP OBJECTIVES**

Compounds	Regulatory Criteria	
	NYSDEC Part 375 UUSCO (TRACK ONE SCOs)	NYSDEC Part 375 RUSCO (TRACK TWO SCOs)
<b>TCL SVOCs (ug/kg)</b>		
4-Bromophenyl phenyl ether	NA	NA
Bis(2-chloroisopropyl)ether	NA	NA
Bis(2-chloroethoxy)methane	NA	NA
1,2-Dichlorobenzene	1,100	100,000
1,3-Dichlorobenzene	2,400	17,000
1,4-Dichlorobenzene	1,800	9,800
3,3'-Dichlorobenzidine	NA	NA
2,4-Dichlorophenol	400*	NA
2,4-Dimethylphenol	NA	NA
2,4-Dinitrophenol	200*	NA
2,4-Dinitrotoluene	NA	NA
2,6-Dinitrotoluene	1,000*	NA
4,6-Dinitro-o-cresol	NA	NA
1,2,4-Trichlorobenzene	3,400*	NA
2,4,6-Trichlorophenol	10,000*	NA
2-Chloronaphthalene	NA	NA
4-Chloroaniline	2,200*	NA
4-Chlorophenyl phenyl ether	NA	NA
1,2,4,5-Tetrachlorobenzene	NA	NA
2,4,5-Trichlorophenol	100*	NA
Acenaphthene	20,000	100,000
Acenaphthylene	100,000	100,000
Acetophenone	NA	NA
Anthracene	100,000	100,000
Benzo(a)anthracene	1,000	1,000
Benzo(a)pyrene	1,000	1,000
Benzo(b)fluoranthene	1,000	1,000
Benzo(g,h,i)perylene	100,000	100,000
Benzo(k)fluoranthene	800	1,000
Bis(2-ethylhexyl)phthalate	435,000*	NA
Bis(2-chloroethyl)ether	NA	NA
Dibenzo(a,h)anthracene	330	NA
3-Methylphenol/4-Methylphenol	NA	NA
Bezoic Acid	2,700*	NA
Benzyl Alcohol	NA	NA
Biphenyl	NA	NA
Butyl benzyl phthalate	122,000*	NA
Carbazole	NA	NA
2-Chlorophenol	800*	NA
Chrysene	1,000	1,000
Dibenzofuran	NA	NA
Di-n-butylphthalate	14*	NA
Di-n-octylphthalate	NA	NA
Diethyl phthalate	7,100*	NA
Dimethyl phthalate	2,700*	NA
Fluoranthene	100,000	100,000
Fluorene	30,000	100,000
Hexachlorobenzene	330	330
Hexachlorobutadiene	NA	NA
Hexachlorocyclopentadiene	10,000*	NA
Hexachloroethane	NA	NA
Isophorone	4,400*	NA
2-Methylnaphthalene	36,400*	NA
2-Methylphenol	NA	NA
3-Methylphenol/4-Methylphenol	NA	NA
Naphthalene	12,000	100,000
2-Nitroaniline	400*	NA
3-Nitroaniline	500*	NA
4-Nitroaniline	NA	NA
Nitrobenzene	170*	NA
n-Nitrosodi-n-propylamine	NA	NA
NitrosoDiPhenylAmine(NDPA)/NPA	NA	NA
2-Nitrophenol	300*	NA
4-Nitrophenol	100*	NA
P-Chloro-M-Cresol	NA	NA
Pentachlorophenol	800	2,400
Phenanthrene	100,000	100,000
Phenol	330	100,000
Indeno(1,2,3-cd)Pyrene	500	500
Pyrene	100,000	100,000

Notes:

TCL VOCs -Target Compound List for volatile organic compounds.

TCL SVOCs - Target Compound List for semi-volatile organic compounds.

TAL Metals - Target Analyte List for metals.

PCBs - Polychlorinated Biphenyls

NYSDEC Part 375 UUSCO - New York State Department of Environmental Conservation

Unrestricted Use Soil Clean-up Objectives, as outlined in Table 375-6.8(a), December 14, 2006.

NYSDEC Part 375 RUSCO - New York State Department of Environmental Conservation Restricted

Use Soil Clean-up Objectives, as outlined in Table 375-6.8(b), December 14, 2006.

ug/kg - micrograms per kilogram (parts per billion).

mg/kg- milligrams per kilogram (parts per million).

NA - Not analyzed/Not available

\*Analyte not listed in NYSDEC Part 375 UUSCO. NYSDEC Commissioner Policy (CP)-51 Soil Cleanup Guidance, October 21, 2010 used.

**TABLE 1  
TRACK 1 AND TRACK 2 SOIL CLEANUP OBJECTIVES**

Compounds	Regulatory Criteria	
	NYSDEC Part 375 UUSCO (TRACK ONE SCOs)	NYSDEC Part 375 RUSCO (TRACK TWO SCOs)
<b>Pesticides (ug/kg)</b>		
Delta-BHC	40	100,000
Lindane	100	280
Alpha-BHC	20	97
Beta-BHC	36	72
Heptachlor	42	420
Aldrin	5	19
Heptachlor Epoxide	20*	NA
Endrin	14	2,200
Endrin ketone	NA	NA
Dieldrin	5	39
4,4'-DDD	3.3	2,600
4,4'-DDE	3.3	1,800
4,4'-DDT	3.3	1,700
Endosulfan I	2,400	4,800
Endosulfan II	2,400	4,800
Endosulfan sulfate	2,400	4,800
Methoxychlor	1,200*	NA
Toxaphene	NA	NA
cis-Chlordane	NA	NA
trans-Chlordane	NA	NA
Chlordane	94	910
<b>PCBs (mg/kg)</b>	<b>NYSDEC Part 375 UUSCO (TRACK ONE SCOs)</b>	<b>NYSDEC Part 375 RUSCO (TRACK TWO SCOs)</b>
Aroclor 1016	NA	NA
Aroclor 1221	NA	NA
Aroclor 1232	NA	NA
Aroclor 1242	NA	NA
Aroclor 1248	NA	NA
Aroclor 1254	NA	NA
Aroclor 1260	NA	NA
Aroclor 1262	NA	NA
Aroclor 1268	NA	NA
PCBs, Total	0.1	1.0
<b>TAL Metals (mg/kg)</b>	<b>NYSDEC Part 375 UUSCO (TRACK ONE SCOs)</b>	<b>NYSDEC Part 375 RUSCO (TRACK TWO SCOs)</b>
Aluminum	10,000*	NA
Antimony	12*	NA
Arsenic	13	16
Barium	350	350
Beryllium	7.2	14
Cadmium	2.5	2.5
Calcium	10,000*	NA
Chromium	30	36
Cobalt	20*	NA
Copper	50	270
Iron	NA	NA
Lead	63	400
Magnesium	NA	NA
Manganese	1,600	2,000
Mercury	0.18	0.81
Nickel	30	140
Potassium	NA	NA
Selenium	3.9	36
Silver	2	36
Sodium	NA	NA
Thallium	5,000*	NA
Vanadium	39*	NA
Zinc	109	2,200

Notes:

TCL VOCs -Target Compound List for volatile organic compounds.

TCL SVOCs - Target Compound List for semi-volatile organic compounds.

TAL Metals - Target Analyte List for metals.

PCBs - Polychlorinated Biphenyls

NYSDEC Part 375 UUSCO - New York State Department of Environmental Conservation

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NYSDEC Part 375 RUSCO - New York State Department of Environmental Conservation Restricted

Use Soil Clean-up Objectives, as outlined in Table 375-6.8(b), December 14, 2006.

ug/kg - micrograms per kilogram (parts per billion).

mg/kg- milligrams per kilogram (parts per million).

NA - Not analyzed/Not available

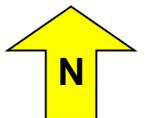
\*Analyte not listed in NYSDEC Part 375 UUSCO. NYSDEC Commissioner Policy (CP)-51 Soil Cleanup Guidance, October 21, 2010 used.





**FIGURE 2 – SITE AERIAL PHOTOGRAPH**

**SITE NAME:** Taystee Bakery Redevelopment  
**STREET ADDRESS:** 426-458 West 126<sup>th</sup> Street & 461 West 125<sup>th</sup> Street  
**CITY, STATE, ZIP:** New York, New York 10027  
**PROJECT NUMBER:** 28581.00  
**SCALE:** Not Shown





OWNER:  
**TANSTEE CREATIVE LLC**  
 400 WEST 125th STREET  
 NEW YORK, NY 10027  
 TEL: (212) 246-8888

ARCHITECT:  
**LEVENBETS**  
 180 WEST 10th STREET, 10th FLOOR  
 NEW YORK, NY 10011  
 TEL: (212) 246-4174

MECHANICAL ENGINEER:  
**SLICE Architects**  
 180 WEST 10th STREET, 10th FLOOR  
 NEW YORK, NY 10011  
 TEL: (212) 246-4174

MECHANICAL ENGINEERING FIRM:  
**SLICE ENGINEERING, LLC**  
 180 WEST 10th STREET, 10th FLOOR  
 NEW YORK, NY 10011  
 TEL: (212) 246-4174

GENERAL CONTRACTOR:  
**MAX GREEN ASSOCIATES**  
 240 WEST 30th STREET  
 NEW YORK, NY 10001  
 TEL: (212) 626-8200

PROJECT:  
 126th STREET  
 126th STREET  
 126th STREET

DATE:  
 07/11/2011

SCALE:  
 1/8" = 1'-0"



PROJECT NO.: Z-003.01

DATE: 07/11/2011

SCALE: 1/8" = 1'-0"

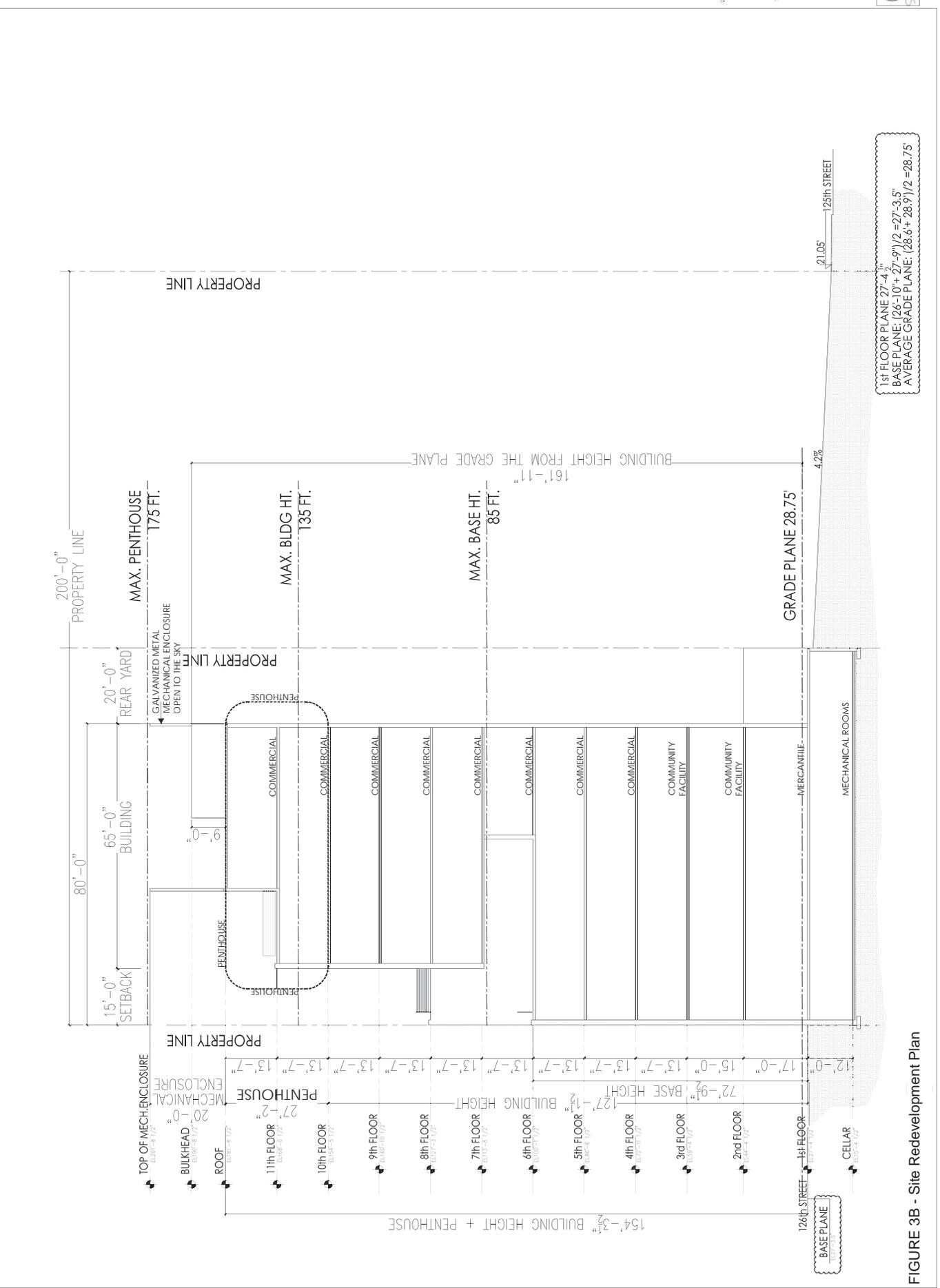
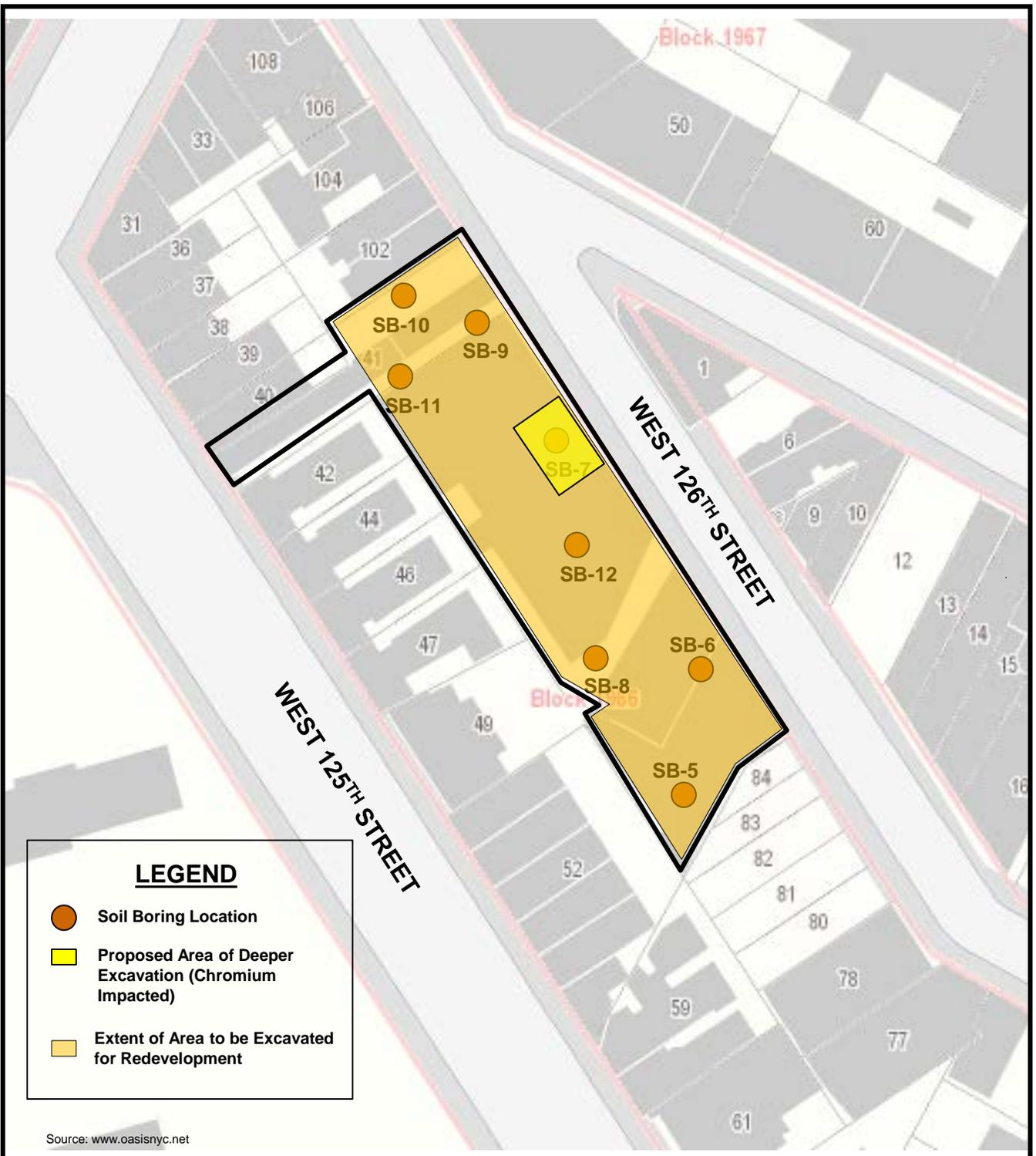


FIGURE 3B - Site Redevelopment Plan



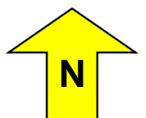
**LEGEND**

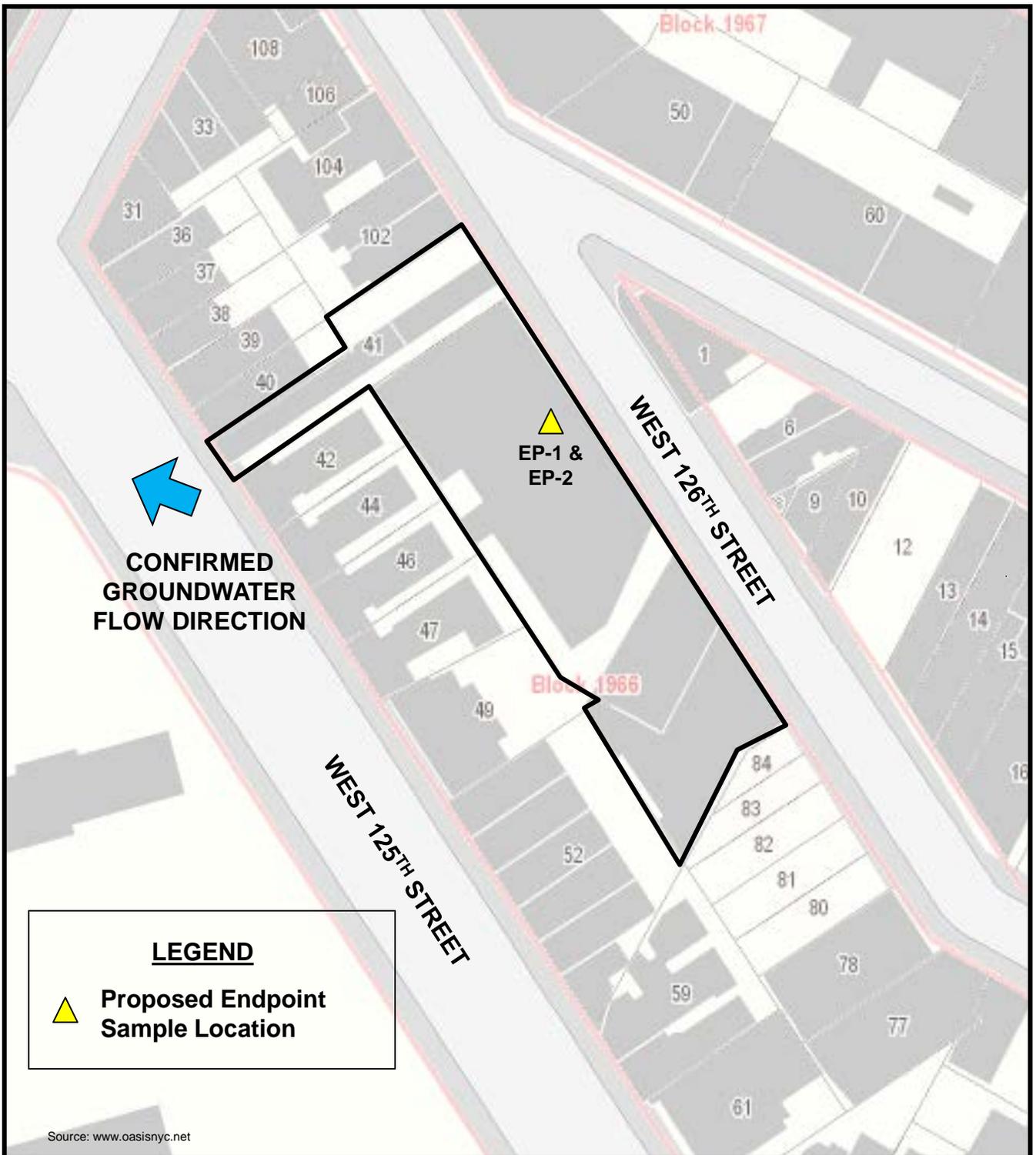
-  Soil Boring Location
-  Proposed Area of Deeper Excavation (Chromium Impacted)
-  Extent of Area to be Excavated for Redevelopment

Source: www.oasisnyc.net

**FIGURE 4 – AREAS OF EXCAVATION**

**SITE NAME:** Taystee Bakery Redevelopment  
**STREET ADDRESS:** 426-458 West 126<sup>th</sup> Street & 461 West 125<sup>th</sup> Street  
**CITY, STATE, ZIP:** New York, New York 10027  
**PROJECT NUMBER:** 28581.00  
**SCALE:** Not Shown





**FIGURE 5 –PROPOSED ENDPOINT SAMPLE LOCATION**

**SITE NAME:** Taystee Bakery Redevelopment  
**STREET ADDRESS:** 426-458 West 126<sup>th</sup> Street & 461 West 125<sup>th</sup> Street  
**CITY, STATE, ZIP:** New York, New York 10027  
**PROJECT NUMBER:** 28581.00  
**SCALE:** Not Shown



**TAYSEE**  
 ARCHITECTS  
 100 WEST 17TH STREET  
 NEW YORK, NY 10011

**TAYSEE CREATIVE LLC**  
 100 WEST 17TH STREET  
 NEW YORK, NY 10011

**LEVENBETTS**  
 100 WEST 17TH STREET  
 NEW YORK, NY 10011

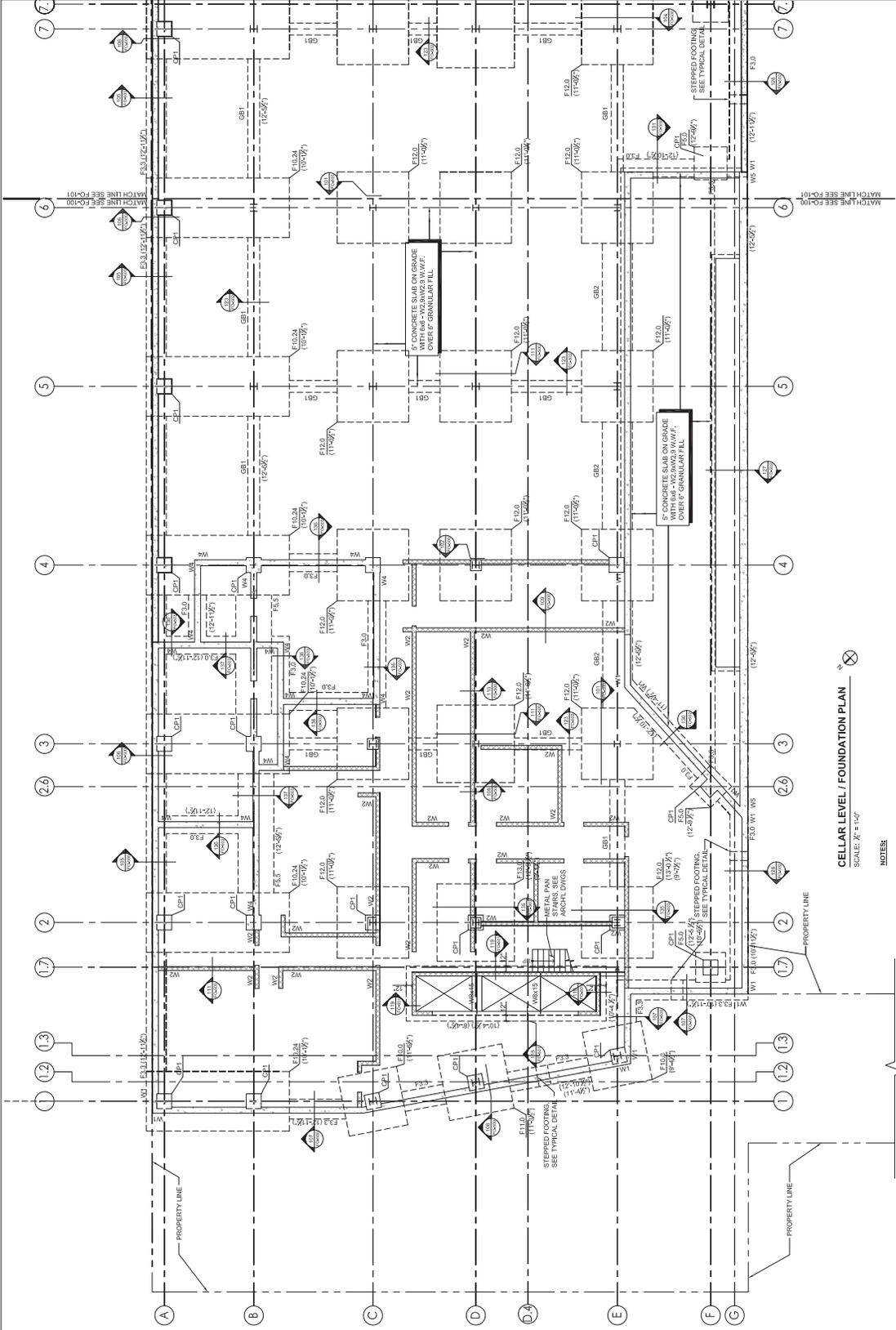
**DE MARCO ENGINEERING, L.L.C.**  
 100 WEST 17TH STREET  
 NEW YORK, NY 10011

**JACK GREEN ASSOCIATES**  
 100 WEST 17TH STREET  
 NEW YORK, NY 10011

**CELLAR LEVEL / FOUNDATION PLAN (1)**

**FO-100.00**

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**CELLAR LEVEL / FOUNDATION PLAN**  
 SCALE: 1/8" = 1'-0"

**NOTES**

- FOUNDATION DESIGNED BASED UPON BORING LOGS AND RECOMMENDATIONS LETTER DATED JAN. 20, 2012 PREPARED BY SOILS MECHANICS DRILLING CORP. ALL FOOTINGS ARE TO BEAR ON SURVEYED NATIVE SOIL WITH PROPOSED FOUNDATION ELEMENTS TO BE VERIFIED IN THE FIELD BY A NEW YORK LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND DOCUMENTS. BORING LOGS AND RECOMMENDATIONS LETTER AS THEY ARE A PART OF THE CONTRACT DOCUMENTS.
- TYPICAL TOP OF CONCRETE SLAB ARE ELEVATION AT CELLAR LEVEL = 114.4 - 1/2', UNLESS NOTED OTHERWISE.
- (\*\*\*) INDICATES ASSUMED TOP OF FOOTING AND GRADE BEAM ELEVATION, UNLESS SHOWN OTHERWISE. ASSUME TOP OF FOOTING = 14'-6" - 1/2', FOOTING ELEVATIONS SHOWN ARE FOR PRICING INFORMATION ONLY. ELEVATIONS WILL BE DETERMINED IN THE FIELD BY A LICENSED PROFESSIONAL ENGINEER. SEE ALSO NOTE #1.
- VERIFY ALL DIMENSIONS, COORDINATES, AND ELEVATIONS WITH ARCHITECT.
- VERIFY LOCATION OF ALL SLAB AND WALL PENETRATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
- SEE S-400 SERIES DRAWINGS FOR GENERAL STRUCTURAL NOTES, SCHEDULES AND TYPICAL DETAILS.
- REFER TO FO-503 FOR FOOTING, PIER, AND GRADE BEAM SCHEDULES.
- (\*\*\*) INDICATES ASSUMED BOTTOM OF FOOTING AND GRADE BEAM ELEVATION. ACTUAL FOOTING ELEVATIONS WILL BE DETERMINED IN THE FIELD BY A LICENSED PROFESSIONAL ENGINEER. SEE ALSO NOTE #1.

**ISSUED FOR COORDINATION REVISIONS 11-12-14**

**FIGURE 6A - Proposed Building Foundation Plan**

**TAYSTEE**  
 ARCHITECTS  
 100 WEST 111TH STREET  
 NEW YORK, NY 10027

**TAYSTEE CREATIVE LLC**  
 100 WEST 111TH STREET, THIRD FLOOR  
 NEW YORK, NY 10027  
 TEL: (212) 352-2888

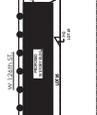
**LEVENBETS**  
 ARCHITECTS  
 200 WEST 111TH STREET  
 NEW YORK, NY 10027  
 TEL: (212) 352-2888

**DE MARCO ENGINEERING, L.L.C.**  
 100 WEST 111TH STREET, 10TH FLOOR  
 NEW YORK, NY 10027  
 TEL: (212) 352-2888

**JACK GREEN ASSOCIATES**  
 100 WEST 111TH STREET, 10TH FLOOR  
 NEW YORK, NY 10027  
 TEL: (212) 352-2888

**JACK GREEN ASSOCIATES**  
 100 WEST 111TH STREET, 10TH FLOOR  
 NEW YORK, NY 10027  
 TEL: (212) 352-2888

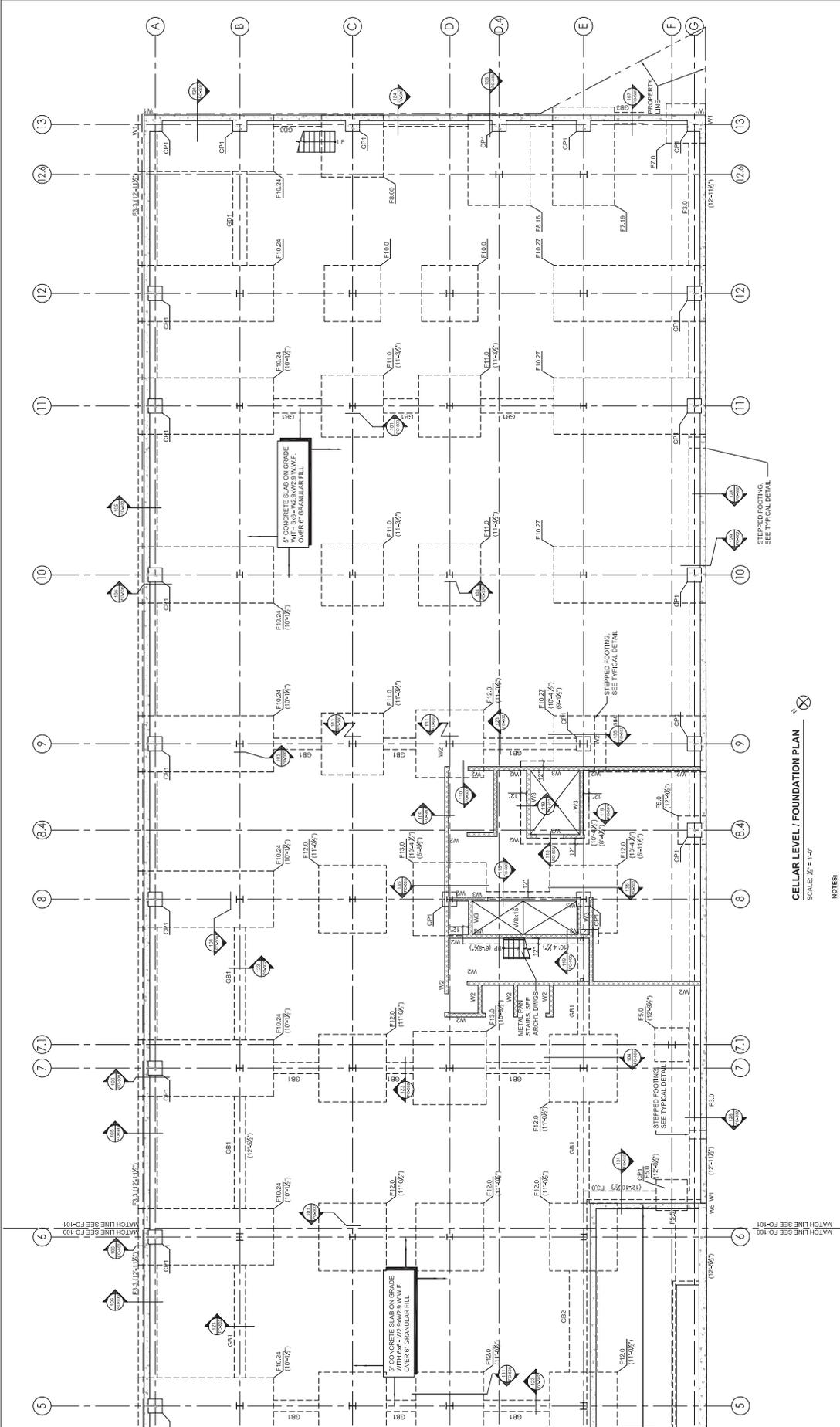
DATE	
DESCRIPTION	
BY	
CHECKED	
APPROVED	
SCALE	
PROJECT	
CLIENT	
LOCATION	
DATE	



**CELLAR LEVEL / FOUNDATION PLAN (2)**

FO-101.00  
 FOUNDATION PLAN (2)  
 DATE: 11/12/14  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 APPROVED BY: [Name]

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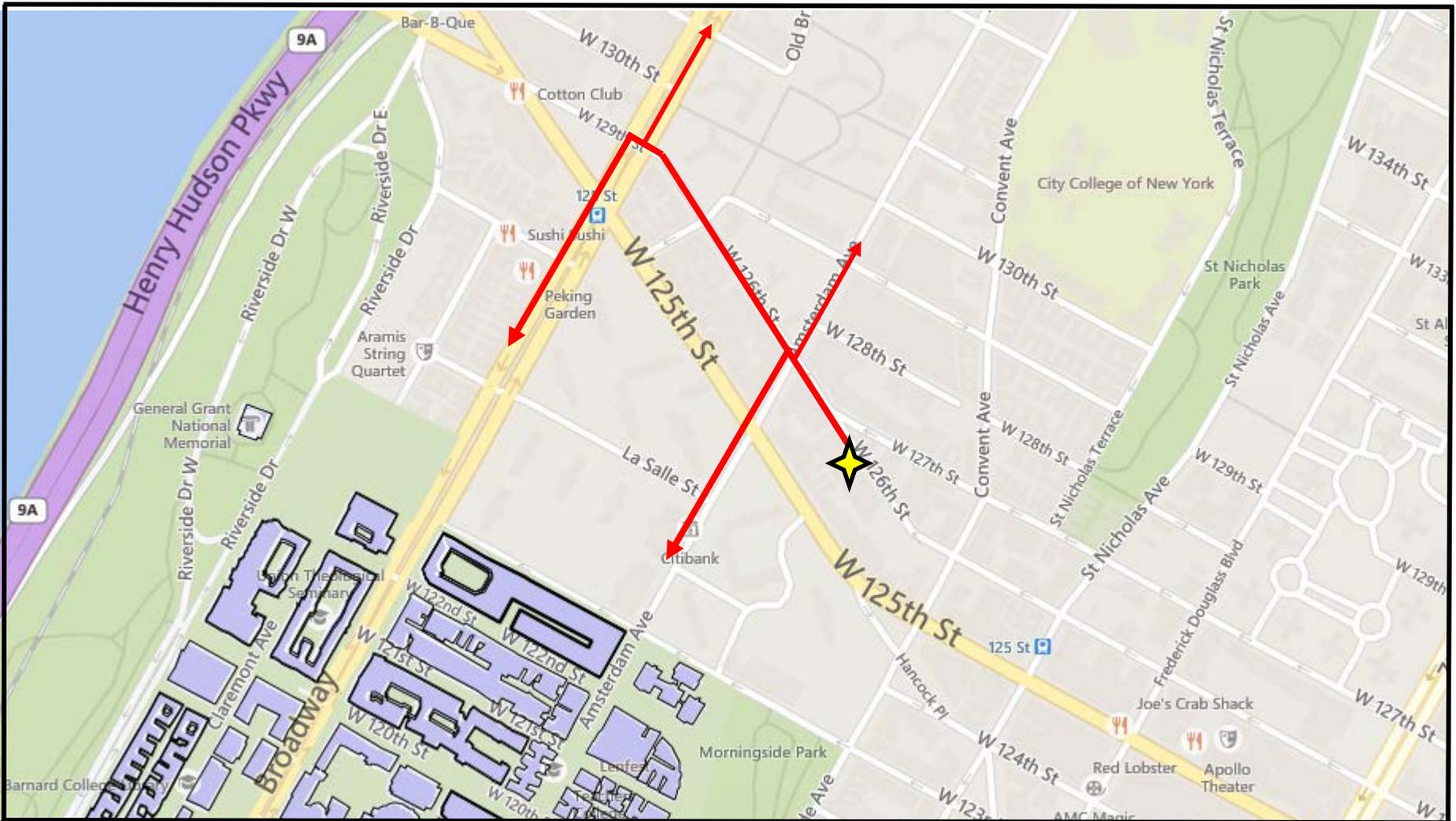


**ISSUED FOR COORDINATION REVISIONS 11-12-14**

**NOTE: THE DESIGN DETAILS AND NOTES ARE IN COMPLIANCE WITH NYC BC SECTION 1614 - EARTHQUAKE LOADS.**

- CELLAR LEVEL / FOUNDATION PLAN**  
 SCALE: 1/4" = 1'-0"
- NOTES:**
- FOUNDATION DESIGNED IS BASED UPON BORING LOGS AND RECOMMENDATIONS LETTER DATED JAN 20, 2012 PREPARED BY SOILS MECHANICS DRILLING CORP. - ALL FOOTINGS ARE TO BEAR ON SUITABLE NATIVE SOIL WITH VERIFIED IN THE FIELD BY A NEW YORK LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL OBTAIN A COPY OF THE BORING LOGS AND RECOMMENDATIONS LETTER AS THEY ARE A PART OF THE CONTRACT DOCUMENTS.
  - TYPICAL TOP OF CONCRETE SLAB REF. ELEVATION AT CELLAR LEVEL = 115.4 (FT) UNLESS NOTED OTHERWISE ("\*\*\*\*") VERIFY WITH ARCHITECTURAL DRAWINGS.
  - ("\*\*\*\*") INDICATES ASSUMED TOP OF FOOTING AND GRADE BEAM ELEVATION UNLESS SHOWN OTHERWISE ASSUME TOP OF FOOTING = (-14.5 (FT)) FOOTING ELEVATIONS SHOWN ARE FOR PRICING INFORMATION ONLY. ASSUME ALL ELEVATIONS WILL BE DETERMINED IN THE FIELD BY A LICENSED PROFESSIONAL ENGINEER. SEE ALSO NOTE #1.
  - VERIFY ALL DIMENSIONS, COORDINATES, AND ELEVATIONS WITH ARCHITECT.
  - VERIFY LOCATION OF ALL SLAB AND WALL PENETRATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
  - SEE S-400 SERIES DRAWINGS FOR GENERAL STRUCTURAL NOTES, SCHEDULES AND TYPICAL DETAILS.
  - REFER TO FO-503 FOR FOOTING, PIER, AND GRADE BEAM SCHEDULES.
  - ("\*\*\*\*") INDICATES ASSUMED BOTTOM OF FOOTING AND GRADE BEAM ELEVATION. ACTUAL FOOTING ELEVATIONS WILL BE DETERMINED IN THE FIELD BY A LICENSED PROFESSIONAL ENGINEER. SEE ALSO NOTE #1.

**FIGURE 6B - Proposed Building Foundation Plan**



**FIGURE 7 – PROPOSED TRUCK ROUTE**

**SITE NAME:** Taystee Bakery Redevelopment  
**STREET ADDRESS:** 426-458 West 126<sup>th</sup> Street & 461 West 125<sup>th</sup> Street  
**CITY, STATE, ZIP:** New York, New York 10027  
**BASE MAP SOURCE:** Bing Maps



## **APPENDIX 1**

### **CITIZEN PARTICIPATION PLAN**

The NYC Office of Environmental Remediation and TSTY Create LLC have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Voluntary Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC VCP, TSTY Create LLC will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site. Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Spyros Malkotsis who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841

**Project Contact List.** OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project

manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at [brownfields@cityhall.nyc.gov](mailto:brownfields@cityhall.nyc.gov).

**Repositories.** A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. TSTY Create LLC will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

George Bruce Library

518 West 125<sup>th</sup> Street,

New York, NY 10027

(212) 662-9727

Hours of Operation 12 pm to 7 pm

**Digital Documentation.** NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

**Identify Issues of Public Concern.** Issues of concern include noise from construction, as well as dust migration off-site and odor from excavation. These items will be mitigated through implementation of a CAMP that will address dust migration and potential on- and off-site impacts related to VOCs in outdoor air. Furthermore, odors and noise generated from construction will be mitigated to the maximum extent practicable.

**Public Notice and Public Comment.** Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by TSTY Create LLC, reviewed and approved by OER prior to distribution and mailed by TSTY

Create LLC. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

**Citizen Participation Milestones.** Public notice and public comment activities occur at several steps during a typical NYC VCP project. See flow chart on the following page, which identifies when during the NYC VCP public notices are issued: These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.

- **Public Notice announcing the approval of the RAWP and the start of remediation**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.

- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the completion of remediation, providing a list of all Institutional and Engineering Controls implemented for to the Site and announcing the issuance of the Notice of Completion.

## **APPENDIX 2**

### **SUSTAINABILITY STATEMENT**

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

**Reuse of Clean, Recyclable Materials.** Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction.

An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RAR.

**Reduce Consumption of Virgin and Non-Renewable Resources.** Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the RAR.

**Reduced Energy Consumption and Promotion of Greater Energy Efficiency.** Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the Remedial Action Report (RAR). Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

**Conversion to Clean Fuels.** Use of clean fuel improves NYC's air quality by reducing harmful emissions.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

**Recontamination Control.** Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

**Storm-water Retention.** Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced storm-water retention capability of the redevelopment project will be included in the RAR.

**Linkage with Green Building.** Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use.

Any Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of any green building space created as a function of this brownfield redevelopment will be quantified.

**Paperless Brownfield Cleanup Program.** TSTY Create LLC is participating in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

**Low-Energy Project Management Program.** TSTY Create LLC is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

**Trees and Plantings.** Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

## **APPENDIX 3**

### **SOIL/MATERIALS MANAGEMENT PLAN**

#### **1.1 SOIL SCREENING METHODS**

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

#### **1.2 STOCKPILE METHODS**

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

#### **1.3 CHARACTERIZATION OF EXCAVATED MATERIALS**

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

#### **1.4 MATERIALS EXCAVATION, LOAD-OUT AND DEPARTURE**

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

#### **1.5 OFF-SITE MATERIALS TRANSPORT**

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are heading west to Amsterdam Avenue. Broadway and Amsterdam Avenue are designated truck routes that will allow drivers of truck to reach the major highways designated on the New York City Department of Transportation 2011 map. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

## **1.6 MATERIALS DISPOSAL OFF-SITE**

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in Manhattan, New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the RAR.

The Remedial Action Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the RAR.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by OER with an associated plan compliant with 6NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and that the material complies with receipt requirements for recycling under 6NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

## **1.7 MATERIALS REUSE ON-SITE**

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan may be reused on-Site. The soil cleanup objectives for on-Site reuse are listed in Table 1. ‘Reuse on-Site’ means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to the NYC VCP agreement subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this RAWP are followed. The expected location for placement of reused material, if at all, is in the rear (south) yard of the property and the western yard of the property.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

## **1.8 DEMARCATION**

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities.

## **1.9 IMPORT OF BACKFILL SOIL FROM OFF-SITE SOURCES**

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in Table 1.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;

- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAWP. The RAR will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

### **Source Screening and Testing**

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RAR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

## **1.10 FLUIDS MANAGEMENT**

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

## **1.11 STORM-WATER POLLUTION PREVENTION**

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAWP (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

## **1.12 CONTINGENCY PLAN**

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

## **1.13 ODOR, DUST AND NUISANCE CONTROL**

### **Odor Control**

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) 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. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying the Remedial Action Report.

### **Dust Control**

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

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.

- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

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. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying the Remedial Action Report.

### **Other Nuisances**

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided, during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.

**APPENDIX 4**

**HEALTH AND SAFETY PLAN**

# Project Health and Safety Plan, including Standard Operation Procedures for Geoprobe® Operation

426-258 West 126th Street and  
461 West 125th Street  
New York, New York

## PREPARED FOR

**Tastee Create LLC**

*432 West 127th Street - 7th Floor  
New York, New York 10027*

*Attention: Jerry Salama*

## PREPARED BY



*100 Motor Parkway, Suite 135  
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**January 12, 2015**



Table of Contents

**Statement of Commitment .....i**

**Introduction and Site Entry Requirements ..... 1**

    1.1 Site Safety Plan Acceptance Acknowledgement ..... 2

    1.2 Daily Safety Meetings ..... 2

    1.3 Key Personnel ..... 2

    1.4 Roles and Responsibilities ..... 2

    1.5 Training Requirements ..... 4

    1.6 Medical Monitoring Requirements ..... 4

    1.7 Fit-Testing Requirements ..... 4

**Site Background and Scope of Work ..... 5**

    2.1 Site Background ..... 5

    2.2 Scope of Work ..... 8

**Hazard Assessment ..... 9**

    3.1 Activity-Specific Hazards and Standard Operating Procedures ..... 9

        3.1.1 Operation of Heavy Equipment ..... 9

        3.1.2 Excavation/Earthwork ..... 9

        3.1.3 Work in Extreme Temperatures ..... 10

        3.1.4 Drilling, Probing and Excavation Operations ..... 10

        3.1.5 Dust Control and Monitoring During Earthwork ..... 11

    3.2 General Site Hazards ..... 11

        3.2.1 Miscellaneous Tasks ..... 13

    3.3 Chemical Hazards ..... 13

        3.3.1 Respirable Dust ..... 14

        3.3.2 Organic Vapors ..... 14

**Personal Protective Equipment ..... 15**

    4.1 Activity-Specific Levels of Personal Protection ..... 15

    4.2 General PPE ..... 16

        4.2.1 Level D ..... 16

        4.2.2 Level C ..... 16

        4.2.3 Level B ..... 17

**Air Monitoring and Action Levels ..... 18**

    5.1 Air Monitoring Requirements ..... 18

    5.2 Air Monitoring Results and Actions ..... 19

**Site Control ..... 20**

    6.1 Work Zones ..... 20

    6.2 General Field Safety and Standard Operating Procedures ..... 21

**Decontamination Procedures ..... 22**

**Confined Space ..... 24**



8.1	Rescue and Emergency Services.....	24
8.1.1	On-Site Rescue Services.....	25
8.1.2	Subcontractor Entry Operations.....	25
	<b>Contingency Plan/Emergency Response Plan .....</b>	<b>26</b>
9.1	Emergency Equipment On-Site .....	26
9.2	Emergency Telephone Numbers and Hospital Information .....	26
9.3	Personnel Responsibilities During an Emergency .....	27
9.4	Medical Emergencies.....	28
9.5	Fire or Explosion.....	28
9.6	Evacuation Routes.....	29
9.7	Spill Control Procedures .....	29

## List of Appendices

<b>Appendix</b>	<b>Description</b>
A	Figures
B	Site Safety Plan Acknowledgement Form
C	Site Safety Plan Amendments
D	Heat/ Cold Stress Protocols
E	Drilling/ Probing Protocols
F	Miscellaneous Task SOPs and Safety Measures
G	Chemical Hazards
H	Confined Space Entry Checklist/ Permit
I	Emergency Telephone Numbers Hospital Information and Map Field Accident Report

## **Glossary of Common Acronyms**

ACGIH - American Conference of Governmental Industrial Hygienists  
ANSI - American National Standards Institute  
APR - Air Purifying Respirator  
C&D – Construction and Demolition  
CFR - Code of Federal Regulations  
CGI - Combustible Gas Indicator  
CSEP - Confined Space Entry Permit  
DECON – Decontamination  
ESA - Environmental Site Assessment  
ESI – Environmental Site Investigation  
FID - Flame Ionization Detector  
HEPA – High Efficiency Particulate Air  
HASP - Health and Safety Plan  
IDLH - Immediately Dangerous to Life and Health  
LEL - Lower Explosive Limit  
MSDS - Material Safety Data Sheets  
NIOSH - National Institute for Occupational Safety and Health  
OSHA - Occupational Safety and Health Administration  
OVA - Organic Vapor Analyzer  
PID - Photoionization Detector  
PEL - Permissible Exposure Limit  
PPB – Parts Per Billion  
PPE - Personal Protective Equipment  
PPM – Parts Per Million  
REC – Recognized Environmental Condition  
SCBA - Self Contained Breathing Apparatus  
SOP - Standard Operating Procedure  
SPCC - Spill Prevention Controls and Countermeasures  
SVOC – Semi-Volatile Organic Compound  
TLV - Threshold Limit Value  
TWA - Time Weighted Average  
UEL - Upper Explosive Limit  
UIC - Underground Injection Control

# Statement of Commitment

On-site employees may be exposed to risks from hazardous conditions related to the installation of soil borings, groundwater monitoring wells and soil vapor points and the collection of soil, groundwater and soil vapor samples as part of the Phase II Environmental Site Assessment (ESA) for the Taystee Bakery redevelopment project, located at 426-458 West 126th Street and 461 West 125th Street in the West Harlem section of Manhattan, New York (hereinafter referred to as the “subject property” or the “site”, see Appendix A, Figure 1). VHB’s policy is to minimize the possibility of work-related injury through aware and qualified supervision, health and safety training, medical monitoring, use of appropriate personal protective equipment, and the activity-specific safety protocols contained in this Health and Safety Plan (HASP). VHB has established a guidance program to implement this policy in a manner that protects personnel to the maximum reasonable extent.

This HASP, which applies to personnel actually or potentially exposed to safety or health hazards, describes emergency response procedures for actual and potential physical and chemical hazards. This HASP is also intended to inform and guide all personnel entering the work area or exclusion zone. All persons are to acknowledge that they understand the potential hazards and the contents of this HASP by signing off upon receipt of their individual copy of the document. A copy of that Site Safety Plan Acknowledgement Form is included in Appendix B of this HASP. Contractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees.

VHB may require that its personnel, subcontractors, clients and visitors take certain precautions in accordance with this HASP.

# 1.0

## Introduction and Site Entry Requirements

VHB has prepared this HASP for activities associated with the installation of soil borings, groundwater monitoring wells and soil vapor points, and the collection of soil, groundwater, and soil vapor samples as part of the Phase II ESA at the subject property. This HASP addresses the potential physical and chemical hazards that VHB's and the drilling contractor's employees may face while performing the planned site activities. It establishes procedures to minimize worker's exposures through personal protective equipment and safe work practices. The protocols and procedures outlined herein will be used for all planned field activities at the site. A copy of the HASP will be available on site during all field activities and all personnel will be familiar with the document and its requirements.

This HASP has been developed to meet the requirements of the Occupational Safety and Health Administration (OSHA) regulation, Title 29, Code of Federal Regulations. It is intended for the protection of our workers for Scope of Work activities. All others, such as subcontractors, clients and visitors will review the HASP and follow its procedures.

This site-specific HASP is based on information available at the time the plan was prepared. The HASP will be revised when new information is received or as conditions change. A written amendment will be prepared for any activities not covered herein and document all changes made to the HASP. A copy of the Site Safety Plan Amendment form is included in Appendix C of this HASP. The Site Safety Officer and Project Manager (as identified within this HASP) will acknowledge all amendments to the HASP.

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## 1.1 Site Safety Plan Acceptance Acknowledgement

The Project Manager will be responsible for providing a copy of this plan to all personnel that are or may reasonably be expected to work at the site and will request that each person sign the Safety Plan Acknowledgment Form in Appendix B. By signing the Site Safety Plan Acknowledgment Form, personnel are recognizing the actual or potential on-site hazards and the policies and procedures that design personnel will take to minimize exposure and risk. Site Safety Plan Acknowledgment Forms will also be signed for any Safety Plan Amendments that may be completed during this work. Safety Plan Amendment forms are included in Appendix C.

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## 1.2 Daily Safety Meetings

Each day before work begins, the Site Safety Officer will hold safety (tailgate or tool box) meetings to ensure that all on-site personnel understand the site conditions and operating procedures, to ensure that personal protective equipment is being used correctly and to address safety questions and concerns. Meeting minutes and attendance will be recorded. All personnel eligible to enter the exclusion and decontamination zones must attend the meetings. Project staff will discuss and remedy any health and safety issues at these meetings.

---

## 1.3 Key Personnel

The following identifies the key personnel involved with the work, their title, and contact telephone number:

<u>Personnel</u>	<u>Title</u>	<u>Firm</u>	<u>Telephone</u>
Stephen Kaplan	Project Manager	VHB	631-787-3400
Bryan Murty	Site Safety Officer	VHB	631-787-3400
Raymond Marino	Alt. Site Safety Officer	VHB	631-787-3400

If VHB replaces any of the above, the HASP will be modified accordingly.

---

## 1.4 Roles and Responsibilities

The VHB Project Manager is responsible for overall project administration and, with guidance from the VHB Site Safety Officer, for supervising the implementation of this HASP. When the Project Manager is absent from the site, the Site Safety Officer

will assume the on-site responsibilities of the Project Manager. All relevant OSHA health and safety standards will apply. The Site Safety Officer will conduct daily (tail gate or tool box) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, the project manager will be consulted.

The VHB Site Safety Officer is also responsible for coordinating and enforcing health and safety activities on-site. The Site Safety Officer must meet the emergency response and hazardous materials training requirements of OSHA 29 CFR Part 1910.120, must have completed OSHA supervisor training, pursuant to 29 CFR 1910.120 (e) 4; and must have appropriate experience to the related site work. The Site Safety Officer is authorized to suspend the site work based on safety concerns, and is responsible for the following:

- Educating personnel about all of the information in this HASP and any other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and first aid.
- Coordinating site safety decisions with the project superintendent and the Project Manager.
- Designating exclusion, decontamination and support zones on a daily basis.
- Monitoring the condition and status of known on-site hazards and maintaining and implementing the air quality monitoring program specified in this HASP.
- Maintaining the exclusion zone entry/ exit log and site entry/ exit log.
- Maintaining records of safety problems, corrective measures and documentation of any chemical exposures or physical injuries (the Site Safety Officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

Any person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/ concerns to the Site Safety Officer or appropriate key personnel.

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## **1.5 Training Requirements**

All personnel entering the exclusion zone or decontamination zone must meet the training requirements for hazardous waste site operations and emergency response operations in accordance with OSHA 29 CFR 1910.120(e).

Each subcontractor and supplier working on the job must provide the Site Safety Officer with training documentation for its personnel. This documentation will be reviewed by the Site Safety Officer to ensure compliance with site-specific health and safety rules. The Site Safety Officer may require modifications to the subcontractor or suppliers safety training documentation if it does not conform to site-specific requirements.

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## **1.6 Medical Monitoring Requirements**

All personnel and visitors entering the exclusion zone or decontamination zone must have completed appropriate medical monitoring required under OSHA 29 CFR 1910.120(f). Medical monitoring enables a physician to monitor each employee's health, physical condition, and his fitness to wear respiratory protective equipment and carry out on-site tasks.

Evidence of compliance with any additional medical monitoring requirements for this site must also be included. Subcontractors and suppliers working on the job must provide the Site Safety Officer with documentation on their medical monitoring programs.

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## **1.7 Fit-Testing Requirements**

All personnel and visitors entering the exclusion zone or decontamination zone using a negative pressure air purifying respirator (APR) must have successfully passed a qualitative respirator fit test in accordance with OSHA 29 CFR 1910.134 or the American National Standards Institute (ANSI).

Fit testing documentation is the responsibility of each subcontractor. Documentation of VHB's personnel fit-testing is maintained on file.

# 2.0

## Site Background and Scope of Work

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### 2.1 Site Background

The subject property is located in the West Harlem section of Manhattan, New York and is identified as Block 1966 and Lot(s) 41 and 95 on the New York City Tax Map. The Site is approximately 39,650 square feet (s.f.) and is bounded by West 126th Street to the north, backyards of mixed-use buildings that front along West 125th Street to the south, a vacant lot that is in the direction of Morningside Avenue to the east, and a multi-family residential apartment building in the direction of Amsterdam Avenue to the west. Until recently, the site consisted of a series of four interconnected vacant buildings that were formerly used as the Taystee Bakery. Most of the buildings were abandoned for over 40 years, except for one building, located at 461 West 125th Street (aka 456 West 126th Street), which had been recently renovated in 2001 as a Citarella gourmet grocery store and used as such through 2010 when the store closed. The property owner has recently demolished the majority of the structures located at the site in preparation of site redevelopment.

A Phase I Environmental Site Assessment (ESA) report, dated February 2012, and a Phase II ESA (completed concurrently with the Phase I ESA), dated January 2012, were previously prepared by VHB for the subject property. The Phase I ESA identified the following recognized environmental conditions for the subject property:

- ▶ There is a potential for an out-of-service No. 6 fuel oil UST to be present within the building. Same has the potential to have impacted the subsurface with leaks and/ or releases.
- ▶ There is a potential for an out-of-service 550-gallon gasoline UST to be present within 432 through 434 West 126th Street. However, based on the results of a concurrent geophysical survey and Phase II ESA, no further tanks were

identified with the exception of the aforementioned No. 6 fuel oil UST. As such, it is unlikely that a 550-gallon gasoline UST is present within the building.

The Phase II ESA identified one 5,000-gallon No. 6 fuel oil UST on the subject property, which was confirmed to be abandoned-in-place with a concrete slurry. Soil borings were completed proximate to the UST and three (3) samples were submitted for laboratory analysis. Based upon the laboratory analytical results, concentrations of 1,2,4-trimethylbenzene and total xylenes exceeded the New York State Department of Environmental Conservation (NYSDEC) Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs). VHB notified the NYSDEC of the analytical results and NYSDEC Spill No. 11-12132 was assigned to the site. The NYSDEC requested groundwater sampling be conducted downgradient of the UST in order to determine if the groundwater quality had been impacted. One groundwater monitoring well was installed and laboratory analytical results from the groundwater sample did not indicate the presence of contaminants above applicable standards. As such, the NYSDEC issued a letter of no further action for Spill No. 11-12132 on August 8, 2012.

The proposed redevelopment of the subject property includes the construction of a building which will range in height from eight to ten stories. It is currently expected that all existing buildings on the 126th Street side will be demolished. The proposed building will include commercial, manufacturing, community facility and retail tenants. There will be one cellar floor which will have the same footprint as the rest of the building, i.e. there will be no excavation in the rear 20' of the site. A portion of the cellar floor will be used for underground parking and mechanical equipment and the other portion for tenants who may have any of the uses listed above. There will be no residential uses proposed. The building footprint will be approximately 32,000 s.f. and will include a total of approximately 260,000 s.f. The building will not cover the entire footprint, as there will be a 20-foot setback at the rear of the building to the property line with the southern neighbors. The uses of the rear set-back area have not been finalized but it is expected that they will be paved and landscaped and may include movable café tables and chairs if the Owner is able to rent ground floor space to an eating establishment or coffee shop. At grade, there will be two building entries with common areas including entry to the underground parking garage and a loading dock area. The remainder of the ground floor will include retail, commercial, community facility and manufacturing uses. The site on the 126th Street side of the property currently has a basement whose slab is eight feet below grade level. Subsequent to building demolitions, and upon obtaining appropriate Building Department permits, the site will be excavated down to a total of 13 feet below grade surface (bgs) in order to install building footings, the basement concrete slab and the cellar floor. In two areas, the site will be excavated to 19 feet bgs to install elevator pits. It is not expected that groundwater will be encountered during excavation, which prior investigations indicate is approximately 22-feet bgs. It is estimated that 8,000 tons of material will be generated and removed from the excavation.

An E-Designation for Hazardous Materials and Air Quality (E-284) was placed on the subject property by the New York City Department of City Planning (DCP) as

part of the November 13, 2012 West Harlem Rezoning (City Environmental Quality Review [CEQR] 12DCP070M). This site-specific HASP addresses potential hazards and contaminants of concern based on past use and safety requirements associated with investigation activities in accordance with the American Standard for Testing and Materials (ASTM) and the Occupational Safety and Health Administration (OSHA) guidelines.

Based upon the historical site usage and the information provided in the Phase II ESA, 1,2,4-trimethylbenzene and total xylenes were detected in soil samples proximate to an abandoned-in-place No. 6 fuel oil UST at concentrations that exceeded the NYSDEC Part 375 UUSCOs. However, as there are no other petroleum tanks located on the subject property, and as soil, groundwater and soil vapor samples are not proposed proximate to the aforementioned UST, it is not anticipated that soils, groundwater and/ or soil vapor beneath the remaining portions of the subject property are contaminated with concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, PCBs and/ or pesticides at concentrations in contravention of applicable regulatory standards.

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## 2.2 Scope of Work

Tasks to be performed at the subject property under this HASP include the installation of soil borings, groundwater monitoring wells and soil vapor points, and the collection of soil, groundwater, and soil vapor samples associated with a Phase II ESA of the subject property. More specifically, the Phase II ESA involves the following elements:

- Installation of soil borings and collection of soil samples.
- Installation of groundwater monitoring wells and collection of groundwater samples.
- Installation of soil vapor points and collection of soil vapor samples.

The drilling contractor will be responsible for the installation of soil borings, soil vapor points and the installation and development of groundwater monitoring wells. The drilling contractor will be responsible to ensure that all materials introduced into the work area and all installation equipment will be environmentally suitable and does not contain potential contaminants.

VHB will be responsible for oversight of the aforementioned tasks and for the collection of soil, groundwater, and soil vapor samples.

In the event that contaminated soils and/ or groundwater are encountered (i.e., if the presence of staining, sheens, odors or other physical evidence of contamination is noted) during the completion of the aforementioned tasks, work activities will be suspended and the VHB Project Manager will be notified. Site activities will then proceed only at the direction of the VHB Project Manager and/ or the VHB Site Safety Officer. Care will be exercised during the continued work activities to mitigate the further movement of any contamination, and equipment will be periodically cleaned during appropriate work stages, as needed to prevent the spread of contaminants.

Activity-specific hazards associated with site operations and the standard operating procedures (SOPs) that will be implemented to reduce these hazards are discussed in Section 3.0 (Hazard Assessment) below.

# 3.0

## Hazard Assessment

This Hazard Assessment identifies the activity-specific hazards associated with site operations and the SOPs that will be implemented to reduce the hazards. This section identifies general physical hazards that can be expected, and presents an analysis of documented or potential chemical hazards likely to be encountered at the site. Every effort will be made to reduce or eliminate these hazards. Hazards that cannot be eliminated must be managed through engineering controls and/ or personal protective equipment.

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### 3.1 Activity-Specific Hazards and Standard Operating Procedures

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#### 3.1.1 Operation of Heavy Equipment

OSHA guidelines will be followed for operating heavy equipment as outlined in 29 CFR 1926.602.

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#### 3.1.2 Excavation/Earthwork

According to the site-specific scope of work, excavation/ earthwork will be limited to drilling and probing operations described in Section 3.1.4. Should a change in the scope of work include additional earthwork, an amendment to this HASP will be prepared. VHB follows the earthwork protocols described below.

The OSHA 29 CFR 1926.651 (February 20, 1990) established construction industry standards relating to excavation work. These standards include shoring and cutback requirements, equipment specifications, entry requirements, etc. To avoid exposure to site-specific contaminants and to ensure acceptable atmospheric conditions, the following additional requirements apply:

- Air quality will be tested before employees enter excavations over four feet deep if a hazardous atmosphere exists or is suspected to exist. If the Site Safety Officer determines that excavations are, by OSHA's definition, "confined space," the confined space entry policy (Section 8.0) will be followed.
- Open excavations will be backfilled as soon as practicable. While excavations remain open, appropriate warnings will be posted and barricades will be erected to protect pedestrian and worker safety. Where possible, excavation side walls will be cut at a gradual slope to maximize egress and access. Workers will not enter excavations unless absolutely required.
- To ensure atmospheric quality, tests shall be conducted as often as necessary as determined by the Site Safety Officer. This includes tests for flammable gas and oxygen deficiency.
- When the Site Safety Officer identifies hazardous atmospheres, emergency rescue equipment and PPE must be on the work site (Level C PPE) and readily accessible to employees (29 CFR 1926.651(g)(2)(i)).
- Daily site safety inspections will be conducted by the Site Safety Officer.

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### **3.1.3 Work in Extreme Temperatures**

Work under extremely hot or cold weather conditions requires special protocols to minimize the chance that employees will be affected by heat or cold stress. VHB follows the heat and cold stress safety protocols described in Appendix D.

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### **3.1.4 Drilling, Probing and Excavation Operations**

Drilling and probing are included in the site-specific scope of work. All drill operators and site personnel should wear, at a minimum, hard hats, steel-toe safety shoes or boots, gloves and safety glasses. Additional clothing and protective equipment may be required as determined by the Site Safety Officer. Clothing must be close fitting, without loose ends, straps, draw strings or belts or other unfastened parts that might catch on moving machinery.

VHB follows the additional drill rig operation safety protocols described in Appendix E.

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### 3.1.5 Dust Control and Monitoring During Earthwork

As indicated in Section 2.1, dust generated during site activities is not anticipated to contain contaminants. However, VHB will have its subcontractors implement dust control measures, if necessary, including wetting of soils with water, and applying calcium chloride, if dust generation cannot be controlled with water. Air monitoring and dust control techniques are specified in a site-specific Dust Control Plan (if applicable). Site workers will not be required to wear APR's unless dust concentrations are consistently over  $150 \mu\text{g}/\text{m}^3$  in the breathing zone, (as measured by a dust monitor) unless the Site Safety Officer directs workers to wear APRs. The Site Safety Officer will use visible dust as an indicator to implement the dust control plan. The primary sources of dust will be equipment, vehicular traffic, and drilling activities.

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## 3.2 General Site Hazards

Although not all of these hazards may be encountered at the site, employees should be aware of the potential of encountering these hazards during site work:

### Fire

VHB will not perform or allow any act on the property which involves the creation of a fire or explosion hazard. Non sparking tools and fire extinguishers shall be used or available as appropriate. Sources of ignition shall be removed from work areas. When necessary, explosion proof instruments and/ or bonding and grounding will be used.

### Electricity

Applicable OSHA 29 CFR 1910.120(m) standards for illumination shall apply. All work is to be conducted during daylight hours whenever possible.

Overhead and underground utilities shall be identified and/ or inspected prior to conducting operations involving potential contact or interference. As per OSHA 1910.333, for unqualified persons working on the ground near overhead energized lines, the minimum permissible distance requirements are as follows:

- For voltages to ground 50kV or below – 10 feet
- For voltages to ground over 50kV - 10 feet plus 4 inches for every 10kV over 50 kV

Live power sources will be locked and tagged out by authorized personnel. In these instances verification that power sources have been appropriately de-energized will

be provided by Con Edison. All drilling equipment will be securely grounded when working within or around the electrical substation.

All electrical power to the work site must run through a ground fault circuit interrupter as an integral part of the circuit. All equipment must be suitable and approved for the class of hazard. Applicable OSHA 29 CFR 1926 Subpart K standards for electrical use shall apply.

#### Trip/ Fall Hazards

Work, where a fall of over four feet is possible, will be performed by appropriately using ladders and/ or fall protection (i.e. body harness, lifeline, and suitable anchorage). Based upon the proposed scope of work, on-site personnel will not be working in areas where a fall of over four feet is possible. Should on-site conditions or the scope of work change, this HASP will be amended accordingly.

The Site Safety Officer shall incorporate awareness of trip/ fall hazards into the daily tailgate safety meetings and conduct periodic inspections of the site to identify potential trip/ fall hazards. If identified, the Site Safety Officer will be responsible for having these areas secured.

#### Poison Ivy

Although it is recommended that workers learn to recognize the poison ivy plant, in practice, it is hard to do, since poison ivy and its relatives are often mixed in with other vegetation and not noticed until after an exposure has occurred. Keeping the skin covered in situations in which exposure is hard to avoid is the best way to prevent the problem. Long pants and long sleeves will be worn while working in vegetated areas.

#### Ticks

Ticks like to rest on low-lying brush and 'catch a ride' on a passing animal or person. Workers should exercise caution when working in vegetated wilderness areas where ticks may be present. To reduce the chance of getting a tick-bite, workers should wear light-colored clothing and conduct frequent tick-checks. Light-colored clothing allows ticks to be seen more easily on clothing and gives the opportunity to remove them before they can attach to the skin and feed. As required above, long-sleeve shirt and long pants will also aid in the prevention of tick bites by reducing the amount of skin exposed to the ticks. Also, shirts should be tucked into the pants and pants legs tucked into the socks. This keeps the ticks on the outside of the clothing and restricts the tick's efforts to crawl onto the skin. Frequent tick-checks should be conducted which include a visual inspection of the clothing and exposed skin, followed by a naked, full-body examination in a private location. Workers should be sure to check the scalp, behind and in the ears, and behind any joints.

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### 3.2.1 Miscellaneous Tasks

The following work tasks require specific SOPs and safety measures:

- work around heavy equipment (including drill rigs)
- soil excavation (drilling/ probing)
- soil/ ground water sampling

The safety hazards associated with these and other work tasks and the SOPs followed by VHB are contained in Appendices E and F.

Should a change in the scope of the work activities include additional work tasks, an amendment to this HASP will be prepared.

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## 3.3 Chemical Hazards

Based upon the information provided in Section 2.1, soils, groundwater and soil vapor at the site are not anticipated to contain concentrations of contaminants in contravention of applicable regulatory standards. Accordingly, all drilling and sampling activities will be performed in Level D or Level C protection, as determined by the Site Safety Officer.

As a precautionary measure, as described in Sections 3.3.2 and 5.1, air monitoring with a photoionization detector (PID) will be conducted by the Site Safety Officer during all drilling activities, in order to determine if organic vapor concentrations are present and exceed action levels. Although it is not anticipated, if air monitoring results indicate that work cannot proceed because of atmospheric conditions, the work will be stopped and an amendment to this HASP will be prepared to include procedures for engineering controls and increased levels of personal protection.

The following chemical hazards associated with heavy equipment operation may be expected at the site during work activities:

1. Diesel fuel
2. Hydraulic fluid
3. Alkaline and nickel-cadmium batteries
4. Gasoline

Copies of the MSDS for each of these chemicals are included in Appendix G.

Appendix G will be supplemented if additional site-specific chemicals are identified.

Potential routes of exposure of these materials include:

- Inhalation of airborne particulate and vapor
- Dermal contact
- Incidental ingestion

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### 3.3.1 Respirable Dust

Dust may be generated from vehicular traffic, construction and/ or excavation activities. If visible observation monitoring detects concentrations greater than 150 µg/ m<sup>3</sup> over daily background, the Site Safety Officer will take corrective actions as defined herein, including increasing the amount of water applied to the material and if this is not effective, requiring workers to wear APRs with efficiency particulate air (HEPA) cartridges.

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### 3.3.2 Organic Vapors

Excavation activities can cause the release of organic vapors to the atmosphere. The VHB Site Safety Officer will monitor organic vapors with a PID during all excavation and soil sampling activities involving contaminated or potentially-contaminated soils to determine whether organic vapor concentrations exceed action levels.

Additional information regarding air monitoring activities is included in Section 5.1, below.

# 4.0

## Personal Protective Equipment

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120(c), (g), and 1910.132. Protective equipment shall be NIOSH and/ or ANSI-approved (as appropriate) and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only significant difference among the levels of protection from D thru B is the addition of the type of respiratory protection.

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### 4.1 Activity-Specific Levels of Personal Protection

The required level of PPE is specific to the activity being conducted, the contaminants expected to be encountered (Section 3.3), and may be based on air monitoring results (Section 5.0).

Based upon the historic site use and the nature of the work to be performed, the scope of work will be performed in Level D or Level C protection, as determined by the Site Safety Officer. Air monitoring with a PID will be conducted by the Site Safety Officer during all drilling activities, in order to determine if organic vapor concentrations are present and exceed action levels. The results will be monitored and recorded, in order to determine whether acceptable atmospheric conditions are being sustained. If determined necessary by the Safety Officer, air monitoring may be amended to also include the concentrations of oxygen (O<sub>2</sub>), the concentrations of flammable gases with respect to the lower explosive limit (LEL) and the concentration of carbon monoxide (CO) and hydrogen sulfide (H<sub>2</sub>S).

Although it is not anticipated, if air monitoring results indicate that work cannot proceed because of atmospheric conditions, the work will be stopped and an amendment to this HASP will be prepared to include procedures for engineering controls and increased levels of personal protection.

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## 4.2 General PPE

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### 4.2.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work uniform, coveralls, or tyvek, as needed
- steel toe and steel shank work boots
- hard hat
- gloves, as needed
- safety glasses
- hearing protection
- equipment replacements are available as needed

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### 4.2.2 Level C

Level C PPE shall be donned when the concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable OVA, or equivalent), but are less than 5 ppm, or otherwise when required by SOPs or VHB's Respiratory Protection Policy. The specifications on the APR filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated tyvek coveralls
- steel-toe and steel-shank work boots
- chemical resistant overboots or disposable boot covers
- disposable inner gloves (surgical gloves)
- disposable outer gloves
- full-face APR fitted with organic vapor/ dust and mist filters or filters appropriate for the identified or expected contaminants
- hard hat
- splash shield, as needed
- ankles/ wrists taped with duct tape

The Site Safety Officer will verify if Level C is appropriate by checking organic vapor concentrations using a PID or compound and/ or class-specific detector tubes.

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### 4.2.3 Level B

Level B PPE shall be donned when the contaminants have not been identified and/ or the concentrations of unknown measured total organic vapors in the breathing zone exceed 5 ppm (using a portable OVA, or equivalent). Level B PPE shall be donned if the IDLH of a known contaminant is exceeded. If a contaminant is identified or is expected to be encountered for which NIOSH and/ or OSHA recommend the use of a positive pressure self-contained breathing apparatus (SCBA) when that contaminant is present, Level B PPE shall be donned even though the total organic vapors in the breathing zone may not exceed 5 ppm. Level B shall be donned for confined space entry, and when the atmosphere is oxygen deficient (oxygen less than 19.5%) or potentially oxygen deficient. If Level B PPE is required for a task, at least three people shall be donned in Level B at any one time during that task. PPE shall only be donned at the direction of the Site Safety Officer. Level B PPE consists of:

- supplied air SCBA or air line system with five minute egress system
- chemical resistant coveralls
- steel-toe and steel-shank work boots
- chemical resistant overboots or disposable boot covers
- disposable inner gloves
- disposable outer gloves
- hard hat
- ankles/ wrists taped

The exact PPE ensemble is decided on a site-by-site basis by the VHB Site Safety Officer with the intent to provide the most protective and efficient worker PPE.

# 5.0

## Air Monitoring and Action Levels

Pursuant to 29 CFR 1910.120(h), air monitoring shall be conducted to identify and quantify levels of airborne hazardous substances and health hazards, and to determine the appropriate level of worker protection.

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### 5.1 Air Monitoring Requirements

Based upon the information provided in Section 2.1 of this HASP, there are no known or anticipated contaminants that will be encountered during the Phase II site activities. However, as a precautionary measure, air monitoring will be conducted by the Site Safety Officer during all drilling activities. Monitoring will be conducted using direct-reading instruments to evaluate the conditions in the work area. Based on current knowledge of the work operations and potential site conditions, the testing will be conducted using the following instrument:

- ▶ A PID calibrated to detect of Volatile Organic Compound (VOCs) at a minimum concentration of 0.1 part per million (ppm). The PID will be used during all drilling and soil/ groundwater sampling activities.

If determined necessary by the Site Safety Officer, air monitoring may be amended to also include the following instrument:

- ▶ Four Gas Meter (O<sub>2</sub>/ LEL/ CO/ H<sub>2</sub>S) or equivalent, to determine the concentrations of oxygen (O<sub>2</sub>), the concentrations of flammable gases with respect to the lower explosive limit (LEL) and the concentration of carbon monoxide (CO) and hydrogen sulfide (H<sub>2</sub>S). The PID will be used during all drilling and soil/ groundwater sampling activities, if determined necessary by the Site Safety Officer.

All air monitoring data will be documented in a site logbook. Air monitoring instruments will be calibrated and maintained by the VHB Site Safety Officer in accordance with the manufacturer's specifications. When tasks are performed, the concentration of contaminants (for example, VOCs) shall be measured in employees'

breathing zones several times during the task using the direct reading instrument. The specific frequency of the monitoring shall vary with the task to be performed; more frequently during operations having a greater potential for exposure.

Measurements with the PID and Four Gas Meter will also be taken prior to personnel entering a confined space. However, based upon the site-specific scope of work, confined space entries will not be necessary. Should the scope of work be amended to include confined space entry, an amendment to this HASP will be prepared.

## 5.2 Air Monitoring Results and Actions

The results of the air monitoring and sampling will be compared, for most stressors, to applicable OSHA Permissible Exposure Limits (PELs). The following table identifies applicable OSHA criteria and the action levels used to make decisions about changing the requirements for personal protective equipment.

Stressor	OSHA PEL	Action Level
Flammable Gases	0 – 1% of the LEL	Work continues
	1 – 10% of the LEL	Work continues; increase monitoring frequency
	> 10% of the LEL	Work stops
Oxygen	<19%	Leave area immediately
	19 – 23.5%	Work continues
	> 23.5%	Work stops; ventilate area before returning.
VOCs	1 ppm sustained for 5 min.	Screen for benzene using Draeger tubes
	10 ppm sustained for 5 min.	Work stops; ventilate area before returning.
	10 ppm sustained for 30 min.	Upgrade to Level C.
Carbon Monoxide	35 ppm	25 ppm - Leave area and ventilate
Hydrogen Sulfide	10 ppm	10 ppm - Leave area and ventilate

Although it is not anticipated, if air monitoring results indicate that work cannot proceed because of atmospheric conditions, the work will be stopped and an amendment to this HASP will be prepared to include procedures for engineering controls and increased levels of personal protection.

# 6.0

## Site Control

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### 6.1 Work Zones

The primary purpose of site controls is to establish the perimeter of a hazardous area, to reduce the migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. When operations are to take place involving hazardous materials, the Site Safety Officer will establish an exclusion zone, a decontamination zone, and a support zone. These zones "float" (move around the site) depending on the tasks being performed on any given day. The Site Safety Officer will outline these locations before work begins and when zones change. The Site Safety Officer records this information in the site log book.

Tasks requiring OSHA 40-hour Hazardous Waste Operations and Emergency Response Operations training are carried out in the exclusion zone. The exclusion zone is defined by the Site Safety Officer but will typically be a 50-foot area around work activities. Gross decontamination (as determined by the Site Safety Officer) is conducted in the exclusion zone; all other decontamination is performed in the decontamination zone or trailer.

Protective equipment is removed in the decontamination zone. Disposable protective equipment is stored in receptacles staged in the decontamination zone, and non-disposable equipment is decontaminated according to the procedures outlined in Section 7.0. All personnel and equipment shall exit the exclusion zone through the decontamination zone. If a decontamination trailer is provided the first aid equipment, an eye wash unit, and drinking water are kept in the decontamination trailer.

The support zone is used for vehicle parking, daily safety meetings, and supply storage. Eating, drinking, and smoking are permitted only in the support zone. When a decontamination trailer is not provided, the eye wash unit, first aid equipment, and drinking water are kept at a central location designated by the Site Safety Officer.

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## 6.2 General Field Safety and Standard Operating Procedures

VHB's policy is to control hazards at all site areas by limiting entrance to exclusion zones to essential personnel and by implementing the following rules:

- Non-essential (as judged by the Site Safety Officer) personnel and unauthorized persons will not enter the exclusion or decontamination zone.
- Before entering the exclusion or decontamination zones, all personnel must be familiar with emergency response procedures (Section 9.0), site safety locations, first aid and communication equipment, and the location of the map to the hospital and the list of emergency telephone numbers.
- The buddy system will be used at all times by field personnel in the exclusion zone; no one is to perform work within the exclusion zone alone. When in Level D or C, visual contact or radio contact shall be maintained at all times. In Level B, visual contact shall be maintained at all times, and radio contact shall be maintained with the decontamination and/ or support zone.
- Contact with contaminated and potentially contaminated surfaces should be avoided. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or place equipment on the ground. Protect equipment from contamination.
- All personnel exiting the exclusion zone must exercise the decontamination procedures described in Section 7.0 of this HASP.
- Beards or other facial hair that interferes with respirator fit will preclude admission to the exclusion zone. Contact lenses shall not be worn in the exclusion or decontamination zones, or if the worker may be expected to enter these zones under routine or emergency situations.
- Eating, drinking, or smoking is permitted only in designated areas in the support zone.
- Each worker must be supplied with and maintain his/ her own personal protective equipment.

Note: These policies will be enforced by the designated Site Safety Officer.

# 7.0

## Decontamination Procedures

Prior to the start of the field activities, the Site Safety Officer will be responsible for the designation of the work zone, support zone, and clean zone. The work zone will be an area surrounding the immediate work being performed where the greatest potential hazards exist. Only the necessary workers required to perform the work will be permitted in this zone. A support zone will be established for the storage of equipment and personnel decontamination. A clean zone will be established for site control of visitors, equipment deliveries, and communications.

In general, everything that may come in contact with contaminated media must either be decontaminated or discarded prior to exit. In addition to worker protection, care must be taken to avoid cross-contamination of samples and other facility areas.

All support and sampling equipment which has or may have contacted contaminated materials will be cleaned with detergent/ water solution and rinsed with water in wash tubs or buckets. The wash water, rinse water and residues will be collected and properly stored until sampling results are received and final disposition of the waste can be determined. Monitoring equipment that comes into will be decontaminated according to manufacturer specifications. Decontamination is done in the exclusion or decontamination zones. Rented equipment is photographed after decontamination.

Disposable PPE and equipment will be properly bagged and disposed of.

Employees will wash their hands and faces with detergent and water prior to eating or smoking. Smoking will not be permitted in the work and support zones.

The minimum measures for Level B doffing and decontamination are:

- deposit equipment on plastic drop cloths.
- scrub outer boots and gloves with a water and detergent solution and rinse.
- remove outer boots and outer gloves. Discard disposable outer garments in receptacle provided.

- remove SCBA and face piece and place on rack provided
- remove tyvek/ outer garment and place in receptacle provided
- remove inner gloves and deposit in receptacle provided
- shower/ wash face and hands

The minimum measures for Level C doffing and decontamination are:

- deposit equipment on plastic drop cloths.
- scrub outer boots and gloves (if worn) with a water and detergent solution and rinse.
- remove outer boots and outer gloves. Discard disposable outer garments in receptacle provided.
- remove tyvek/ outer garment and place in receptacle provided.
- remove first pair of inner gloves
- remove respirator (using "clean" inner gloves) and place on rack provided
- remove last pair of inner gloves and deposit in receptacle provided
- shower/ wash face and hands

The second to last item to be removed is the APR, and the last item to be removed is the last of several pairs of surgical gloves. Wearing several pairs of inner gloves permits layers to be removed as needed during various stages of the doffing procedure, and if the APR inadvertently becomes contaminated, inner gloves guard against bare hands contacting the APR.

# 8.0

## Confined Space

According to OSHA 29 CFR 1910.146, a confined space is a space which is large enough and so configured that an employee can bodily enter and perform assigned work, has limited or restricted means for entry or exit, and is not designed for employee occupancy. Based upon the site-specific scope of work, confined space entries will not be necessary. However, should the scope of work be amended to include confined space entry, an amendment to this HASP will be prepared. The following protocol will when VHB employees must enter a confined space:

- The Site Safety Officer evaluates the space and site conditions to determine whether the space must be considered "confined".
- If so, the Site Safety Officer monitors the space for hazardous atmospheres prior to entry and fills out a pre-entry checklist (Appendix H) to determine whether an entry-permit is required.
- If there is no hazardous atmosphere, the space will be continuously monitored during the entry to assure that the atmosphere remains non-hazardous.
- If the space contains a hazardous atmosphere, an entry permit (Appendix H) will be prepared and the space will only be entered in accordance with 29 CFR 1910.146.

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### 8.1 Rescue and Emergency Services

When practical, non-entry rescue is the preferred method of rescue, even for horizontal entries. To help permit-required confined space non-entry rescue, each authorized entrant will use a full body or chest harness with a retrieval line attached to a mechanical device or fixed point outside the permit-required confined space. Mechanical devices to retrieve personnel will be used for vertical spaces more than five feet deep.

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### **8.1.1 On-Site Rescue Services**

Qualified personnel will be available on-site to conduct confined space entry rescue, if needed. All essential equipment (SCBA/ air lines, hoist, etc.) needed to effect rescue will also be staged on-site during all confined space activities. Rescue personnel will extract the confined space worker to the nearest available safe location so that emergency first aid may be performed. In the event of a confined space rescue, the Attendant will be responsible to notify First Responder Medical Care, the Site Safety Officer, and the Project Manager immediately.

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### **8.1.2 Subcontractor Entry Operations**

Based on the site-specific scope of work, subcontractor personnel will not have to enter confined spaces. However, in the event that completing the work requires subcontractor personnel to enter a confined space, entry will only be made by personnel who have received the training required to correctly perform their assigned duties.

# 9.0

## Contingency Plan/Emergency Response Plan

It is essential that site personnel be prepared for an emergency. Emergencies can take many forms; sudden illnesses or injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

A list of emergency telephone numbers and hospital travel routes to the nearest hospital with an emergency capacity will be posted on site in the field vehicle. Site personnel must be familiar with the emergency incident procedures, and the locations of site safety, first aid, and communication equipment.

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### 9.1 Emergency Equipment On-Site

Private Telephones:	Site Personnel
Two-way Radios	Site Personnel (where necessary)
Emergency Alarms:	On-site vehicle horns*
First Aid Kits:	On-site vehicle/ heavy equipment
Fire Extinguisher:	On-site vehicle/ heavy equipment

\*Horns – Air Horns will be supplied to personnel at the discretion of the Project Manager or Site Safety Officer.

---

### 9.2 Emergency Telephone Numbers and Hospital Information

Emergency telephone numbers and routes to the nearest hospital with an emergency capacity are as follows:

General Emergencies:	911
NYPD	911
FDNY:	911
First Responder Medical Care:	911
National Response Center	1-800-424-8802
NYC Regional Poison Control Center	1-800-222-1222
Project Manager	1-631-787-3400 or 1-631-316-4892
Site Safety Officer	1-631-787-3400 or 1-631-655-9373
Alternate Health and Safety Officer	1-631-787-3400

For Non-Emergency Care – (Emergencies must call 911)

Nearest Hospital: Mount Sinai St. Luke’s  
1111 Amsterdam Avenue  
New York, New York 10025  
1-212-523-4000

**Directions to Mount Sinai St. Luke’s (approximately 0.75 miles from the site):**

**Head northwest on West 126<sup>th</sup> Street toward West 127<sup>th</sup> Street. Make the first left onto Amsterdam Avenue. The hospital will be located on the left in approximately 0.6 mile.**

**A map showing the route to the nearest hospital is provided in Appendix A, Figure 2.**

The emergency telephone numbers and hospital route presented above are also included in Appendix I.

---

### **9.3 Personnel Responsibilities During an Emergency**

As the administrator of the project, the Project Manager has primary responsibility for responding to and correcting emergency situations. In the absence of the Project Manager, the senior person on-site (e.g., the Site Safety Officer) shall act as the Project Manager's on-site designee. Their responsibilities include:

- Take appropriate measures to protect personnel including: evacuating and securing the site or up-grading or down-grading the level of protective clothing and respiratory protection.
- Ensure that the client and appropriate Federal, State and local agencies are informed, and emergency response plans are coordinated; in the event of fire or explosion, the local fire department should be summoned immediately. In the

event of an air release of toxic materials, the local authorities and client must be informed in order to assess the need for evacuation. In the event of spill or on-land release of hazardous or toxic materials, the Project Manager will be contacted immediately. The Project Manager will contact the client to determine reporting requirements to the appropriate agency.

- ▶ Ensure appropriate decontamination treatment or testing for exposed or injured personnel.
- ▶ If possible, determine the cause of the incident and make recommendations to prevent recurrence.
- ▶ Ensure that all required reports which may be required by the client and/ or regulatory agencies have been prepared and filed.

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## 9.4 Medical Emergencies

Any on-site person who becomes ill or injured must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid (if a qualified and trained provider is part of the field team) administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (Appendix I) must be filled out for any injury.

**Any person transporting an injured/exposed person to the hospital for treatment should follow the route to Mount Sinai St. Luke's (approximately 0.75 mile from the site).**

**Head northwest on West 126<sup>th</sup> Street toward West 127<sup>th</sup> Street. Make the first left onto Amsterdam Avenue. The hospital will be located on the left in approximately 0.6 mile.**

**A map showing the route to the nearest hospital is provided in Appendix A, Figure 2.**

---

## 9.5 Fire or Explosion

In the event of a fire or explosion, the fire department should be summoned immediately. Upon their arrival, the senior staff on-site will advise the fire commander of the location and nature of on-site hazardous materials that the senior staff is aware of. If it is safe to do so, site personnel may:

- Use firefighting equipment available on site.
- Remove or isolate flammable or other hazardous materials that may contribute to the fire.

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## 9.6 Evacuation Routes

Evacuation routes established by work area locations for each site will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly, and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/ or by verbal/ radio communication. When evacuating the site, personnel will follow these instructions:

- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.
- The Site Safety Officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/ or exclusion zone entry/ exit log.
- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

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## 9.7 Spill Control Procedures

In the event of a leak or a release, site personnel will:

- Inform their supervisor immediately.
- Locate the source of the spillage and stop the flow if it can be done safely.
- Begin containment and recovery of the spilled materials.

Subcontractors utilizing heavy equipment will be responsible for maintaining containment equipment, emergency spill kits and oil booms in the immediate

vicinity of the work site to address any release of diesel or hydraulic fluid from the equipment.

In the event of a leak or a release, site personnel will immediately inform the Project Manager. The Project Manager will immediately notify the client. Within 24 hours of this verbal notification, the Project Manager will provide the client with a written report. The report will include the events that transpired and any action taken by VHB to protect health and safety as well as the environment. The report will list all those who were notified of the release.

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This Project Health and Safety Plan, including Standard Operation Procedures for Geoprobe® Operation

Prepared by: Heather Waldmann  
Project Scientist  
VHB Engineering, Surveying and Landscape Architecture, P.C.

VHB Engineering, Surveying and Landscape Architecture, P.C.

Signature:

by:  \_\_\_\_\_

Supervised by: Stephen Kaplan  
Senior Project Manager  
VHB Engineering, Surveying and Landscape Architecture, P.C.

VHB Engineering, Surveying and Landscape Architecture, P.C.

Signature:

by:  \_\_\_\_\_

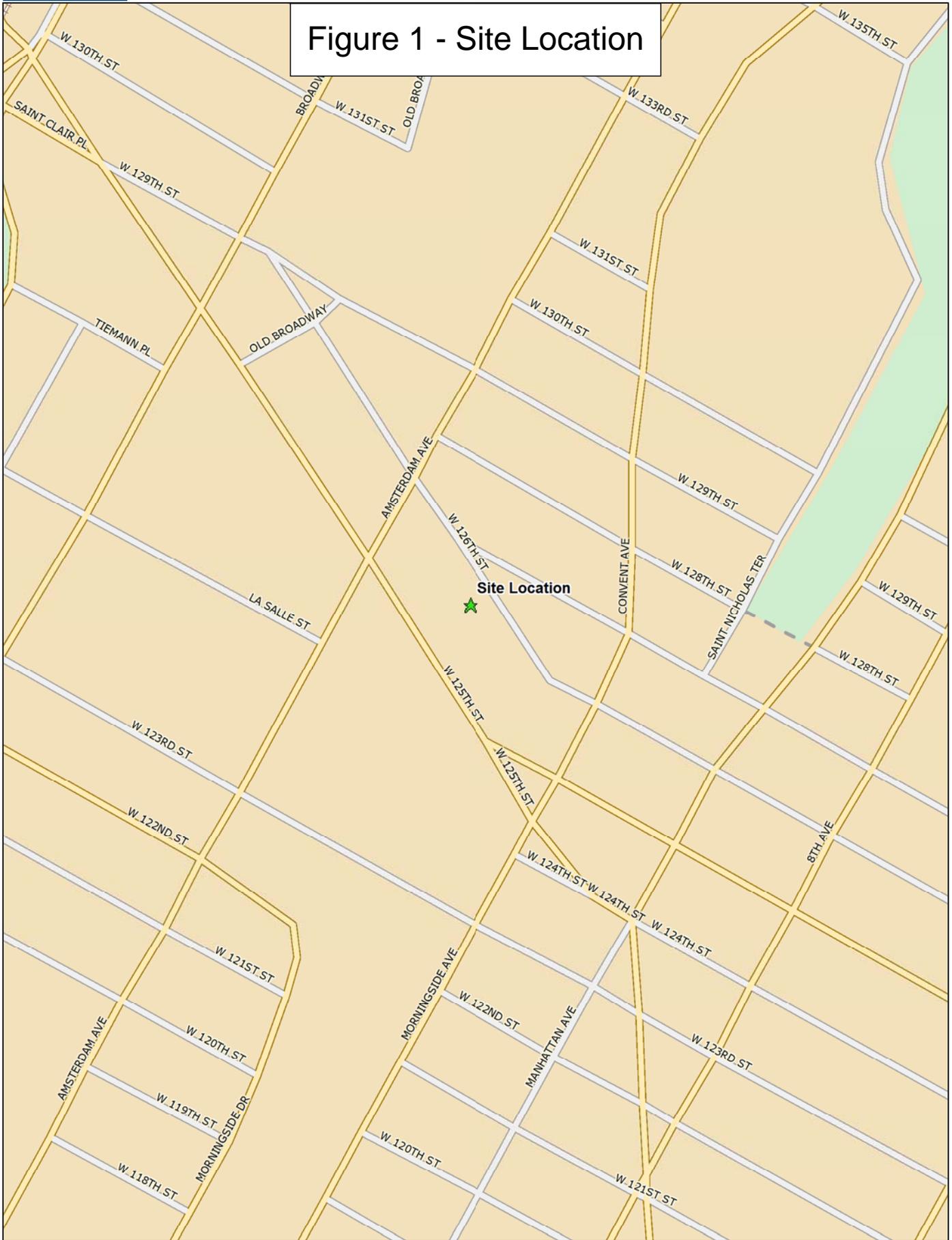


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# Appendix A

## Figures

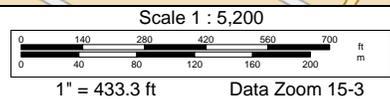
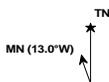
Figure 1 - Site Location

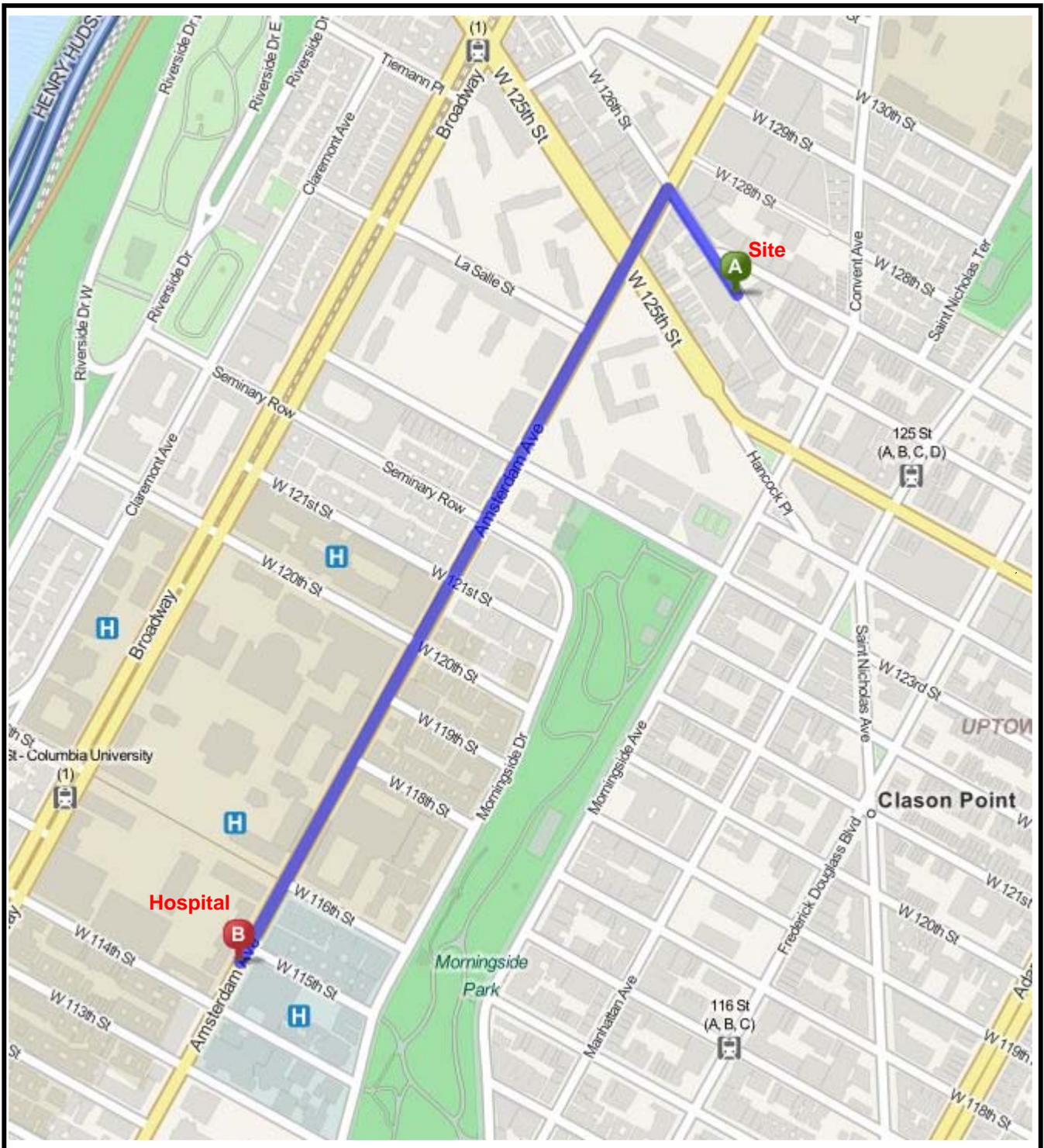


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**FIGURE 2 – HOSPITAL ROUTE MAP**

**SITE NAME:** Green Taystee Bakery Redevelopment  
**STREET ADDRESS:** 426-458 West 126<sup>th</sup> Street & 461 West 125<sup>th</sup> Street  
**MUNICIPALITY, STATE, ZIP:** New York, New York 10027



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**Appendix B**

**Site Safety Plan Acknowledgement Form**















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# **Appendix C**

## **Site Safety Plan Amendments**

SITE SAFETY PLAN AMENDMENT #\_\_\_\_:

A Site Safety Plan Acknowledgement Form must be signed by the site personnel for each Site Safety Plan Amendment.

SITE NAME: Taystee Bakery Redevelopment Site, 426-458 West 126th Street and 461 West 125th Street, New York, New York

REASON FOR AMENDMENT:

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ALTERNATE PROCEDURES:

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---

REQUIRED CHANGES IN PPE:

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\_\_\_\_\_  
PROJECT MANAGER

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
SITE SAFETY OFFICER

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
TECHNICAL SAFETY MANAGER

\_\_\_\_\_  
(DATE)



---

# **Appendix D**

## **Heat/Cold Stress Protocols**

## HEAT RELATED EMERGENCIES

Good judgment is essential. Pace yourself by knowing your limitations. Avoid over exertion. You are your best gauge for heat related emergencies.

### HEAT EXPOSURE

The human body stubbornly defends its constant core temperature of 98.6°F. To maintain this constant temperature, heat loss must equal heat gain. If heat loss exceeds heat gain, the body temperature will fall; conversely, if heat production exceeds heat loss, the temperature will rise. In a heat related emergency, the body's mechanisms for temperature regulation are overwhelmed. The body can no longer regulate core temperature, and the core temperature begins to rise. As this rise occurs, the body will begin to show the signs and symptoms of heat related stress. The sequence of illness may start with heat Cramps and progress into a more severe case or may go straight to Heat Stroke. The degree of illness will vary from person to person, depending on the nature of the exposure, physical conditioning and inherited traits.

### PREVENTION

#### General

- While not mandated by corporate requirements, employees should attempt to maintain good physical conditioning and control blood pressure (avoid weight gain, smoking, etc.).
- Eat regularly and properly. Increase salt intake through food consumption during the hot season or hot spells and avoid the use of salt tablets, if possible.
- Avoid alcohol intake the night before if you are going to be working in hot environments, either from ambient conditions or by wearing Chemical Protective Clothing.
- If you are on medication or have a chronic medical history, consult a physician prior to working in a high temperature environment.

#### On-Site/ Scene

- Sufficient quantities of water (at least 2 to 4 ounces of water prior to commencing work and during every rest period) should be consumed to help avoid heat related emergencies. A recommended alternative to water is an electrolyte drink split 50/ 50 with water

## HEAT RELATED EMERGENCIES

### SIGNS AND SYMPTOMS

#### EMERGENCY CARE

#### Heat Rash

Also known as prickly heat, this is a condition affecting the skin. The condition occurs in situations where the skin remains wet most of the time. The sweat ducts become plugged, and a skin rash soon appears.

#### Signs and Symptoms

1. Skin rash over affected areas of the body.
2. Tingling or prickling sensation on the affected areas.

#### Emergency Care

1. Take shower after working in heat.
2. Dry the skin thoroughly.
3. Change underwear as needed.
4. Stay in cool place after work hours.
5. Adjust clothing to wear materials that wick moisture away from body (cotton or Gore-Tex, etc.).

#### Heat Cramps

Heat cramps are muscle pains, usually in the lower extremities, the abdomen, or both, which occur secondary to profuse sweating with accompanying salt depletion. Heat cramps most often afflict people in good physical condition, who overwork in conditions of high temperature and humidity. Untreated, heat cramps may progress to heat exhaustion.

Treatment of heat cramps is aimed at eliminating the exposure and restoring the loss of salt and water.

#### Signs and Symptoms

1. Cramps in the extremities and abdomen which come on suddenly during vigorous activity.  
Heat cramps can be mild with only slight abdominal cramping and tingling in the

extremities, but more commonly present intense and incapacitating pain in the abdomen and extremities.

2. Respiration rate will increase, decreasing after the pain subsides.
3. Pulse rate will increase.
4. Skin will be pale and moist.
5. Body temperature will be normal.
6. Loss of consciousness or airway maintenance are seldom problems with this condition.
7. Generalized weakness will be noted as the pain subsides.

### Emergency Care

1. Move the worker to a cool environment. Have the worker lie down if the worker feels faint.
2. If the worker is not nauseated, the worker may be given 1 or 2 glasses of an electrolyte solution. Have the worker drink slowly. The use of salt tablets is not recommended, as they may precipitate nausea.
3. If the worker is nauseated, avoid giving anything by mouth until the nausea subsides.
4. Avoid massaging the cramping muscles. This rarely helps and may actually aggravate the pain.
5. As the salt and water level is replenished, the worker's pain will subside. The Worker may wish to return to work, however, this is NOT recommended for a period of 12 hours. Further exertion may lead to heat exhaustion or heat stroke.

### HEAT EXHAUSTION

Heat exhaustion represents a somewhat more severe response to salt and water loss, as well as an initial disturbance in the body's heat-regulating system. Like heat cramps, heat exhaustion tends to occur in persons working in hot environments. Heat exhaustion is likely in dehydrated and hypertensive people. Untreated Heat Exhaustion may progress to Heat Stroke.

Treatment of heat exhaustion is similar in principle to that of heat cramps.

### Signs and Symptoms

1. Heat Exhaustion may come on suddenly or may be felt as headache, fatigue, dizziness, and nausea with occasional abdominal cramping.
2. Sweating will be profuse.

3. Pulse will be rapid and weak.
4. Respiration rate will be rapid and shallow.
5. The skin will be pale and clammy.
6. The body temperature will be normal or decreased.
7. The worker could be irritable and restless.

### Emergency Care

1. Move the worker to a cool environment, take off as much of the worker's clothing as possible, and place the worker in a supine position with the worker's legs elevated.
2. Sponge the worker with cool water. If you fan the worker, avoid chilling. When the body chills, the muscles generate energy. When the body shivers, this energy is released as heat and actually can increase the body temperature.
3. If this is a true medical emergency, prompt intervention by Emergency Medical Services is recommended.
4. Monitor the worker's level of consciousness and airway.

### HEAT STROKE

Heat Stroke is caused by a severe disturbance in the body's heat-regulating mechanism and is a profound emergency, with a mortality rate ranging from 25 to 50 percent. It is most common in men over 40, especially in alcoholics. It can also occur in people of any age having too much exposure to the sun or prolonged confinement in a hot atmosphere. Heat stroke comes on suddenly. As the sweating mechanism fails, the body temperature begins to rise precipitously, reaching 106°F (41°C) or higher within 10 to 15 minutes. If the situation is not corrected rapidly, the body cells - especially the very vulnerable cells of the brain - are literally cooked, and irreversible central nervous system damage occurs.

The treatment for Heat Stroke is aimed at maintaining vital functions and causing as rapid a temperature fall as possible.

### Signs and Symptoms

1. The worker's pulse will be strong and pounding.
2. The skin will be hot, dry and flushed.
3. The worker may experience headache, dizziness, and dryness of mouth.
4. Seizures and coma occur.

5. Loss of consciousness and airway maintenance problems can occur.

### Emergency Care

1. Establish an open airway.
2. Move the worker to a cool environment. Take off as much clothing as possible, and place the worker in a semi-reclining position with the head elevated.
3. Use any means to cool the worker. Improvise with whatever is available. A bathtub filled with cold water and ice cubes is ideal. Remember, speed is essential; delay may result in permanent brain damage. Vigorous efforts to cool the worker must continue until the body temperature is below 103°F (38.9°C).
4. This is a true medical emergency; prompt intervention by Emergency Medical Services is required.

These are only guidelines for the care of Heat Related Emergencies. Actual training in emergency medical care or basic first aid is recommended.

### HEAT STRESS

1. Heart rate (HR) should be monitored by the radial pulse for 30 seconds as soon as possible in the resting period.

If at the beginning of the rest period a worker's radial pulse is measured and his heart rate exceeds 100 beats per minute, the worker's next work period should be reduced by 33%. Therefore, if the original work period was one hour, the following work cycle should be reduced to 40 minutes.

2. Administering salt tablets to prevent heat stress is not recommended due to a number of reasons: (a) sweat is hypotonic, therefore, adding salt to the body would only increase the body's need for water; (b) additional salt may interfere with a worker's predisposed physical condition (i.e., high blood pressure); and (c) increasing the sodium content in the body may cause an imbalance in the body's potassium content. Unless a physician recommends the use of salt tablets, individuals naturally obtain the necessary salt in their normal diet.
3. Heat Stroke is a true medical emergency. First aid should be directed toward immediate measures to cool the body quickly, as well as seeing that the victim receives medical attention as soon as possible.

Prior to medical treatment, remove as much clothing as possible and proceed to cool the victim's body, taking care not to overchill the victim once his temperature falls below 102°F. One of the following cooling measures should be taken: (1) sponge the bare skin with cool water; (b) apply cold packs continuously; (c) wrap the victim in a sheet soaked with water; or (d) immerse the victim in a tub of cold water, while closely monitoring the victim's level of consciousness.

4. Prior to site activity, the field team leader will make arrangements for heat stress monitoring (i.e., monitoring heart rate, body temperature and body water loss) during actual site work if conditions warrant these measures. In addition, the worker would want to ensure that the team members have been acclimatized to the particular environmental conditions and that personnel are aware of the signs and symptoms of heat illness and have been adequately trained in first aid procedures. As field team leader, one could also make sure there is sufficient personnel on site, so as to rotate work assignments, schedule work during hours of reduced temperatures, and ensure personnel drink moderate levels of an electrolyte solution and eat well prior to commencing site work.
5. The worker could be experiencing a condition of heat rash. Allow workers to rest and relieve the itching associated with heat rash rather than return to work too soon. Itching workers may not follow stringent decon procedures or risk cross contamination.

Keeping the skin clean and dry will reduce the incidence of heat rash. This can be accomplished by adjusting clothing to wear materials that wick moisture away from the body (cotton, Gore-Tex or other similar materials) underneath protective clothing. Upon removal of the protective clothing, the worker should wash and dry his skin thoroughly.

6. The sense of thirst is not an adequate regulator of water replacement during heat exposure. Therefore, as a general rule, the amount of water administered should replace the amount of water lost, and it should be administered at regular intervals throughout the day. It is not practical to measure water loss in the field; however, water should be replaced by drinking 2-4 ounce servings during every rest period. A recommended alternative to water is an electrolyte drink split 50/ 50 with water.
7. Although there is no specific test given during a baseline physical that would identify a person's tolerance to heat, there are physical factors and personal habits which may indicate possible intolerance to heat, such as, whether or not an individual smokes, one's dietary habit, body weight, as

well as predisposed physical conditions such as high blood pressure, heart conditions, diabetes, or medication, that may influence an individual's ability to tolerate excessive heat.

8. First aid treatment: remove victim to a cool place and give sips of salted water (1 teaspoon of salt to 1 quart of water) - 4 ounces every 15 minutes over a period of one hour. A commercial preparation, e.g., Gatorade, may be used if split 50/ 50 with water.

The salted water or solution should mitigate the cramps. Manual pressure should not be applied to the cramped muscles.

TABLE C-1<sup>(1)</sup>

REQUIRED FREQUENCY OF HEAT STRESS MONITORING  
FOR WORKERS IN IMPERMEABLE CLOTHING

Adjusted <sup>(2)</sup> Temperature (°F)	Work Time Allowed Before Monitoring Break (min.)
90 or above	15
87.5-90	30
82.5-87.5	60
77.5-82.5	90
72.5-77.5	120

- (1) Adapted from Eastern Research Group and National Institute for Occupational Safety and Health, Occupational Safety and Health Guidance Manual for Super Activities. September 26, 1984, pp. 8-75.
- (2) Calculate the adjusted air temperature (Ta adj) by using this equation:

$$Ta \text{ adj } ^\circ F = Ta \text{ } ^\circ F + (13 \times \% \text{ sunshine})$$

Measure air temperature (Ta) with a standard thermometer, with the bulb shielded from radiant heat. Then estimate percent sunshine (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows).

TABLE C-2

Heat Stress Indicator	When to Measure	If Exceeds . . .	Action
heart rate (pulse)	beginning of rest period	110 beats per minute	shorten next work period by 33%
oral temperature	beginning of rest period	99°F (after thermometer is under tongue for 3 minutes)  100.6°F	shorten next work period by 33%  prohibit work in impermeable clothing
body weight	1. before workday begins (a.m.) 2. after workday ends (p.m.)		increase fluid intake

COLD STRESS (HYPOTHERMIA)

Cold stress is a function of cold, wetness and wind. A worker's susceptibility to cold stress can vary according to his/ her physical fitness, degree of acclimatization to cold weather, age, and diet.

Prevention

Institute the following steps to prevent overexposure of workers to cold:

1. Maintain body core temperature at 96.8°F or above by encouraging workers to drink warm liquids during breaks (preferably not coffee) and wear several layers of clothing. Wool is recommended since it can keep the body warm even when the wool is wet.
2. Avoid frostbite by adequately covering hands, feet, and other extremities. Clothing such as insulated gloves or mittens, earmuffs, and hat liners should be worn. To prevent contact frostbite (from touching metal and cold surfaces below 20°F), workers should wear anti-contact gloves. Tool handles and control bars should be covered with insulating material.

3. Adjust work schedules if necessary, providing adequate rest periods. When feasible, rotate personnel and perform work during the warmer hours of the day.
4. Provide a heated enclosure for workers close to their work area. Workers should remove their outer layer(s) of clothing while in the shelter to allow for sweat evaporation.
5. In the event that wind barriers are constructed around an intrusive operation (such as drilling), the enclosure must be properly vented to prevent the build-up of toxic or explosive gasses or vapors. Care must be taken to keep any heat source away from flammable substances.
6. Using a wind chill chart such as the one in Table C-4, obtain the equivalent chill temperature (ECT) based on actual wind speed and temperature. Refer to the ECT when setting up work warm-up schedules, planning appropriate clothing, etc. Workers should use warming shelters at regular intervals at or below an ECT of 20°F. For exposed skin, continuous exposure should not be permitted at or below an ECT of -25°F.
7. Workers who become immersed in water or whose clothing becomes wet (from perspiration, rain, etc.) must immediately be provided a change of dry clothing whenever the air temperature is 25.6°F or below.
8. Although not mandated by corporate requirements, employees should strive to maintain an optimal level of worker fitness by encouraging regular exercise, proper diet, etc.

### Monitoring

Personnel should be aware of the symptoms of cold stress. If the following symptoms of systemic hypothermia are noticed in any worker, he/ she should immediately go to a warm shelter:

- heavy, uncontrollable shivering;
- excessive fatigue or drowsiness;
- loss of coordination;
- difficulty in speaking; and,
- frostbite (see below).

Frostbite is the generic term for local injury resulting from cold. The stages of frostbite and their symptoms are as follows:

1. frostbite or incipient frostbite:
  - sudden blanching or whitening of the skin.
  
2. superficial frostbite:
  - waxy or white skin which is firm to the touch (tissue underneath is still resilient).
  
3. deep frostbite:
  - tissues are cold, pale, and solid.

TABLE C-4<sup>(1)</sup>

**COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED  
AS AN EQUIVALENT TEMPERATURE (UNDER CALM CONDITIONS)**

Estimated Wind Speed (in mps)	Actual Temperature Reading (°F)P											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (°F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER In < hr with dry skin. Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds			
Trenchfoot and immersion foot may occur at any point on this chart.												

Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA.

(1) Reproduced from American Conference of Governmental Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices for 1985-1986, p. 01.



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# **Appendix E**

## **Drilling Protocols**

## **DRILLING PROTOCOLS**

Safety procedures during the operation of drilling machines include, but are not limited to the following:

- All site personnel should know the location of the drill rig emergency shut-off switch prior to beginning operations.
- The drill rig should be inspected prior to operation to ensure that it is in proper working condition and that all safety devices are functioning.
- Each drill rig should have a first-aid kit and fire extinguisher which should be inspected to ensure that they are adequate.
- All operators should wear, at a minimum, hard hats, steel-toe safety shoes or boots, gloves and safety glasses. Additional clothing and protective equipment may be required at sites where hazardous conditions are likely. Clothing must be close fitting, without loose ends, straps, draw strings or belts or other unfastened parts that might catch on moving machinery.
- Work areas should be kept free of materials, debris and obstruction, and substances such as grease or oil that could cause a surface to become slick or otherwise hazardous.
- Prior to drilling, the site must be checked to determine whether it can accommodate the drill rig and supplies and provide a safe working area.
- The drill rig mast (derrick) must be lowered prior to moving between drilling locations.
- The drill rig mast should not be raised if the rig will not be at least 20 feet away from overhead utilities.
- The location of underground utilities should be determined prior to erecting the drill rig.
- The drill rig must be properly erected, leveled and stabilized prior to drilling.
- The operator must shut down the drill engine before leaving the vicinity of the machine.
- All personnel not directly involved in operating the rig or in sampling should remain clear of the drilling equipment when it is in operation.
- All unattended boreholes must be adequately covered or otherwise protected to prevent trip and fall hazards. All open boreholes should be covered, protected or backfilled as specified in local or state regulations.
- When climbing to or working on a derrick platform that is higher than 20 feet, a safety climbing device should be used.

- The user of wire line hoists, wire rope and hoisting hardware should be as stipulated by the American Iron and Steel Institute Wire Rope Users Manual.
- The drill rig should be operated in a manner which is consistent with the manufacturers' ratings of speed, force, torque, pressure, flow, etc. The drill rig and tools should be used for the purposes for which they were intended.



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# **Appendix F**

## **Miscellaneous Task SOPs and Safety Measures**

## **TASK SAFETY AND HEALTH RISK ANALYSIS**

### **TASK SAFETY AND HEALTH RISK ANALYSIS**

This Hazard Assessment identifies the general hazards associated with various work tasks and presents an analysis of documented or potential hazards associated with each, including site-specific work tasks identified from the scope of work (as indicated by asterisks [\*]). Every effort must be made to reduce or eliminate these hazards. Those which cannot be eliminated must be guarded against by use of engineering controls and/ or personal protective equipment.

#### **Work Tasks**

Geophysical Site Inspection  
Drum Handling  
Opening Drums and Overpacks  
Drum Staging and Overpacking  
Compatibility Testing and Compositing of Samples  
\*Working Around Heavy Equipment  
Corrosive Liquid Transfer  
Flammable/ Combustible Liquid Transfer  
Lab Packing and Lab Inventory  
\*Soil Excavation  
Drum Sampling  
Use of a High Pressure Water Cleaner  
Drum Excavation  
\*Soil/ Groundwater Sampling  
High Pressure Washer During Vat Cleaning  
Compressed Gas Cylinders  
Empty Drum Crushing

## **Work Task Hazards and SOPs**

### **Hazards and SOPs Associated with Geophysical Site Inspection:**

#### **Hazards**

1. Slip/ trip/ fall hazards from debris and holes, trenches in floor.
2. Injury from unstable overhead and falling building materials/ debris.
3. Gas release hazards.
4. Direct skin contact and/ or inhalation of contaminants.
5. Biological hazards.

#### **SOPs**

1. Be sure that all areas of entry have or are provided with adequate lighting.
2. All personnel should wear hard hats at all times when inside buildings and hot zones.
3. Be sure that all manholes/ floor drains are covered and marked.
4. Be sure that stairways are structurally sound.
5. Be sure that all rooms are checked for loose or unstable overhead structures/ debris.
6. Minimize slip/ trip/ fall hazards by keeping work areas clean and being aware of unstable or loose footing.
7. Air monitoring is to be conducted prior to inspection.
8. Proper level of protection.
9. Be aware of and avoid potential biological hazards.

### **Hazards and SOPs Associated with Drum Handling:**

#### **Hazards**

1. Injury from slip/ trip/ fall due to unstable ground conditions.
2. Cuts or abrasions from sharp or jagged metal during drum handling.
3. Potential for crushed fingers and toes, strained muscles, and back injury from moving heavy objects.
4. Operation of heavy equipment (e.g. backhoe with drum grapppler).
5. Direct skin contact and/ or inhalation of contaminants.

#### **SOPs**

1. Personnel are to be aware of footing as well as heavy equipment operating in the area.
2. Personnel should wear leather gloves and steel-toed boots.
3. Moving and opening drums is to be in accordance with 29 CFR 1910.120 (j).
4. Level B or C respiratory protection should be used when handling drums.

5. All heavy equipment to have backup alarms and ground spotters to assist operators. Eye to eye contact with the operator is to be made before approaching moving equipment.

#### Hazardous and SOPs Associated with Opening Drums and Overpacks Hazards

##### Hazards

1. The presence of air-reactive chemicals.
2. The presence of water-reactive chemicals, particularly when it is raining.
3. Direct skin contact, ingestion, and inhalation of contaminants.
4. Opening drums of unknown waste.
5. Splashing wastes.
6. Cuts from sharp metal edges.
7. Air lines tangled among the drums.
8. Slip/ trip/ fall.
9. Pinch points.
10. Bulging or visually unstable drums.

##### SOPs

1. Open drums and overpacks in Level B respiratory protection.
2. Be alert for bulging drums and chemical reactions.
3. Avoid allowing rain to enter drums.
4. Regular, periodic air monitoring is to be performed with the rad meter, monitor units, HNU and CGI to ensure a safe environment.
5. Keep fire extinguishers in the area.
6. Keep absorbent materials immediately available.
7. If a drum is bulging or difficult to open, use remote opening techniques.
8. Level B will be used when opening unknown drums, and when handling drums that are in poor physical condition.

#### Hazards and SOPs Associated with Drum Staging and Overpacking:

##### Hazards

1. Direct skin contact and inhalation, ingestion threat from hazardous materials.
2. Poor physical condition of drums. Rusty metal and holes indicate a high potential for spills and splashes during drum handling.
3. Routine heavy equipment hazards.
4. Physical hazards associated with drum handling operations - potential for crushed fingers and toes, strained muscles, and back injury from moving/ lifting heavy objects.
5. Operation of heavy equipment (e.g. backhoe with drum grapples).

### SOPs

1. Use of Level B or Level C personal protective equipment. Chemical resistant coveralls, gloves, splash shields, hard hats, and steel-toed boots should be used when handling drums, and in the vicinity of open drums.
2. Keep absorbents and emergency spill materials immediately available in the exclusion zone.
3. Use safe work practices to prevent physical injury.
4. Drums will be staged on a polyethylene-lined containment pad.

### Hazards and SOPs Associated with Compatibility Testing and Composting of Samples:

#### Hazards:

1. Inhalation of hazardous fumes.
2. Mixing incompatible materials.
3. Splashing or spilling samples.

#### SOPs

1. Personnel not involved with compatibility testing procedures should not be in the area.
2. Personnel will wear safety glasses, gloves, and acid shields.
3. Containers should be clearly marked.
4. Chemicals should be added slowly and in small amounts with constant observation.
5. Personnel should evacuate the area in the event of uncontrolled chemical reactions.
6. All compatibility tests will be performed by an on-site chemist.

### \*Hazards and SOPs Associated with Working Around Heavy Equipment:

#### Hazards

1. Equipment movements.
2. Overhead and underground utility lines.
3. Unstable slopes and open pits.

#### SOPs

1. All equipment must have operational backup alarms.
2. Personnel must make eye-to-eye contact with the operator before approaching operating equipment.
3. Operators must be aware of personnel in the area and use proper hand signals when communicating.
4. Operators must use caution when handling containers of hazardous materials.
5. Operators must wear hard hats if the machine does not have an enclosed cab or cage cover.

6. Operators must wear hard hats when going to and from their machines.
7. Ground spotters are to assist heavy machine operators.

#### Hazards and SOPs Associated with Corrosive Liquid Transfer:

##### Hazards

1. Direct skin contact with corrosive materials.
2. Potential for spills or leaks during transfer operations.
3. Potential for chemical reaction from mixing incompatible liquids or from contact with transfer equipment.
4. Potential splashing of corrosive liquids during transfer operations.
5. Slip/ trip/ fall around transfer hoses and equipment.

##### SOPs

1. Wear protective corrosive resistant clothing (e.g., acid suits, splash shields). Be sure gloves and boots are taped to protective clothing. Take precautions to ensure that no skin surfaces are exposed.
2. Wear appropriate level of respiratory protection.
3. Keep absorbents and spill containment materials nearby in the event of a spill or leak.
4. Monitor transfers continuously for changes in conditions (e.g. reactivity, pressure buildup, fire). Personnel monitoring the pumping and receiving vessel must have clear and continuous communication. If necessary, install a remote shutoff on the transfer pump.
5. Make sure the transfer equipment (e.g. hoses, fittings, pumps, and receiving vessels) are compatible with the corrosive material and that they are clean.
6. Be aware of the locations of emergency showers and eye washes, which should be placed nearby during operations.
7. Have an emergency escape route and contingency plan.
8. Be sure that all drums are characterized and adequately and appropriately marked to avoid mixing incompatible materials.
9. Make transfer with caution, remembering that corrosives may react violently, even explosively, with a wide variety of chemicals.
10. Provide adequate ventilation to area of transfer activities.

#### Hazards and SOPs Associated with Flammable/ Combustible Liquid Transfer:

##### Hazards

1. Direct skin contact, inhalation, ingestion.
2. Potential for fire or explosion during transfer.
3. Potential for spills during transfer.
4. Potential for chemical reaction during transfer.
5. Slip/ trip/ fall around transfer hoses and equipment.

### SOPs

1. Use chemical resistant coveralls such as Saranex or butyl rubber when working with flammable/ combustible liquids or when in the vicinity of open liquids.
2. Use Level B respiratory protection when opening tanks, when monitoring intake vacuum hoses when ambient organic concentrations exceed 5 ppm or while engaged in other high hazard/ contact activities.
3. Level C may be sufficient for non-intrusive perimeter activities if ambient concentrations are less than 5 ppm.
4. Keep fire extinguishers in readily accessible locations.
5. Ground or bond the tank and tanker truck prior to beginning transfer operations.
6. Clear the area of all open flames or other ignition sources, and all flammable and combustible materials.
7. Use spark-proof tools and equipment.
8. Keep absorbents and spill containment equipment nearby in the event of a spill or leak.
9. Conduct air monitoring for organics, flammable/ explosive vapors and oxygen as appropriate. Air monitoring equipment can be left in the work area unattended and programmed to sound an alarm if dangerous levels are encountered.
10. Have an emergency escape route planned and a contingency plan in case of an accident.
11. Be sure that all tanks are characterized and appropriately marked to avoid bulking of incompatible tanks.
12. Conduct the transfer with extreme caution, remembering that striking surfaces may cause sparks.

### Hazards and SOPs Associated with Lab Packing and Lab Inventory:

#### Hazards

1. Possible skin contact with leaking bottles.
2. Mixing of incompatible materials.
3. Presence of shock sensitive materials.
4. Sudden release of dangerous vapors.

#### SOPs

1. Wear appropriate personal protective equipment, Level B, (e.g. splash shields, acid suits, hard hats, chemical resistant gloves).
2. Clearly mark containers.
3. Non-essential personnel must be restricted from area.
4. Have appropriate firefighting equipment present.
5. Review information files for possible chemical data.
6. Carefully follow lab packing guidelines specifically for the acceptable disposal facility.

7. Have sorbent materials on hand to quickly clean up any spills.

\*Hazards and SOPs Associated with Soil Excavation (Drilling/ Probing):

Hazards

1. Movement of heavy equipment during soil excavation.
2. Direct skin contact with contaminated soil.
3. Damaging drums while excavating which could release unknown contaminants.
4. Inhalation of contaminated dusts.
5. Loose footing and slip/ trip/ fall hazards.

SOPs

1. Personnel are to be aware of working locations of heavy equipment.
2. All equipment must have operational back-up alarms.
3. Personnel should make eye-to-eye contact with the operator before approaching heavy equipment.
4. Personnel should wear appropriate respiratory equipment.

Hazards and SOPs Associated with Drum Sampling:

Hazards

1. Direct skin contact, ingestion and inhalation of contaminants.
2. Potential for chemical splash and mixing of incompatible materials, air or water reaction.
3. Poor physical condition of drums.
4. Slip/ trip/ fall hazards associated with slick surfaces or high or elevated work areas.

SOPs

1. Use chemical resistant coveralls such as Saranex or butyl rubber during sampling.
2. Use Level B respiratory protection for opening tanks or unknown materials, for sampling solvent tanks, or when ambient organic concentrations exceed 5 ppm.
3. Use Level C respiratory protection for re-sampling known materials and ambient organic concentrations are less than 5 ppm.
4. Keep fire extinguishers immediately available.
5. Keep absorbent materials immediately available.
6. Use a new drum thief to sample each drum or container.
7. Frequent air monitoring will be performed to ensure the quality of the ambient air.
8. If a drum is bulging or difficult to open, use remote opening techniques.

## Hazards and SOPs Associated with the Use of High Pressure Water Cleaner:

### Hazards

1. Body parts being injured/ severed due to high pressure (3,000 psi) water stream.
2. Slip/ trip/ fall associated with water over spray and hose.
3. Control of high pressure nozzle.
4. Exposure to contaminants.

### SOPs

1. Level C will be worn along with splash suit and shield.
2. No hands, feet, arms, or legs will be within three feet of high pressure nozzle.
3. Splash shields and rain protection should be worn over minimum level of protection.
4. Skin and ear protection may be required.
5. Operators are to be aware of other personnel or equipment in the area.
6. No personnel are to hold material being cleaned.

## Hazards Associated with Drum Excavation:

### Hazards

1. Drums may contain unknown hazardous substances.
2. Moving of drums may disturb otherwise intact hazardous materials.
3. Containers may be pressurized and subject to violent release of contents.

### SOPs

1. Containers (other than empty containers) should be moved only by remote mechanical devices.
2. Where applicable polyethylene sheeting shall be placed in such a manner as to contain any spilled material.
3. Containers should not be handled by personnel until the contents and condition of the containers are recognized as safe to handle. (Level B protection applies.)
4. Use OVA or HNU and Radmeter for initial hazard identification of containers.

## \*Hazards and SOPs Associated with Soil/ Groundwater Sampling:

### Hazards

1. Contact with or inhalation of contaminants, potentially in high concentrations in sampling media.
2. Back strain and muscle fatigue due to lifting, shoveling and auguring techniques.
3. Contact with or inhalation of decontamination solutions.
4. Trip/ fall hazards.

### SOPs

1. Proper awareness of chemical contaminants and review of suspected contaminants should be completed. Appropriate PPE should be worn
2. Proper lifting (pre-lift weight assessment, use of legs, multiple personnel) techniques will prevent back stain. Use slow easy motions when shoveling, auguring, and digging to decrease muscle strain.
3. Material Safety Data Sheets for all decon solutions should be included with each Site Health and Safety Plan.
4. As the proposed work activities may include sampling of UIC structures, the Site Safety Officer shall incorporate awareness of trip/ fall hazards into the daily tailgate safety meetings and conduct periodic inspections of the site to identify potential trip/ fall hazards. In addition, following the completion of the daily activities, the Site Safety Officers shall inspect the site for open UIC structures, excavations and other trip/ fall hazards. If identified, the Site Safety Officer will be responsible for having these areas secured.

### Hazards and SOPs Associated with the Use of as High Pressure Washer During Vat Cleaning:

#### Hazards

1. Body parts being injured/ severed due to high pressure water stream.
2. Slip/ trip/ fall associated with water over spray and hose.
3. Control of high pressure nozzle.
4. Vat handling to facilitate cleaning.
5. Exposure to contaminants.

#### SOPs

1. No hands, feet, arms, or legs will be within three feet of high pressure nozzle.
2. Splash shields and rain protection should be worn over minimum level of protection.
3. Operators are to be constantly aware of other personnel/ equipment in the area.
4. Personnel will not hold or be near vats while cleaning with high pressure washer is ongoing. If necessary, vats will be maneuvered with heavy equipment.

### Hazards and SOPs Associated with Compressed Gas Cylinders:

#### Hazards

1. Sudden release of dangerous gases from unknown cylinders.
2. Slip/ trip/ fall from hidden or obstructed cylinders.
3. Possible sudden explosion from ruptured valves.

#### SOPs

1. To the extent possible, initial activities on site will involve locating and clearly marking the location of all unknown cylinders on site.
2. Equipment operators will be assisted by ground spotters when segregating drums and debris and during soil excavation activities.
3. When a damaged or corroded cylinder is found, it should not be moved or handled and extreme caution should be exercised in staying clear of the valve stem.
4. All identified cylinders will be examined and evaluated by an experienced and qualified person prior to moving any cylinders.
5. If a cylinder leaks or ruptures, all personnel will evacuate the area.

#### Hazards and SOPs Associated with Empty Drum Crushing:

##### Hazards

1. General hazards associated with heavy equipment operations.
2. Slip/ trip/ fall hazards.
3. Physical contact from splashing of any residual material that remains in drums.
4. Physical contact from flying metal pieces.

##### SOPs

1. Wear hard hats, face shields, safety goggles, and steel toed work boots at all times.
2. All personnel not necessary for the operation of equipment should stay clear of drum crushing activities.
3. Equipment operators are to be constantly aware of all other personnel/ equipment in the area during operation.



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# **Appendix G**

## **Chemical Hazards**

## MSDS SUMMARY SHEET

**Manufacturer:**

**Name:** PHILLIPS PETROLEUM COMPANY

**Address 1:**

**Address 2:**

**Address 3:**

**CSZ:** BARTLESVILLE **State:** OK **Zipcode:** 74004

**Emergency phone:** (800) 424-9300

**Business phone:** 800-762-0942

**Product:**

**Ferndale MSDS#:** 1354 **Version #:** 6

**Manufacturer MSDS#:** 0041

**Current? :** 2002

**Name:**

**NO. 2 DIESEL FUEL**

**Synonyms:**

CARB Diesel TF3

CARB Diesel

CARB Diesel 10%

Diesel Fuel Oil

EPA Low Sulfur Diesel Fuel

EPA Low Sulfur Diesel Fuel – Dyed

EPA Off Road High Sulfur Diesel – Dyed

Fuel Oil No. 2 – CAS # 68476-30-2

No. 2 Diesel Fuel Oil

No. 2 Fuel Oil – Non Hiway – Dyed

No. 2 High Sulfur Diesel – Dyed

No. 2 Low Sulfur Diesel - Dyed

No. 2 Low Sulfur Diesel - Undyed

Crude column 3<sup>rd</sup> IR

Crude column 3<sup>rd</sup> side cut

Atmospheric tower 3<sup>rd</sup> side cut

Ultra Low Sulfur Diesel No. 2

Finished Diesel

DHT Reactor Feed

Straight Run Diesel

Diesel

Middle Distillate

**Product/Catalog Numbers:**

**MSDS Date:** 01/01/2002 (received: 01/14/2002)

**NFPA codes:**

**Health:** 0 **Flammability:** 2 **Reactivity:** 0

**MATERIAL SAFETY DATA SHEET**  
**No. 2 Diesel Fuel**

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** No. 2 Diesel Fuel  
**Product Code:** Multiple  
**SAP Code:**  
**Synonyms:** 1354  
CARB Diesel TF3  
CARB Diesel  
CARB Diesel 10%  
Diesel Fuel Oil  
EPA Low Sulfur Diesel Fuel  
EPA Low Sulfur Diesel Fuel – Dyed  
EPA Off Road High Sulfur Diesel – Dyed  
Fuel Oil No. 2 – CAS # 68476-30-2  
No. 2 Diesel Fuel Oil  
No. 2 Fuel Oil – Non Hiway – Dyed  
No. 2 High Sulfur Diesel – Dyed  
No. 2 Low Sulfur Diesel - Dyed  
No. 2 Low Sulfur Diesel – Undyed  
No. 2 Ultra Low Sulfur Diesel – Dyed  
No. 2 Ultra Low Sulfur Diesel - Undyed  
Fuel

**Intended Use:**

**Chemical Family:**

**Responsible Party:** Phillip's Petroleum Company  
Bartlesville, Oklahoma 74004

**For Additional MSDSs:** 800-762-0942

**Technical Information:**

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

**EMERGENCY OVERVIEW**

**24 Hour Emergency Telephone Numbers:**

Spill, Leak, Fire or Accident

California Poison Control System: 800-356-3120

Call CHEMTREC

North America: (800) 424-9300

Others: (703) 527-3887 (collect)

**Health Hazards/Precautionary Measures:** Causes severe skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

**Physical Hazards/Precautionary Measures:** Flammable liquid and vapor. Keep away from heat, sparks, flames, static electricity or other sources of ignition.

**Appearance:** Straw-colored to dyed red  
**Physical Form:** Liquid  
**Odor:** Characteristic petroleum

**HFWA Hazard Class:**

Health: 0 (Least)  
 Flammability: 2 (Moderate)  
 Reactivity: 0 (Least)

**HMIS Hazard Class**

Not Evaluated

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>HAZARDOUS COMPONENTS</u>	<u>% VOLUME</u>	<u>EXPOSURE GUIDELINE</u>		
		<u>Limits</u>	<u>Agency</u>	<u>Type</u>
Diesel Fuel No. 2 CAS# 68476-34-6	100	100* mg/m3	ACGIH	TWA-SKIN
Naphthalene CAS# 91-20-3	<1	10ppm	ACGIH	TWA
		15ppm	ACGIH	STEL
		10ppm	OSHA	TWA
		250ppm	NIOSH	IDLH

All components are listed on the TSCA inventory

Tosco Low Sulfur No. 2 Diesel meets the specifications of 40 CFR 60.41 for low sulfur diesel fuel.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

\*Proposed ACGIH (1999)

**3. HAZARDS IDENTIFICATION**

**Potential Health Effects:**

**Eye:** Contact may cause mild eye irritation including stinging, watering, and redness.

**Skin:** Severe skin irritant. Contact may cause redness, itching, burning, and severe skin damage. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin, leading to dermatitis (inflammation). Not actually toxic by skin absorption, but prolonged or repeated skin contact may be harmful (see Section 11).

**Inhalation (Breathing):** No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

**Ingestion (Swallowing):** Low degree of toxicity by ingestion. **ASPIRATION HAZARD** – This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

**Signs and Symptoms:** Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, diarrhea and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

**Cancer:** Possible skin cancer hazard (see Sections 11 and 14).

**Target Organs:** There is limited evidence from animal studies that overexposure may cause injury to the kidney (see Section 11).

**Developmental:** Inadequate data available for this material.

**Pre-Existing Medical Conditions:** Conditions aggravated by exposure may include skin disorders and kidney disorders.

#### 4. FIRST AID MEASURES

**Eye:** If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

**Skin:** Immediately remove contaminated shoes, clothing, and constrictive jewelry and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek immediate medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops, seek immediate medical attention.

**Inhalation (Breathing):** If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

**Ingestion (Swallowing):** Aspiration hazard; Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

#### 5. FIRE FIGHTING MEASURES

**Flammable Properties:**

Flash Point: >125°F/>52°  
OSHA Flammability Class: Combustible liquid  
LEL %: 0.3 / UEL %; 10.0  
Autoignition Temperature: 500°F/260°C

**Unusual Fire & Explosion Hazards:** This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

**Extinguishing Media:** Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

**Fire Fighting Instructions:** For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

## **6. ACCIDENTAL RELEASE MEASURES**

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

## **7. HANDLING AND STORAGE**

**Handling:** Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharged. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing or high pressure hydraulic oil equipment.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSIZ49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

**Storage:** Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Engineering controls:** If current ventilation practices are not adequate to maintain airborne concentration below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

**Personal Protective Equipment (PPE):**

**Respiratory:** A NIOSH certified air purifying respirator with an organic vapor cartridge may be used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrants a respirator's use.

**Skin:** The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, apron and/or arm covers may be necessary.

**Eyes/Face:** Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

**Other Protective Equipment:** Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1atm).

Appearance: Straw-colored to dyed red

Physical State: Liquid

Odor: Characteristic petroleum

pH: unavailable

Vapor Pressure (mm Hg): 0.40

Vapor Density (air=1): >3

Boiling Point/Range: 320-700°F / 160-371°C

Freezing/Melting Point: No Data

Solubility in Water: Negligible

Specific Gravity: 0.81-0.88 @ 60°F

Percent Volatile: Negligible

Evaporation Rate (nBuAc=1): <1

Viscosity: 32.6-40.0 SUS @ 100°F

Bulk Density: 7.08 lbs/gal

Flash Point: >125°F / >52°C

Flammable/Explosive Limits (%): LEL: 0.3 / UEL: 10.0

**10. STABILITY AND REACTIVITY**

**Stability:** Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

**Conditions To Avoid:** Avoid all possible sources of ignition (see Sections 5 and 7).

**Materials to Avoid (Incompatible Materials):** Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

**Hazardous Decomposition Products:** The use of hydrocarbon fuels in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. ACGIH has included a TLV of 0.05 mg/m<sup>3</sup> TWA for diesel exhaust particulate on its 1999 Notice of Intended Changes. See Section 11 for additional information on hazards of engine exhaust.

**Hazardous Polymerization:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

### Diesel Fuel No. 2 (CAS# 68476-34-6)

**Carcinogenicity:** Chronic dermal application of certain middle distillate streams contained in diesel fuel No. 2 resulted in an increased incidence of skin tumors in mice. This material has not been identified as carcinogen by NTP, IARC, or OSHA. Diesel exhaust is a probable cancer hazard based on tests with laboratory animals.

**Target Organ(s):** Limited evidence of renal impairment has been noted from a few case reports involving excessive exposure to diesel fuel No. 2.

### Naphthalene (CAS# 91-20-3)

**Carcinogenicity:** Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has not been identified as a carcinogen by IARC or OSHA.

## 12. ECOLOGICAL INFORMATION

Not evaluated at this time

## 13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic(s) of ignitability (D001) and benzene (D018). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container insate? could be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller containers, consult with state and local regulations and disposal authorities.

## 14. TRANSPORT INFORMATION

**DOT Shipping Description:** Diesel Fuel, NA1983  
**Non-Bulk Package Marking:** Diesel Fuel, 3, NA 1993, III

### 15. REGULATORY INFORMATION

**EPA SARA 311/312 (Title III Hazard Categories):**

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

**SARA 313 and 40 CFR 372:**

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

Component	CAS Number	Weight %
-----------	------------	----------

-- None known --

**California Proposition 65:**

**Warning:** This material contains the following chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Effect
Benzene	Cancer, Developmental and Reproductive Toxicant
Toluene	Developmental Toxicant

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

**Carcinogen Identification:**

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any. Diesel exhaust is a probable cancer hazard based on tests in laboratory animals. It has been identified as carcinogen by IARC.

**EPA (CERCLA Reportable Quantity): None**

### 16. OTHER INFORMATION

Issue Date: 01/01/02

Previous Issue Date: 05/15/01

Product Code: Multiple

Revised Sections: None

Previous Product Code: Multiple

MSDS Number: 0041

**Disclaimer of Expressed and Implied Warranties:**

The information presented in this Material Data Safety Sheet is based on data believed to be accurate as of the date this Material Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THE PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

**Tosco Refining Company**

**Ferndale Refinery**

**UltraLow Sulfur Diesel Product Specification**

Ferndale Product Code:34380xx (5) Product Code: ULSD2

**(COMETS)**

Specification	Unit	Limit	Test Procedure	Typical
Appearance Water & Sediment Color Haze Rating	Vol % Number Rating	0.05 Max 3.0 Max 2 Max	D 2709 D 1500 D 4176	
Composition Carbon Residue (Ramsbottom)	Wt %	0.35 Max	D 524, D 189	
Volatility 90% Recovered  Flash Point Gravity	Deg; F Deg; F Deg; F API	540 Min 640 Min 125 Min (1) 30 Min	D 86 D 86 D 93 D 287, D4052	130 F
Fluidity Pour Point Cloud Point Viscosity @ 104F	Deg; F Deg; F cSt cSt	See Season Table (6) See Season Table (6) 1.9 Min 4.1 Max	D 97 D 2500 D 445 D 445	10 F
Lubricity, SLBOCLE	grams	3100 Min	D 6078	3300gm
Lubricity, HFRR	mm	.45	D 6079	
Combustion Cetane Index or Cetane Number (3,4)	Number	40.0 Min	D.976, D613	47.0
Corrosion Copper Strip, 3hr @ 50 deg C	Number	3 Max (2)	D 130	
Aromatics (4)	Vol %	35 Max	D 1319	25 %
Contaminants Total Sulfur Water & Sediment Ash	PPM Vol % Wt %	30 Max 0.05 Max 0.01 Max	D 2622, D4294 D 1796 D 482	15-20ppm
Additives Cetane Improver Dye	Lb/MBbl	675 Max Undyed		

1. Minimum release specification is 125 deg. F. The refinery should target 135 deg. F.
2. Test result reported as a number and letter (e.g. 1a). Any letter is allowable as long as the number meets the spec shown.
3. Either specification must be met.
4. Either cetane index minimum or aromatics maximum must be met.
5. Winter cloud and pour specifications may be relaxed to the summer specifications by agreement with the customer.
6. Season Table

Month	Product Code	Pour Point	Cloud Point
Jan, Feb, Nov, Dec	WI	0 max (5)	14 max (5)
Mar - Oct	SU	15 max	24 max

Cover Sheet

REV	REVISION DESCRIPTION	BY	DATE	CHK	REL. NO.	DWN BY	J. Pittman
C	Revision	JAP	6/25/04		040265	ENGR	J. Moczy
B	Revision	MD	04/02/03	JM	030200	ENGR SIG	P. Hendrix
A	New format and numbering system	C. Bills	5/24/00	---	990544	HR SIG	J. Moczy
-	Formal Release	C. Bills	6-26-07	---	970446	QA SIG	A. Dovin
						ES SIG	K. Massengill


  
 INSTRUMENT CORPORATION
   
 ONE MICROMERITICS DR.
   
 NORCROSS, GA 30093-1877 U.S.A.

MSDS
   
 HYDRAULIC FLUID OD-15-10
   
 (1-L)

SIZE	NUMBER	PAGE
A	920/16002/00MSDS	X of 3

# Micromeritics Material Safety Data Sheet

Title : HYDRAULIC FLUID OD-15-10(1-L)  
Date of Preparation : 06/25/04

MSDS No. : 920/16002/00MSDS  
Revision : C

## Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** HYDRAULIC FLUID OD-15-10

**Chemical Formula:** Blend

**CAS Number:** n/a

**Other Designations:**

**General Use:**

**Supplier:** Micromeritics Instrument Corp.  
1 Micromeritics Dr.  
Norcross, GA 30093-1877 USA

**Contact:** Human Resources  
Phone: (770) 662-3620  
Fax: (770) 662-3696

**Manufacturer:** Sun Company, Inc. Ten Penn Center 1801 Market St. Philadelphia, PA 19103-1699  
(770) 662-3678

## Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% vol
Severely solvent refined heavy paraffinic petroleum oil	64741-88-4	90-100
Zinc dialkyl Dithiophosphats	68649-42-3	0-1
Butylated Phenol	n/a	0-1
Calcium Sulfonate	61789-86-4	0-1
Acrylic Copolymer	68171-46-0	0-1
2-Ethylhexanol	104-76-7	0-1

### Trace Impurities:

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
Severely solvent refined heavy paraffinic petroleum oil	5mg/m <sup>3</sup>	-	5mg/m <sup>3</sup>	-	n/a	n/a	n/a
Zinc dialkyl Dithiophosphats	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Butylated Phenol	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Calcium Sulfonate	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Acrylic Copolymer	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2-Ethylhexanol	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Additional exposure limits: Oil Mist	5mg/m <sup>3</sup>		5mg/m <sup>3</sup>				

## Section 3 - Hazards Identification

### ☆☆☆☆ Emergency Overview ☆☆☆☆

### Potential Health Effects

**Primary Entry Routes:** Skin

**Effects of Overexposure:**

**Inhalation:** No effects expected

**Eye:** Contact with the eye may cause minimal irritation.

**Skin:** Practically non-toxic if absorbed (LD50 greater than 2000 mg/kg). May cause mild irritation with prolonged or repeated contact.

**Ingestion:** Practically non-toxic (LD50 > 15g/Kg).

### HMIS

H 1

F 1

R 0

PPET†

†Sec. 8

**Section 4 - First Aid Measures**

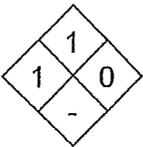
**Inhalation:** Move person to fresh air.  
**Eye:** Flush with water.  
**Skin:** Wash with soap and water until no odor remains. Wash clothing before reuse.  
**Swallowing:** Practically non-toxic. Induction of vomiting not required. Obtain emergency medical attention. Small amounts which accidentally enter mouth should be rinsed out until taste of it is gone.

**Other Information: Warning!!** High pressure injection of oil through the skin is a medial emergency. There may be no sign of injury and no initial pain. This oil must be removed completely by a physician. Failure to obtain immediate treatment has resulted in loss of a finger, hand or arm.  
 WHMIS Classification: Not controlled.

**Section 5 - Fire-Fighting Measures**

**Flash Point:** 380°F (192°C)  
**Flash Point Method:** COC  
**Extinguishing Media:** Water spray, regular foam, dry chemical, carbon dioxide.  
**Unusual Fire or Explosion Hazards:** n/a  
**Fire-Fighting Procedures:** Wear self-contained breathing apparatus. Wear structural firefighters protective clothing.

NFPA



**Section 6 - Accidental Release Measures**

**Spill /Leak Procedures:** n/a

**Section 7 - Handling and Storage**

**Handling/ Storage Requirements:** n/a

**Section 8 - Exposure Controls / Personal Protection**

N/A

**Section 9 - Physical and Chemical Properties**

<b>Appearance and Odor:</b> clear fluid, little odor	<b>Water Solubility:</b> nil
<b>Odor Threshold:</b> n/a	<b>Other Solubilities:</b> n/a
<b>Vapor Pressure:</b> <0.0001 (mm Hg at 20 °C)	<b>Boiling Point:</b> n/a
<b>Vapor Density (Air=1):</b> 10 +	<b>Melting Point:</b> n/a
<b>Formula Weight:</b> n/a	<b>Viscosity:</b> 165 sus @ 100°F. 32.0 CST @ 40 °C.
<b>Density:</b> n/a	<b>% Volatile:</b> n/a
<b>Specific Gravity (H<sub>2</sub>O=1, at 4 °C):</b> 0.87	<b>Evaporation Rate:</b> 1000X slower (ethyl ether = 1)

**Section 10 - Stability and Reactivity**

**Stability:** HYDRAULIC FLUID OD-15-10 is stable.  
**Polymerization:** Hazardous polymerization will not occur.  
**Chemical Incompatibilities:** Strong oxidizers.  
**Conditions to Avoid:** n/a  
**Hazardous Decomposition Products:** Combustion will produce carbon monoxide, oxides of sulfur and asphyxiants.

**Section 11 - Toxicological Information**

n/a

**Section 12 - Ecological Information**

Ecotoxicity: n/a

**Section 13 - Disposal Considerations**

Disposal: n/a

**Section 14 - Transport Information**

n/a

**Section 15 - Regulatory Information**

n/a

**Section 16 - Other Information**

Prepared By: C. Bills

Revision Notes:

Disclaimer:

## MATERIAL SAFETY DATA SHEET

**NAME:** DURACELL PROCELL PROFESSIONAL ALKALINE BATTERIES

**CAS NO:** Not applicable

**Effective Date:** 11/06/2003 **Rev:** 3

A. — IDENTIFICATION		
Manganese Dioxide (1313-13-9) Zinc (7440-66-6) Potassium Hydroxide (35%) (1310-58-3) Graphite, natural (7782-42-5) or synthetic (7440-44-0)	% 35-40 10-25 5-10 1-5	Formula: Mixture Mixture Molecular Weight: NA Synonyms: Procell Alkaline Manganese Dioxide Batteries: PC1300 (D); PC1400 (C); PC1500 (AA); PC2400 (AAA); PC903 (Lantern); PC908 (6V); PC915 (6V); PC918 (6V); PC1604 (9V); PC9100 (N); PC7K67 (J) and batteries comprised of these cells.
B. — PHYSICAL DATA		
Boiling Point NA °F NA °C	Melting Point NA °F NA °C	Freezing Point NA °F NA °C
Specific Gravity (H <sub>2</sub> O=1) NA	Vapor Density (air=1) NA	Vapor Pressure @ _____ °F NA mm Hg
Evaporation ( _____ Ether =1) NA	Saturation in Air (by volume @ _____ °F) NA	Autoignition Temperature _____ °F _____ °C NA
% Volatiles NA	Solubility in Water NA	pH NA
Appearance/Color Cylindrical batteries. Contents dark in color.		
Flash Point and Test Method(s) NA		
Flammable Limits in Air (% by volume) Lower NA % Upper NA %		
C. — REACTIVITY		
Stability <input checked="" type="checkbox"/> stable <input type="checkbox"/> unstable	Polymerization <input type="checkbox"/> may occur <input checked="" type="checkbox"/> will not occur	
<u>Conditions to Avoid</u> Do not heat, crush, disassemble, short circuit or recharge.	<u>Conditions to Avoid</u> Not applicable	
<u>Incompatible Materials</u> Contents incompatible with strong oxidizing agents.	<u>Hazardous Decomposition Products</u> Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapors of potassium hydroxide and other toxic by-products.	
* IF MULTIPLE INGREDIENTS, INCLUDE CAS NUMBERS FOR EACH NA=NOT AVAILABLE		
<u>Footnotes</u> Not applicable		

**D. — HEALTH HAZARD DATA**

Occupational Exposure Limits PEL's, TLV's, etc.)

**8-Hour TWAs:**Manganese Dioxide (as Mn) - 5.0 mg/m<sup>3</sup> (Ceiling) (OSHA); 0.2 mg/m<sup>3</sup> (ACGIH/Gillette)Potassium Hydroxide - 2 mg/m<sup>3</sup> (Ceiling) (ACGIH)Graphite (all kinds except fibrous) - 2 mg/m (ACGIH; (synthetic); 15 mg/m (total, OSHA);  
5 mg/m (respirable, OSHA)

These levels are not anticipated under normal consumer use conditions.

## Warning Signals

Not applicable

## Routes/Effects of Exposure

These chemicals and metals are contained in a sealed can. For consumer use, adequate hazard warnings are included on both the package and on the battery: Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Contains concentrated (~35%) potassium hydroxide, which is caustic. Anticipated potential leakage volume of potassium hydroxide is 2 to 20 ml, depending on size. A similar amount of zinc may also leak.

1. Inhalation      Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries.
2. Ingestion      Not anticipated due to size of batteries; choking may occur with the smaller AAA battery. Irritation, including caustic burns/injury, may occur following exposure to a leaking battery.
3. Skin
  - a. Contact  
Irritation, including caustic burns/injury, may occur following exposure to a leaking battery
  - b. Absorption  
Not anticipated.
4. Eye Contact    Irritation, including caustic/burns/injury, may occur following exposure to a leaking battery.
5. Other            Not applicable

**E. — ENVIRONMENTAL IMPACT**

1. Applicable Regulations    All ingredients listed in TSCA inventory.
2. DOT Hazard Class -        Not applicable
3. DOT Shipping Name -      Not applicable  
Please note: These batteries are not regulated by U. S. DOT or international agencies as hazardous materials or dangerous goods when shipped. Duracell uses the article name 'Alkaline Batteries - Non-hazardous ' on all domestic and internal bills of lading.

## Environmental Effects

These batteries pass the U. S. EPA's Toxicity Characteristic Leaching Procedure and therefore, may be disposed of with normal waste.

**F. — EXPOSURE CONTROL METHODS**

## Engineering Controls

General ventilation under normal use conditions.

## Eye Protection

None under normal use conditions. Wear safety glasses when handling leaking batteries.

## Skin Protection

None under normal use conditions. Use neoprene, rubber or latex-nitrile gloves when handling leaking batteries.

## Respiratory Protection

None under normal use conditions.

## Other

Keep batteries away from small children.

**G. — WORK PRACTICES**

## Handling and Storage

Store at room temperature. Avoid mechanical or electrical abuse. **DO NOT** short or install incorrectly. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

## Normal Clean Up

Not applicable

## Waste Disposal Methods

Individual consumers may dispose of spent (used) batteries with household trash. Duracell does not recommend that spent batteries be accumulated (quantities of five gallons or more should be disposed of in a secure landfill), in accordance with appropriate federal, state and local regulations. Do not incinerate, since batteries may explode at excessive temperatures.

**H — EMERGENCY PROCEDURES**

Steps to be taken if material is released to the environment or spilled in the work area

Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapors. Increase ventilation. Clean-up personnel should wear appropriate protective gear.

**Fire and Explosion Hazard**

Batteries may burst and release hazardous decomposition products when exposed to a fire situation. See Sec. C.

**Extinguishing Media**

As appropriate for surrounding area.

**Firefighting Procedures**

Use self-contained breathing apparatus and full protective gear.

**I — FIRST AID AND MEDICAL EMERGENCY PROCEDURES****Eyes**

Not anticipated. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for 30 minutes. Contact physician at once.

**Skin**

Not anticipated. If battery is leaking, irrigate exposed skin with copious amount of clear, tepid water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

**Inhalation**

Not anticipated. If battery is leaking, contents may be irritating to respiratory passages. Remove to fresh air. Contact physician if irritation persists.

**Ingestion**

Not anticipated. Rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. Consult a physician immediately for treatment and to rule out involvement of the esophagus and other tissues.

**Notes to Physician**

- 1) The primary acutely toxic ingredient is concentrated potassium hydroxide (approximately 35%).
- 2) Anticipated potential leakage volume of potassium hydroxide is 2-20 ml, depending on size.
- 3) This MSDS does not include or address the small button or cell batteries which can be ingested.

**ADDITIONAL INFORMATION**

Replaces 2013.2

This MSDS covers discontinued Product No. PC926

The information contained in the Material Safety Data Sheet is based on data considered to be accurate, however, no warranty is expressed or implied regarding the accuracy of the data or the results to be obtained from the use thereof.

# GP Batteries

## Material Safety Data Sheet

Model No.: GP110AFH

Document Number: ZRS2089

Revision: 1

Page 1 of 4

IDENTITY (As Used on Label and List) Note: Blank spaces are not permitted if any item is not applicable or no information is available, the space must be marked to indicate that.

### Section I – Information of Manufacturer

Manufacturer's Name GPI International Ltd.	Emergency Telephone Number
Address (Number, Street, City State, and ZIP Code) 8/F GP Building, 30 Kwai Wing Road, Kwai Chung, N.T. H.K.	Telephone Number for information 852-2484-3333
	Date of prepared and revision January 15, 2004
	Signature of Preparer (optional)

### Section II - Hazardous Ingredients / Identity Information

#### Hazardous Components:

Description:	Approximate % of total weight	
Ni(OH) <sub>2</sub> (Nickel Hydroxide)	19.65	Wt%
30% KOH soln	9.11	Wt%
Mercury	< 5	ppm
Lead	Nil	
Cadmium	Nil	

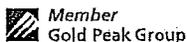
### Section III - Physical / Chemical Characteristics

Boiling Point N.A.	Specific Gravity (H <sub>2</sub> O=1) N.A.
Vapor Pressure (mm Hg) N.A.	Melting Point N.A.
Vapor Density (AIR=1) N.A.	Evaporation Rate (Butyl Acetate) N.A.
Solubility in Water N.A.	
Appearance and Odor	Cylindrical Shape, odorless

### Section IV – Hazard Classification

#### Classification

N.A.



Manufacturer reserves the right to alter or amend the design, model and specification without prior notice.

# GP Batteries

## Material Safety Data Sheet

Model No.: GP110AFH

Document Number: ZRS2089

Revision: 1

Page 2 of 4

### Section V – Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

### Section VI - Health Hazard Data

Route(s) of Entry	Inhalation?	Skin?	Ingestion?
	N.A.	N.A.	N.A.

Health Hazard (Acute and Chronic) / Toxicological information

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause severe irritation and chemical burns.

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

### Section VII – First Aid Measures

First Aid Procedures

If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately.

If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.

If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

### Section VIII - Fire and Explosion Hazard Data

Flash Point (Method Used)	Ignition Temp.	Flammable Limits	LEL	UEL
N.A.	N.A.	N.A.	N.A.	N.A.

Extinguishing Media

Carbon Dioxide, Dry Chemical or Foam extinguishers

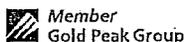
Special Fire Fighting Procedures

N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire - may explode.

Do not short-circuit battery - may cause burns.



Manufacturer reserves the right to alter or amend the design, model and specification without prior notice.

# GP Batteries

## Material Safety Data Sheet

Model No.: GP110AFH

Document Number: ZRS2089

Revision: 1

Page 3 of 4

### Section IX – Accidental Release or Spillage

#### Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

### Section X – Handling and Storage

#### Safe handling and storage advice

Batteries should be handled and stored carefully to avoid short circuits.

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.

Never disassemble a battery.

Do not breathe cell vapors or touch internal material with bare hands.

Keep batteries between -30°C and 35°C for prolong storage.

### Section XI – Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP

N.A.

STEP

N.A.

Respiratory Protection (Specify Type)

N.A.

Ventilation

Local Exhausts

N.A.

Special

N.A.

Mechanical (General)

N.A.

Other

N.A.

Protective Gloves

N.A.

Eye Protection

N.A.

Other Protective Clothing or Equipment

N.A.

Work / Hygienic Practices

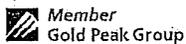
N.A.

### Section XII – Ecological Information

N.A.

### Section XIII – Disposal Method

Dispose of batteries according to government regulations.



Manufacturer reserves the right to alter or amend the design, model and specification without prior notice.

# GP Batteries

**Material Safety Data Sheet**

**Model No.: GP110AFH**

Document Number: ZRS2089

Revision: 1

Page 4 of 4

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## Section XIV – Transportation Information

GP batteries are considered to be "Dry cell" batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special provision 130 which states: "Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (For example, by the effective insulation of exposed terminals). As of 1/1/97 IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting.

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## Section XV – Regulatory Information

Special requirement be according to the local regulatory.

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## Section XVI – Other Information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.

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## Section XVII – Measures for fire extinction

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.

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# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

### EMERGENCY OVERVIEW

#### DANGER!

**EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT  
- EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF  
SWALLOWED - ASPIRATION HAZARD**



NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

### 1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-04)

Amerada Hess Corporation  
1 Hess Plaza  
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):

CHEMTREC (800)424-9300

COMPANY CONTACT (business hours):

Corporate Safety (732)750-6000

MSDS Internet Website:

[www.hess.com/about/envIRON.html](http://www.hess.com/about/envIRON.html)

**SYNONYMS:** Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

### 2. COMPOSITION and INFORMATION ON INGREDIENTS \* (rev. Jan-04)

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

### 3. HAZARDS IDENTIFICATION (rev. Dec-97)

#### EYES

Moderate irritant. Contact with liquid or vapor may cause irritation.

#### SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

#### INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

#### INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**WARNING:** the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

#### CHRONIC EFFECTS and CARCINOGENICITY

Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

#### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

### 4. FIRST AID MEASURES (rev. Dec-97)

#### EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

#### SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

#### INGESTION

**DO NOT INDUCE VOMITING.** Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

#### INHALATION

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

### 5. FIRE FIGHTING MEASURES (rev. Dec-97)

#### FLAMMABLE PROPERTIES:

FLASH POINT: -45 °F (-43°C)  
AUTOIGNITION TEMPERATURE: highly variable; > 530 °F (>280 °C)  
OSHA/NFPA FLAMMABILITY CLASS: 1A (flammable liquid)  
LOWER EXPLOSIVE LIMIT (%): 1.4%  
UPPER EXPLOSIVE LIMIT (%): 7.6%

#### FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

#### EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

#### FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

### 6. ACCIDENTAL RELEASE MEASURES (rev. Dec-97)

#### ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

**Gasoline, All Grades**

**MSDS No. 9950**

vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

### 7. HANDLING and STORAGE (rev. Dec-97)

#### HANDLING PRECAUTIONS

\*\*\*\*\*USE ONLY AS A MOTOR FUEL\*\*\*\*\*

\*\*\*\*\*DO NOT SIPHON BY MOUTH\*\*\*\*\*

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

#### STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

#### WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

### 8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-04)

#### EXPOSURE LIMITS

Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Exposure Limits	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3	
Benzene (71-43-2)	OSHA	1	5	Carcinogen	
	ACGIH	0.5	2.5	A1, skin	
	USCG	1	5		
n-Butane (106-97-8)	ACGIH	800	--	2003 NOIC: 1000 ppm (TWA) Aliphatic Hydrocarbon Gases Alkane (C1-C4)	
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--		
	ACGIH	1000	--	A4	
Ethyl benzene (100-41-4)	OSHA	100	--		
	ACGIH	100	125	A3	

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

**Gasoline, All Grades**

**MSDS No. 9950**

Component (CAS No.)	Source	Exposure Limits		Note
		TWA (ppm)	STEL (ppm)	
n-Hexane (110-54-3)	OSHA ACGIH	500 50	--	skin
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	ACGIH	50	--	A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA ACGIH	200 50	--	Ceiling: 300 ppm; Peak: 500 ppm (10 min.) A4 (skin)
1,2,4-Trimethylbenzene (95-63-6)	ACGIH	25	--	
Xylene, mixed isomers (1330-20-7)	OSHA ACGIH	100 100	-- 150	A4

### ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

### EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

### SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of E.I. DuPont Tychem®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

### RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

## 9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jan-04)

### APPEARANCE

A translucent, straw-colored or light yellow liquid

### ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

### ODOR THRESHOLD

	<u>Odor Detection</u>	<u>Odor Recognition</u>
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

### BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	0.70 - 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

SOLUBILITY (H<sub>2</sub>O): Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

### 10. STABILITY and REACTIVITY (rev. Dec-94)

**STABILITY:** Stable. Hazardous polymerization will not occur.

#### CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

#### INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

#### HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

### 11. TOXICOLOGICAL PROPERTIES (rev. Dec-97)

#### ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg

Acute Oral LD50 (rat): 18.75 ml/kg

Primary dermal irritation (rabbits): slightly irritating

Draize eye irritation (rabbits): non-irritating

Guinea pig sensitization: negative

#### CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO

IARC: YES - 2B

NTP: NO

ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

### 12. ECOLOGICAL INFORMATION (rev. Jan-04)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API ([www.api.org](http://www.api.org)) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

### 13. DISPOSAL CONSIDERATIONS (rev. Dec-97)

Consult federal, state and local waste regulations to determine appropriate disposal options.

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

**Gasoline, All Grades**

**MSDS No. 9950**

**14. TRANSPORTATION INFORMATION (rev. Jan-04)**

DOT PROPER SHIPPING NAME: Gasoline  
 DOT HAZARD CLASS and PACKING GROUP: 3, PG II  
 DOT IDENTIFICATION NUMBER: UN 1203  
 DOT SHIPPING LABEL: FLAMMABLE LIQUID

PLACARD:



**15. REGULATORY INFORMATION (rev. Jan-04)**

**U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION**

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

**CLEAN WATER ACT (OIL SPILLS)**

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

**CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)**

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

**SARA SECTION 311/312 - HAZARD CLASSES**

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	X	--	--

**SARA SECTION 313 - SUPPLIER NOTIFICATION**

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents ([www.epa.gov/tri](http://www.epa.gov/tri)) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

### CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

### 16. OTHER INFORMATION (rev. Jan-04)

**NFPA® HAZARD RATING**

HEALTH:	1	Slight
FIRE:	3	Serious
REACTIVITY:	0	Minimal

**HMIS® HAZARD RATING**

HEALTH:	1*	Slight
FIRE:	3	Serious
REACTIVITY:	0	Minimal

\* CHRONIC

**SUPERSEDES MSDS DATED:** 12/30/97

### ABBREVIATIONS:

AP = Approximately    < = Less than    > = Greater than  
N/A = Not Applicable    N/D = Not Determined    ppm = parts per million

### ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
AIHA	American Industrial Hygiene Association	OPA	Oil Pollution Act of 1990
ANSI	American National Standards Institute (212)642-4900	OSHA	U.S. Occupational Safety & Health Administration
API	American Petroleum Institute (202)682-8000	PEL	Permissible Exposure Limit (OSHA)
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	RCRA	Resource Conservation and Recovery Act
DOT	U.S. Department of Transportation [General Info: (800)467-4922]	REL	Recommended Exposure Limit (NIOSH)
EPA	U.S. Environmental Protection Agency	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
HMIS	Hazardous Materials Information System	SCBA	Self-Contained Breathing Apparatus
IARC	International Agency For Research On Cancer	SPCC	Spill Prevention, Control, and Countermeasures
MSHA	Mine Safety and Health Administration	STEL	Short-Term Exposure Limit (generally 15 minutes)
NFPA	National Fire Protection Association (617)770-3000	TLV	Threshold Limit Value (ACGIH)
NIOSH	National Institute of Occupational Safety and Health	TSCA	Toxic Substances Control Act
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	TWA	Time Weighted Average (8 hr.)
		WEEL	Workplace Environmental Exposure Level (AIHA)
		WHMIS	Workplace Hazardous Materials Information System (Canada)

### DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.



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# **Appendix H**

## **Confined Space Entry Checklist/ Permit**

**NON-PERMIT REQUIRED CONFINED SPACE  
PRE-ENTRY/ENTRY CHECK LIST**

Date and Time:  
 Issued By:  
 Job Site:  
 Work to Be Performed:

Date and Time Expire:  
 Excavation Number:  
 Job Supervisor:  
 Work to Be Performed:

Pre-Entry (See Safety Procedures)

1. Atmospheric Checks: Time:  
 Oxygen: %  
 Explosive: % LEL

1. Entry, standby, and backup persons Yes No  
 Successfully completed required training? ( ) ( )  
 Is it current? ( ) ( )

2. Source Isolation (No Entry): N/ A Yes No

Pumps or lines blinded,  
 disconnected or blocked ( ) ( ) ( )

3. Ventilation Modification N/ A Yes No

Mechanical ( ) ( ) ( )

Natural Ventilation Only ( ) ( ) ( )

3. Equipment: N/ A Yes No

Direct reading gas monitor-tested ( ) ( ) ( )

Safety harnesses and life-lines for entry  
 and standby persons? ( ) ( ) ( )

Hoisting Equipment? ( ) ( ) ( )

Powered Communications? ( ) ( ) ( )

SCBAs for Entry and Standby Persons? ( ) ( ) ( )

Protective Clothing? ( ) ( ) ( )

4. Atmospheric check after isolation and ventilation

Oxygen \_\_\_\_\_ % > 19.5%  
 Explosive \_\_\_\_\_ % LEL < 10%  
 Toxic \_\_\_\_\_ PPM < 10 PPM H<sub>2</sub>S  
 Time \_\_\_\_\_

5. Rescue Procedure: \_\_\_\_\_

If conditions are in compliance with the above requirements and there is no reason to believe conditions may change adversely, then proceed to the Permit Space Pre-entry Check List. Complete and post with this permit. If conditions are not in compliance with the above requirements or there is reason to believe that conditions may change adversely, proceed to the Entry Check List portion of this permit.

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit and Check List Prepared By: \_\_\_\_\_

Approved By: \_\_\_\_\_

Reviewed By: \_\_\_\_\_

(Signature)

A copy of this Pre-Entry Check List must be retained in a bound notebook for each excavation.

If during the work hazardous atmospherics develop in the space, the work must be immediately terminated.

## CONFINED SPACE ENTRY PERMIT

\_\_\_\_\_ Confined Space      \_\_\_\_\_ Hazardous Area      \_\_\_\_\_ Non Permit Required

Note: No work will be performed unless the space meets non permit requirements  
 Permit valid for 8 hours only. All copies of permit will remain at this job site until job is completed.

Site location and description \_\_\_\_\_

Purpose of Entry \_\_\_\_\_

Supervisor(s) in charge of crews \_\_\_\_\_

Type of Crew \_\_\_\_\_ Phone # \_\_\_\_\_

\*Bold denotes minimum requirements to be completed and reviewed prior to entry\*

Requirements Completed	Date	Time	Requirements Completed	Date	Time
<b>Lock Out/De-energize/try-out</b>	_____	_____	<b>Full Body Harness w/"D" Ring</b>	_____	_____
<b>Line(s) Broken-capped-blanked</b>	_____	_____	<b>Emergency Escape Retrieval</b>	_____	_____
<b>Purge-Flush and Vent</b>	_____	_____	<b>Lifelines</b>	_____	_____
<b>Ventilation</b>	_____	_____	Fire Extinguishers	_____	_____
<b>Secure Area (Post and Flag)</b>	_____	_____	Lighting (Explosive Proof)	_____	_____
<b>Breathing Apparatus</b>	_____	_____	Protective Clothing	_____	_____
<b>Resuscitator-Inhalator</b>	_____	_____	Respirator(s) (Air Purifying)	_____	_____
<b>Standby Safety Personnel</b>	_____	_____	Burning and Welding Permit	_____	_____

Note: Items that do not apply enter N/ A in the blank.

\*\* Record Continuous Monitoring Results Every 2 Hours.

Continuous	Permissible	Monitoring Results
Percent of Oxygen	19.5% to 23.5%	
Lower Flammable Limit	Under 10%	
Hydrogen Sulfide	+ 10 PPM * 15	

\* Short-term exposure time: Employee can work in the area up to 15 minutes.

+ 8 hour time - Weighted average: Employee can work in area 8 hours (longer with appropriate respiratory protection).

\*\* Record continuous monitoring results every 30 minutes starting ½ hour prior to beginning work.

REMARKS:

Gas Tester Name & Check #      Instrument(s) Used      Model &/ or Type      Serial &/ or Unit #

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Safety standby person is required for all confined space work

Safety standby person(s)      Check #      Name of Safety Standby Person(s)      Check #

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Supervisor Authorizing Entry \_\_\_\_\_

All Above Conditions Satisfied \_\_\_\_\_

Emergency number posted in job trailer \_\_\_\_\_

Note: A single entry permit can be filled out prior to start of daily work.



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**Appendix I**  
**Emergency Telephone Numbers**  
**Hospital Information**  
**Field Accident Report**

## EMERGENCY INFORMATION

Emergency telephone numbers and routes to the nearest hospital with an emergency capacity are as follows:

General Emergencies:	911
NYPD	911
FDNY:	911
First Responder Medical Care:	911
National Response Center	1-800-424-8802
NYC Regional Poison Control Center	1-800-222-1222
Project Manager	1-631-787-3400 or 1-631-316-4892
Site Safety Officer	1-631-787-3400 or 1-631-655-9373
Alternate Health and Safety Officer	1-631-787-3400 or

For Non-Emergency Care – (Emergencies must call 911)

Nearest Hospital: Mount Sinai St. Luke's  
1111 Amsterdam Avenue  
New York, New York 10025  
1-212-523-4000

**Directions to Mount Sinai St. Luke's (approximately 0.75 miles from the site):**

**Head northwest on West 126<sup>th</sup> Street toward West 127<sup>th</sup> Street. Make the first left onto Amsterdam Avenue. The hospital will be located on the left in approximately 0.6 mile.**

**A map showing the route to the nearest hospital is provided in Appendix A, Figure 2.**

VHB Engineering Surveying and Landscape Architecture, P.C.

FIELD ACCIDENT REPORT

This report is to be filled out by the designated Site Safety Officer after EVERY accident.

PROJECT NAME \_\_\_\_\_ PROJECT. NO. \_\_\_\_\_

Date of Accident \_\_\_\_\_ Time \_\_\_\_\_ Report By \_\_\_\_\_

Type of Accident (Check One):

Vehicular       Personal       Property

Name of Injured \_\_\_\_\_ DOB or Age \_\_\_\_\_

How Long Employed \_\_\_\_\_

Names of Witnesses \_\_\_\_\_

Description of Accident \_\_\_\_\_

Action Taken \_\_\_\_\_

Did the Injured Lose Any Time? \_\_\_\_\_ How Much (Days/Hrs.)? \_\_\_\_\_

Was Safety Equipment in Use at the Time of the Accident (Hard Hat, Safety Glasses, Gloves, Safety Shoes, etc.)? \_\_\_\_\_

(If not, it is the EMPLOYEE'S sole responsibility to process his/her claim through his/her Health and Welfare Fund.)

INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW