HEALTH AND SAFETY PLAN

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REGION 8

Market Basket Site
ERP Site B00018-8

City of Geneva
New York

November 2007

O'BRIEN & GERE

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1. Introduction

This Health and Safety Plan (HASP) has been developed to provide both general procedures and specific requirements to be followed by O'Brien & Gere Engineers, Inc. (O'Brien & Gere) personnel while performing environmental sampling during remedial activities at the Market Basket Environmental Restoration Program (ERP) Site (B00018-8) location in Geneva, New York. Figure 1 is a site plan. This HASP describes the responsibilities, training requirements, protective equipment, and standard operating procedures to be used by O'Brien & Gere personnel to address potential health and safety hazards while performing the sampling activities. O'Brien & Gere's 2005 Remedial Action Work Plan (RAWP) dated July, 2005 describes the site activities to be performed. This HASP specifies procedures and equipment to be used by O'Brien & Gere personnel during work activities and emergency response to minimize exposures of O'Brien & Gere personnel to hazardous materials.

1.1. Implementation of the HASP

The requirements and guidelines presented in this HASP are based on a review of available information and an evaluation of potential on-site hazards. This HASP incorporates by reference the applicable Occupational Safety and Health Administration (OSHA) requirements in 29 CFR Part 1910, 29 CFR Part 1926 and EPA Publication 9285.1-03. O'Brien & Gere personnel are required to read this HASP before beginning work on-site. This HASP will be available for inspection and review by O'Brien & Gere employees and contractor representatives while work activities are underway. When conducting the site activities listed in the RAWP, O'Brien & Gere personnel will comply with this HASP. On-site O'Brien & Gere personnel will notify the O'Brien & Gere Site Safety and Health Coordinator (SSHC) of matters of health and safety. The SSHC is responsible to the Project Manager for monitoring activities, monitoring compliance with the provisions of this HASP, and for modifying this HASP to the extent necessary if site conditions change. This HASP is specifically intended for the conduct of activities defined in the RAWP and in the areas of the Market Basket Site specified for these work activities. Although this HASP can be made available to interested persons for informational purposes, O'Brien & Gere does not assume responsibility for the interpretations or activities of any persons or entities other than employees of O'Brien & Gere.

1.2. Project organization

1.2.1. Applicable personnel

Personnel involved in the activities at the Market Basket Site implicitly have a part in implementing the HASP. Among them, the Project Officer, the Project Manager, the Project Associate for safety and health, the SSHC, and the Field Leader have specifically designated responsibilities. Their names and telephone numbers are listed in Table 1-1. Other key O'Brien & Gere project personnel, the project's organization, and other primary contacts for the project are presented in the RAWP.

Key project personnel and their responsibilities with regard to the Market Basket Site RAWP are discussed below.

1.2.2. Project officer

Mr. Stuart Spiegel is the Project Officer. The Project Officer is responsible for the overall administration and technical execution of the project. The Project Officer is further responsible for the acquisition and delegation of resources necessary for project completion and HASP implementation.

1.2.3. Project manager

Mr. David Meixell is the Project Manager. The Project Manager reports to the Project Officer and is directly responsible for the technical progress and financial control of the project.

1.2.4. Project safety and health officer

Mr. David Wilson, CIH is the Project Safety and Health Officer. Mr. Wilson will be responsible for implementation of this HASP. Mr. Wilson must approve procedural changes and modifications to this HASP.

1.2.5. Site safety and health coordination

Mr. Jason Hudson or a designee, is the O'Brien & Gere Site Safety and Health Coordinator (SSHC) for this investigation. The SSHC for O'Brien & Gere employees reports to the O'Brien & Gere Project Manager, coordinates his activities with the O'Brien & Gere Associate for Safety and Health, establishes operating standards, and coordinates overall project safety and health activities for the site. The SSHC reviews project plans and revisions to plans to verify that safety and health procedures are maintained throughout the investigation. The SSHC audits the effectiveness of the HASP on a continuing basis and suggests changes, if necessary, to the Project Manager.

Specifically, the SSHC is responsible for the following actions:

- Providing a complete copy of the HASP at the site before the start of activities
- Familiarizing workers with the HASP
- Conducting on-site health and safety training and briefing sessions
- Documenting the availability, use, and maintenance of personal protective and other safety or health equipment
- Maintaining safety awareness among O'Brien & Gere employees on-site and communicating safety and health matters to site personnel
- Reviewing field activities for performance in a manner consistent with O'Brien & Gere's policy and this HASP
- Monitoring health and safety conditions during field activities
- Coordinating with emergency response personnel and medical support facilities
- Notifying the Project Manager of the need to initiate corrective actions in the event of an emergency, an accident, or identification of a potentially unsafe condition
- Notifying the Project Manager of an emergency, an accident, the presence of a potentially unsafe condition, a health or safety problem encountered, or an exception to this HASP
- Recommending improvements in safety and health measures to the Project Manager
- Conducting safety and health performance and system audits.

The SSHC has the authority to recommend that the Project Manager take the following actions:

- Suspend field activities or otherwise limit exposures if the health or safety of any O'Brien & Gere employee appears to be endangered
- Notify O'Brien & Gere personnel to alter work practices that the SSHC deems to not protect them
- Suspend an O'Brien & Gere employee from field activities for violating the requirements of this HASP.

1.2.6. Field leader

Mr. Jason Hudson, or a designee, will act as the Field Leader. The Field Leader will be responsible for overall site coordination including field sampling collection and chain-of-custody. The Field Leader will report directly to the Project Manager.

Table 1-1 *Project personnel*

Name and title	Telephone
Stuart Spiegel, Project Officer, Syracuse, NY	315-437-6100
David Meixell, Project Manager, Syracuse, NY	315-437-6100
David Wilson, CIH, Project Associate, Syracuse, NY	315-437-6100
Jason Hudson, Site Safety and Health Coordinator, Syracuse, NY	315-437-6100
Jason Hudson, Field Leader, Syracuse, NY	

Source: O'Brien & Gere

2. Hazard analysis

2.1 Task summary

The tasks to be conducted in the sampling areas consist of:

- Excavation
- Soil sample collection

The details of these tasks are presented in the RAWP and will be conducted in accordance with the procedure outlined in the RAWP. Both the potential health and safety hazards and the hazard and contaminant control procedures for each task are discussed below. Based on the available soil data, the following organic compounds were identified in the site:

- Monochlorobenzene
- 1,2-dichlorobenzene
- 1,3-dichlorobenzene
- 1,4-dichlorobenzene
- 1,2,4-trichlorobenzene

These organic compounds are present at levels anticipated to provide olfactory detection and may generate airborne levels that approach the OSHA permissible exposure level (PEL) values. These substances are not anticipated to exist as a free product, but as a solid or absorbed liquid on soils. The 1,2,4-trichlorobenzene (TCB) has a melting point of 63° F and 1,4-dichlorobenzene has a melting point of 127° F. The 1,4 dichlorobenzene is commonly sold as an insecticide (mothballs).

Inhalation exposure pathway may consist of vapors or dusts from soils. Skin contact with the sampled soil should be minimized in accordance with good work practices.

During the soil sampling, there is the potential for personnel or objects to fall into the excavation.

2.2. Excavation

2.2.1. Excavation-related activities

Impacted soil excavation will be centered at boring site SB-2. Excavation depth is anticipated to be a minimum of 16 feet. Soil will be removed, placed on a plastic sheet, and covered pending approval from an off-site facility for disposal. Entry by O'Brien & Gere employees into the excavation is required to collect soil samples from the base and sides.

2.2.2. Potential health hazards and hazards constituents

During the excavation operations, there is the potential for the release of volatile organic compounds (VOCs) and contact with semi-volatile organic compounds (SVOCs) and particulate materials. VOCs may contain substances with offensive odors at levels below the PELs. There is the potential for the sides of the excavation to cave in. The possibility exists for release of volatile materials onto workers' bodies and into the workers' breathing zones. There is a remote chance of a reduction in the oxygen level in the excavation.

2.2.3. Hazard and hazards constitute control

Initially, Level D personal protective equipment (PPE) will be worn while observing the excavation activities. Coveralls or aprons will be worn when there is a need to handle or work with potentially impacted soil. Level C PPE will be worn if entry into the excavation is required for observation of the contents of the excavation. Personnel must wear hearing protection when working near operating heavy machinery and will remain upwind from vehicle exhaust.

Excavating will be conducted in accordance with the requirements of 29 CFR 1926. The excavation dimensions will maintain a width greater than the depth (measured at the bottom of the excavation) to achieve a 34 degree slope as measured from the horizontal plane. Soil and other objects should be placed no closer than two feet from the excavation edge. During work in the excavation, air in the breathing zone of the workers will be sampled for VOCs using a photoionization detector (PID). Subsequent monitoring and respirator wear will be in accordance with Chapter 6 of this HASP.

Measurement equipment will be decontaminated in accordance with the guidelines in O'Brien & Gere's Quality Assurance Program Plan (QAPP) dated April 1999 and in Chapter 8 of this HASP. Field decontamination wastes will be disposed in accordance with the procedures in the RAWP, which specifies 55-gallon drums.

2.3. Soil sampling

2.3.1. Confirmation samples

When visual and PID meter readings indicated the impacted soils have been removed, confirmation soil samples will be collected from the base and sides of the excavation.

2.3.2. Potential health hazards and hazardous constituents

There is the potential for contact with soil contaminants, the release of organic vapors from the subsurface soil samples, for musculoskeletal injuries associated with soil collect, and the potential to get soil in the eyes. Other hazards associated with soil sampling include slipping on wet, muddy surfaces created by precipitation or groundwater, objects falling into the excavation and electrical hazards associated with the use of electrical equipment around water or wet surfaces.

2.3.3. Hazard and hazardous constituent control

Modified Level C PPE, consisting of chemical-resistant, disposable coveralls, leather steel-toed boots with rubber overboots, double nitrile gloves, and eye protection, will be worn. Personnel must wear hearing protection when working near operating heavy machinery and will remain upwind from vehicle exhaust.

A ground fault circuit interrupter will be used in the absence of properly grounded circuitry or when electrical equipment is used in wet conditions. Electrical extension cords used will be protected or guarded from damage and be maintained in good condition.

Employing proper lifting can prevent back strain. Heavy equipment, such as pumps and generators, will only be lifted with the legs, preferably using two or three personnel.

Equipment will be decontaminated in accordance with the guidelines in the QAPP and in Chapter 8 of this HASP. Purged water and decontamination wastes will be collected, drummed, and disposed in accordance with the RAWP.

2.4. Ambient air quality monitoring

2.4.1. Task summary

Air samples will be collected to evaluate the potential for air transport of volatile, semivolatile, and particulate matter less than 10 micrometers in size (PM 10) down- and up-wind of the Site. Monitoring for organic vapors and explosive gases will be performed using direct reading instruments.

2.4.2. Potential health hazards and hazardous constituents

Traces of VOCs may be present in the soil over which the air samples are to be collected. The potential exists for release of these materials into the atmosphere at levels that may present an inhalation and/or skin contact hazard. The contaminants may be spread through the air and through skin

contact. There is limited possibility for the splash of contaminated water and soil onto monitoring personnel.

Wastes, which may be generated during the activities being monitored, may release VOCs and SVOCs, which may consist of the following at levels that may present an inhalation hazard.

- Monochlorobenzene
- 1,2 dichlorobenzene
- 1.3 dichlorobenzene
- 1,4 dichlorobenzene
- 1,2,4 trichlorobenzene

2.3.2. Hazard and hazardous constituent control

Initially modified Level C PPE is to be worn. Cloth coveralls are to be donned when there is contact with potentially contaminated soil or liquid. Air in the breathing zone will be sampled for VOCs using a PID or equivalent photoionization detector. The survey crew will don air purifying respirators and chemical resistant coveralls when the sustained VOC concentration in the respective breathing zone exceeds 2.5 parts per million (ppm) as indicated on the PID.

3. Personnel training

3.1. Site workers

O'Brien & Gere employees performing the activities listed in the RAWP must have completed a training course of at least 40 hours meeting the requirements of 29 CFR 1910.120(e) for safety and health at hazardous waste operations. If the course was completed more than 12 months before the date of site work, completion of an approved 8-hr refresher course on health and safety at hazardous waste operations is required.

O'Brien & Gere employees must comply with the O'Brien & Gere Quality Assurance Manual. The respiratory protection program is specified in Section 004.2 of Vol. 3. The Hazard Communication Program is specified in Section 003 of Vol. 3. The Audit Program is specified in Section 019 of Vol. 3.

3.2. Management and leaders

In addition to the requirements described in Section 3.1 for O'Brien & Gere site workers, O'Brien & Gere field leaders must have completed an off-site training course of at least 8 hours meeting the requirements of 29 CFR 1910.120(e) on supervisor responsibilities for safety and health at hazardous waste operations.

3.3. Emergency response personnel

O'Brien & Gere employees who respond as Good Samaritans to emergency situations involving health and safety hazards must be trained in how to respond to such emergencies in accordance with the provisions of 29 CFR 1910.120(l). Skills such as cardiopulmonary resuscitation (CPR), mouth-to-mouth rescue breathing, avoidance of blood-borne pathogens, and basic first aid skills may be necessary.

3.4. Site-specific training

Site-specific training will be provided to each O'Brien & Gere employee and reviewed before assignment. O'Brien & Gere personnel will be briefed daily by the Field Leader or by the SSHC as to the potential hazards that may be encountered during that day. Topics will include:

- Availability of this HASP
- General site hazards and specific hazards in the work areas
- Selection, use, testing, and care of the body, eye, hand, foot, and respiratory protective equipment being worn and the limitations of each
- Decontamination procedures for O'Brien & Gere personnel, their personal protective equipment, and other equipment used on-site
- Emergency response procedures and requirements
- Emergency notification procedures and evacuation routes to be followed
- Procedures for obtaining emergency assistance and medical attention.

3.5. Training certification

A record of employee training completion will be maintained by the SSHC for each O'Brien & Gere employee who is trained. This record will include the dates of the completion of worker training, supervisor training, refresher training, emergency response training, and site-specific training for on-site O'Brien & Gere employees.

4. Personnel protection

4.1. General

Workers and authorized visitors meeting the requirements of this HASP will be provided with personal protective equipment and clothing appropriate to their work task and potential exposure. The personal protective equipment has been selected in accordance with the applicable provisions of Subpart I, 29 CFR Part 1910. Each individual will be trained in the use of this safety equipment before the start of field activities. Safety equipment and protective clothing will be used as directed by this HASP. Personal protective equipment will be worn at times designated by this HASP. Equipment and clothing will be cleaned and maintained in accordance with manufacturer's instructions and within the guidance of Subpart I, 29 CFR Part 1910 by project personnel. The SSHO will monitor the protective equipment maintenance procedures.

Results from the site walk-through and on-site monitoring will be used to set task and point specific action levels and levels of personal protection with respect to upgrading and downgrading. Each individual performing monitoring will be trained in the use of the equipment prior to the start of monitoring activities. These personal protection levels and the respective action levels are detailed below.

Personal protective equipment will be used during the investigation to minimize exposures to the specified site-related chemical compounds and physical hazards. Levels of protective clothing and equipment have been assigned to specific tasks at modified Level C and Level C. These personal protection levels are detailed in Section 4.02 below. If field measurements or observations indicate that an exposure is greater than the protection afforded by the equipment or procedures specified in the following sections of this HASP, work will be stopped and workers removed until the exposure has been reduced and/or the level of protection provided has been increased. The basic level of PPE to be used during activities at the Market Basket Site is OSHA modified Level C. PPE may be upgraded based on air monitoring results or at the discretion of the Project Manager and based on the SSHC's recommendations. The SSHC and the Project Manager must approve a downgrade of PPE.

If the SSHC verifies that field measurements or observations indicate that a potential exposure is greater than the protection afforded by the equipment or procedures specified in this or other sections of this HASP, the work will be stopped, and O'Brien & Gere personnel will be removed from the site until the exposure has been reduced or the level of protection has been increased.

O'Brien & Gere respirator users have been trained and medically approved to use respiratory protection. Respirators issued are approved for protection against dust and organic vapors by NIOSH. Respirators are issued for the exclusive use of one worker and will be cleaned and disinfected after each use by the worker. Respirator users must check the fit of the respirator before each day's use to see that it seals properly. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges attached to the respirator. No facial hair that interferes with the effectiveness of a respirator will be permitted on personnel required to wear respiratory PPE. Cartridges and filters for air-purifying respirators in use will be changed daily at a minimum. The user will inspect the integrity of air-purifying respirators daily.

4.2. Protective equipment description

The level of PPE is typically categorized as Level A, B, C, or D, based upon the degree of protection required. The following is a brief summary of the two levels that may be used on this site.

4.2.1. Modified Level C protection

Modified Level C protection, consisting of Level C protective equipment without the use of a respirator, will be worn initially during soil excavation and sample collection. However, respirators will be available for immediate use in the event that an upgrade to Level C protection, as specified by the action levels in Section 6.2. Modified Level C protection consists of the following:

- Chemical-resistant disposable coveralls, such as a polyethylene-coated Tyvek suit. Suits will be one piece with elastic wristbands. Hoods will not be required.
- Outer nitrile gloves (taped to the suit) and inner nitrile gloves.
- Leather, steel-toe boots with rubber overboots (taped to suit).
- Eye protection (goggles, face shield or safety glasses).
- Hard hat.
- Disposable outer boots.
- Options:
  - Coveralls
  - Escape mask.
  - Hearing protection required when heavy equipment is operating.

4.2.2. Level C Protection

If it is necessary, based on air sampling results (See Section 6), to upgrade to OSHA Protective Level C, a full-face air-purifying respirator equipped with organic vapor cartridges and high-efficiency dust filters will be available for use by each potential user. This respirator will be worn in addition to the Level D or Modified level C Protection.

4.2.3. Protective equipment selection

Initial levels of PPE will be as shown in the following table:

Activity	Modified Level C
Excavation	Observation
Soil Sample	Sample collection

4.3. Protective equipment failure

If an individual experiences a failure or other alteration of PPE that may affect its protective ability, that person is to leave the work area immediately. The Project Manager or the SSHC must be notified and, after reviewing the situation, is to evaluate the effect of the failure on the continuation of on-going operations. If the Project Manager or the SSHC ascertains that the failure affects the safety of workers, the work site, or the surrounding environment, workers are to be evacuated until corrective actions have been taken. The SSHC will not allow re-entry until the equipment has been repaired or replaced and the cause of the failure has been identified.

5. Medical monitoring

5.1. Medical surveillance program

O'Brien & Gere has implemented a medical monitoring program in accordance with 29 CFR 1910.120. The O'Brien & Gere program is designed to monitor and reduce health risks to employees potentially exposed to hazardous materials and to provide baseline medical data for each employee involved in work activities. It is also designed to evaluate the employee's ability to wear PPE such as chemical-resistant clothing and respirators.

Medical examinations are administered on a post-hire and annual basis and as warranted by symptoms of exposure or specialized activities. The post-hire examination provides baseline data. The examining physician is required to make a report to O'Brien & Gere of any medical condition that would increase the employee's risk when wearing a respirator or other PPE. O'Brien & Gere maintains site personnel medical records as required by 29 CFR 1910.120 and by 29 CFR 1910.1020, as applicable.

5.2. Respirator certification

Employees who wear or may wear respiratory protection have been provided respirators as required by 29 CFR 1910.134. This standard requires that an individual's ability to wear respiratory protection be medically certified before performing designated duties.

6. Air monitoring

6.1. Program summary

There is the (minimal) potential for hazardous materials to be present at the Market Basket Site at levels that will pose a health hazard to workers. Real time monitoring of VOCs will be conducted on-site by, or under the supervision of the SSHC, to evaluate the concentrations of VOCs in the excavated soil. An action level of 2.5 ppm has been selected based on the potential for exposure to TCB (STEL Ceiling 5 ppm) released as a soil vapor. A dust action level of 150 micrograms per cubic meter (mcg/m^3) has been selected for protection from exposure to site soils. The SSHC will evaluate whether the personal protective measures employed during field activities are appropriate and will modify the protective measures accordingly. Field personnel will record equipment calibrations, repairs, and readings in a notebook that is a part of the site log. The SSHC will be responsible to maintain monitoring instruments throughout the investigation.

6.2. Air sample collection

6.2.1. Task summary

The air will be monitored with a portable photoionization detector (PID) to assess the presence and concentration of VOCs during excavation and sample collection. The air will be monitored with a RAM during excavation and sample collection activities to assess the level of airborne dusts. The sampling strategies described below may change if work tasks or operations change.

The SSHC, or someone under the direct supervision of the SSHC, will collect the health and safety samples. Bound log books and appropriate data sheets will be used to document the collection of samples and data so that an individual data set can be traced to its point of origin, the sampler, and the sampling equipment used. Sampling will be performed according to the manufacturer's instructions.

6.2.2. PID monitoring

The air will be monitored with a portable PID equipped with a 10.2 electron volt (eV) detector, as appropriate, to assess the presence and concentration of VOCs. According to a PID manufacturer (Photovac), a 10.6 eV detector response factor for 1,2 dichlorobenzene is 0.5 when

compared to isobutylene. This signifies that an instrument response for 1,2 dichlorobenzene would be one-half the calibrated value for isobutylene, such that a PID meter response of 10 ppm in isobutylene units would represent 5 ppm of 1,2 dichlorobenzene.

Before the start of work, the PID will be used to assess the concentration of VOCs upwind from the work area. When VOC levels exceed the action level, the PID will be used to measure the VOC level downwind from the work area. The sampling strategies described below may change if work tasks or operations change.

Samples will be collected continuously in the breathing zone of the O'Brien & Gere worker and, if O'Brien & Gere workers are wearing respiratory protective equipment, outside the face piece. Sample results will be recorded at approximately ten-minute intervals. The PID will be checked for positive and accurate response to a pre-established concentration of isobutylene in accordance with the manufacturer's instructions before use each sampling day.

6.2.2. RAM monitoring

Air monitoring with a portable RAM will be performed to assess the presence and concentration of particulate matter less than 10 micrometers in size (PM 10) during activities on the site. The RAM will be checked, in accordance with the manufacturer's operating instructions, prior to use each sampling day for appropriate responses.

6.3. Action levels

6.3.1. Definition

Action levels are used to ascertain when activities should stop, to ascertain when site evacuation is necessary, to select emergency response levels, and to change PPE levels.

6.3.2. Volatile organic compounds (VOCs)

VOCs may be liberated from the soil during site activities. A PID will be used to assess the presence of total organic vapors. There is a potential for exposure to monochlorobenzene; 1,2-dichlorobenzene; 1.3-dichlorobenzene; 1,4-dichlorobenzene; and TCB as vapors are released from the soils. Generic MSDSs for these materials are attached in Appendix B. A total organic vapor action level of 5 ppm has been established.

Work will cease at any time that the reading on the PID exceeds 5 ppm during invasive soil activities. On-site employees will don air purifying respirators at these times. Work may resume and continue until the

measured VOC concentration is greater than or equal to 25 ppm. At that time, the workers will leave the work area. Workers with respirators may re-enter the area when the PID reading is less than 10 ppm.

The organic vapor level will be measured upwind and downwind from the work location, at approximately thirty-minute intervals, whenever air-purifying respirators are being worn. If the downwind concentration exceeds the upwind concentration by more than 1 ppm, work on the site will stop until the downwind concentration is less than 1 ppm greater than the upwind concentration.

6.3.3. Particulates

There is the potential for exposure to dust generated during site activities. A total dust action level of 150 mcg/m^3 has been established.

The RAM will be used to measure airborne particulates. When respirable particulates are detected at 150 mcg/m^3 or greater, a full-face respirator with P100 filters will be worn. Employees will leave the work area when the respirable dust concentration exceeds 1,000 mcg/m^3 and may not return until it is less than 750 mcg/m^3. At dust concentrations that exceed 150 µg/m^3 above background, dust suppression techniques (*e.g.*, water application and activity controls) will be implemented to reduce the generation of dust.

Upon visual observation of air-borne particulate matter associated with on-site activities, a water spray will be applied as a control measure. If a water spray cannot be applied, additional personal monitoring will be undertaken to assess whether correct personal protective measures are being taken.

6.4. Field instrumentation and calibration

6.4.1. Task summary

On-site air monitoring at the Market Basket Site will include the use of a photoionization detector (PID) and a real time aerosol dust monitor (RAM).

6.4.2. Photoionization detector (PID)

Hazard monitored. Many organic vapors.

Application. Detects the presence and total concentration of many organic vapors.

Detection method. Ionizes molecules using ultra-violet (UV) radiation; produces a current that is proportional to the number of ions present.

General care and maintenance. Recharge daily or replace the battery. Regularly clean the lamp window. Regularly clean and maintain the instrument and its accessories. Turn the function switch to "stand-by" and allow the instrument to "warm up" for 5 minutes. Calibrate once a day using an isobutylene gas standard according to the manufacturer's instructions. Repeat the procedure to validate calibration.

Typical operating time. 10 hours; 5 hours with strip chart recorder.

6.4.3. Real time aerosol monitor (RAM)

Hazard monitored. Particulates. A RAM will be employed for on-site measurement of the total dust concentration.

Application. Measures total or respirable particulates in air.

Detection method. Uses an internal light source. The particulates bend the light beam, and the amount of diffraction is converted into concentration (mcg/m^3).

General care and maintenance. Recharge the batteries daily. Replace the desiccant when necessary. Check, in accordance with the manufacturer's instructions, for appropriate responses prior to each use.

Typical operating time. 8-12 hours.

6.4. Community air monitoring plan

6.4.1. Routine monitoring requirements

Real-time air monitoring for VOCs will be performed. Results will be recorded at 30-minute intervals during excavation activities. If sustained VOCs readings exceed 2 ppm above background at the perimeter of the work area, work activities must be suspended and monitoring continued under provisions of the Vapor Emission Response Plan described below. All readings must be recorded and be available for State personnel to review.

6.4.2. Vapor emission response plan

While the VOC level at the downwind perimeter of the work area is less than 2 ppm above the level at the upwind perimeter of the work area, work activities may continue but frequent monitoring, as directed by the SSHC, must be conducted. When the vapor levels are more than 2 ppm

above the background but remain less than 25 ppm above the background, work can continue provided:

- The VOC level 200 feet downwind of the work area or half of the distance to the nearest residential or commercial structure, whichever is less, is less than 2 ppm above the upwind background, and the monitoring interval, unless directed by the SSHC, is increased to five minutes.

- If the downwind perimeter VOC level becomes more than 5 ppm above the upwind perimeter level, intrusive work will be stopped and the Major Vapor Emission Plan must be activated.

6.4.3. Major vapor emission plan

When VOC levels greater than 2 ppm above the upwind background are identified 200 feet downwind from the work area or half of the distance to the nearest residential or commercial property, whichever is less, all intrusive work activities at the site will be halted.

If, following the cessation of the intrusive work activities, the downwind organic vapor level remains more than 2 ppm above the upwind background levels, then the air quality within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone) must be monitored.

If the VOC level in the 20-Foot Zone remains more than 10 ppm above the upwind background level for more than 15 minutes, then the Major Vapor Emission Response Plan shall be activated.

6.4.4. Major vapor emission response plan

Upon activation, the following activities will be undertaken:

- Emergency Response Contacts as listed in Table 9-1 in this HASP shall be notified.

- The local police authorities will immediately be contacted by the SSHC and advised of the situation.

- Air monitoring will be conducted at five-minute intervals within the 20-Foot Zone. If two successive readings below action levels are measured, air monitoring may be modified by the SSHC.

7. Site control

7.1. Site security

Site security will be monitored and controlled by the Project Manager, the Field Leader, and the SSHC. Their duties will include limiting access to the work area to authorized personnel, maintaining a sign-in roster, overseeing project equipment and materials, and overseeing work activities. The procedures specified below will be followed to control access to each work site to prevent persons who may be unaware of site conditions from exposure to hazards. Work area control procedures may be modified as required by activity and site conditions. Site security will be established on a site- and activity-specific basis.

7.2. Site control

7.2.1. Site control summary

An exclusion zone, a contamination reduction zone, and support zone will be established by the SSHC at the site.

7.2.2. Exclusion zone

The exclusion zone is where excavation and soil sampling activities are conducted. The SSHC will identify this zone. It must be at least 30 ft in diameter and centered, when possible, on the work activities. This zone will be designated with red flags attached to portable stakes or cones installed before beginning the fieldwork. The zone may be enlarged to contain the necessary ancillary equipment and personnel for the work to be done.

7.2.3. Contamination reduction zone

The contamination reduction zone (CRZ) contains personnel and equipment decontamination stations. The CRZ will be located upwind from the work activities. It will only be large enough to contain equipment and personnel necessary to keep potentially impacted media and materials in the immediate work area. This area will be designated with yellow flags attached to portable stakes or cones. The CRZ will be

established on the day site work commences within a particular exclusion zone, based on the direction of the wind on that day.

7.2.4. Support zone

The remainder of the Market Basket Site area is defined as the support zone. The support zone contains support facilities, extra equipment, transport vehicles, and additional personnel and equipment necessary to manage and perform work activities.

7.3. Site communication

A cellular telephone will be used during activities to facilitate communications for emergency response and other purposes and to serve as the primary off-site communication network.

8. Decontamination

8.1. Personnel decontamination procedures

8.1.1. General

Sampling and excavation activities will occur in one work area centered at boring site SB-2. Equipment and personnel decontamination will be done at a single location near SB-1. The SSHC will be responsible for supervising the proper use and decontamination of equipment and PPE. The SSHC will also establish and monitor each decontamination line.

Decontamination involves scrubbing with a soap and water solution followed by rinses with potable water. Dirt, oil, grease, or other foreign materials that are visible will be removed from surfaces. Scrubbing with a brush may be required to remove materials that adhere to the surfaces. Wastewater from personnel decontamination will be disposed of with the wastewater from the sampling equipment decontamination. Respirators will be decontaminated each day as well as sanitized before re-use. The manufacturer's instructions will be followed to sanitize the respirator masks.

A line for decontamination from Level C, providing the same level of decontamination as the example in the O'Brien & Gere Hazardous Waste Health and Safety Training Manual, will be established by the Project Manager and monitored by the SSHO.

8.1.2. Decontamination equipment

The following equipment will be available on site to decontaminate personnel and equipment.

- Plastic drop cloths
- DOT approved fiberboard drums with plastic liners, to collect non-reusable protective clothing.
- Plastic wash tubs
- Soft bristled toilet brushes
- DOT approved plastic drums, to collect wash and rinse water

- Hand spray units for decontamination
- Sufficient soap, water, alcohol wipes and towels to wash hands, faces and respirators.

8.1.3. Decontamination protocol

Because of the level of protection worn on site, the following decontamination protocol will be used:

1. Segregated equipment drop on plastic drop cloths. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. During hot weather operations, a cool down station may be set up within this area.

2. Wash station for gloves, boots and protective suit. Scrub outer boots, outer gloves and splash suit with detergent water. Rinse off using copious amounts of water.

3. Removal and disposal of outer boots. Remove outer boots. Deposit them in a container with a plastic liner. If the boots are to be reused after cleaning, place them in a secure on-site location, preferably in plastic.

4. Removal and disposal of outer gloves. Remove outer gloves. Deposit them in a container with a plastic liner. At this station, the worker's filter can be exchanged, new outer gloves and outer boots donned, joints taped, and the worker can return to duty.

5. Removal and disposal of outer garment. Remove outer garment. Deposit it in a container with a plastic liner.

6. Removal of respirator. Remove respirator. Avoid touching face with fingers. Deposit respirator on a plastic sheet.

7. Removal and disposal of inner gloves. Remove inner gloves. Deposit them in a container with a plastic liner.

8. Field Wash. Wash hands and face thoroughly. Shower if body contamination is suspected.

8.2. Monitoring equipment decontamination procedures

Sampling equipment used for health monitoring purposes will be cleaned of visible contamination and debris before initial use on-site, between uses, and after final use. Monitoring equipment that contacts impacted media will be decontaminated after each use by a low-phosphate detergent brushing followed by a clean water rinse. After decontamination, monitoring equipment will be stored separately from

PPE. Decontaminated or clean equipment not in use will be covered with plastic and stored in a designated storage area in the support zone.

Non-dedicated sample collecting equipment that can contact samples will be decontaminated after each use by a low phosphate detergent brushing followed by a clean water rinse. A methanol rinse followed by a final rinse with demonstrated analyte-free deionized water will complete the decontamination procedure. Decontaminated equipment will be allowed to air dry before wrapping in aluminum foil, shiny side out, for transport.

Monitoring equipment will be cleaned of all visible contamination prior to initial use on site, between each use, and after final use. Monitoring equipment, after decontamination, will be stored separately from personal protective equipment. Decontaminated or clean sampling equipment not in use will be covered with plastic and stored in a designated storage area in the support zone.

The surface of the equipment will be washed as follows:

1. Detergent/water rinse.
2. Tap water rinse.
3. Solvent wash/rinse.
4. Deionized/distilled water rinse.

8.3. Decontamination of other equipment

Decontamination will be applicable to activities. Construction equipment mobilized to the site will receive initial decontamination. Initial decontamination will consist of steam cleaning of potentially contaminated portions of the rigs to the satisfaction of the project manager or SSHO. Dirt, oil grease or other foreign materials that are visible will be removed from metal surfaces. Scrubbing with a wire brush may be required to remove materials that adhere to the surfaces. The excavation vehicle will be decontaminated before it is moved off-site. Equipment that contains gross debris will be wire scrubbed with water to the satisfaction of the project manager or SSHO.

Decontamination will take place on a decontamination pad. This pad will be lined with gravel so that wastewater generated during the decontamination will be allowed to flow into the fill. This is in accordance with NYSDEC TAGM HWR-89-4032.

Equipment will be decontaminated in accordance with the protocol for decontamination of sampling and drilling equipment of the RAWP. Sampling equipment will be segregated and, after decontamination, stored separately from splash protection equipment. Decontaminated or clean sampling equipment not in use will be covered with plastic and stored in a designated storage area in the support zone. Additional information on equipment decontamination is provided in the O'Brien & Gere Hazardous Waste Health and Safety Training Manual.

8.4. Collection and disposition of impacted materials and refuse

Field decontamination wastes will be allowed to drain onto the ground surface at the point of generation and stored in temporary containers. PPE will be placed in plastic garbage bags and disposed as general refuse. Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment will be informed of the potentially harmful effects of exposures.

9. Emergency response

9.1. Notification of site emergencies

In an emergency, site personnel will signal distress either verbally or with three blasts from a horn (vehicle horn, air horn, and so forth). The SSHC, Field Leader, or the Project Manager will immediately be notified of the nature and extent of the emergency.

Table 9-1 contains emergency telephone numbers. This table will be kept with the portable telephone and updated as needed by the SSHC. The portable telephone will be used to notify off-site personnel of emergencies. The operating condition of this telephone will be verified daily before initiation of activities.

Table 9-1. *Emergency telephone numbers.*

Location	Telephone
Fire Department	315-789-1111
Police Department	315-789-6966
Ambulance	
Poison Control Center	1-800-942-5969
Geneva Hospital, Geneva, NY (ER)	315-789-4500
Chemical Emergency Advice (Client is O'Brien & Gere Engineers)	1-800-424-9300
Industrial Medical Associates	1-315-478-1977
National Spill Response Center	1-800-424-8802

Source: O'Brien & Gere Engineers, Inc.

Directions to Geneva Hospital from the site are as follows:

From the Market Basket Site, drive west on Avenue F to North Genesee Street, turn left onto North Genesee Street and proceed to North Street (6 blocks). Turn right onto North Street and proceed approximately 4 blocks to the Hospital.

9.2. Responsibilities

The SSHC is responsible for responding to, or coordinating the response of off-site personnel to, emergencies. In the event of an emergency, the SSHC will direct notification and response, and will assist the Field Leader in arranging follow-up actions. Upon notification of an exposure incident, the SSHC will call 911 and request that hospital, fire, and police emergency response personnel as necessary recommend medical diagnosis, treatment if necessary, and provide transportation to the hospital. The Field Leader will contact local, state, and federal government agencies, as appropriate.

Before the start of remedial action activities at the Market Basket Site, the SSHC will:

1. Confirm that the following safety equipment is available: eyewash, first aid supplies, air horn, and fire extinguisher.

2. Have a working knowledge of the O'Brien & Gere safety equipment.

3. Collect and maintain a file of MSDSs for materials used at the site.

Before work may resume following an emergency, used emergency equipment must be recharged, refilled, or replaced and government agencies must be notified as required.

The Project Manager, assisted by the SSHC and the Field Leader, must investigate the incident as soon as possible. The Project Manager will assess whether and to what extent exposure actually occurred, the cause of exposure, and the means to prevent similar incidents. The resulting report must be signed and dated by the Project Manager, SSHC, and the Field Leader.

9.3. Accidents and injuries

In the event of an accident or injury, workers will immediately implement emergency isolation measures to assist those who have been injured or exposed and to protect others from hazards. Upon notification of an exposure incident, the SSHC will contact emergency response personnel who can provide medical diagnosis and treatment. If necessary, immediate medical care will be provided by personnel trained in first aid procedures. Other on-site medical or first aid response to an injury or illness will be provided only by personnel competent in such matters. Accidents will be reported to O'Brien & Gere following the procedure in the QAM.

9.4. Safe refuge

Before commencing site activities, a place of refuge for O'Brien & Gere workers will be identified by the SSHC. For the purpose of this HASP, a location on the corner of Lehigh Street and Avenue F will be selected as the place of safe refuge during a site evacuation. In case of an emergency, personnel in the exclusion zone should evacuate the work area both for their own safety and to prevent hampering rescue efforts. Following an evacuation, the SSHC will account for site personnel. If evacuation from the on-site refuge location is necessary, the project vehicles will be used to transport personnel to the place of refuge.

9.5. Fire fighting procedures

A fire extinguisher meeting the requirements of 29 CFR Part 1910 Subpart L, as a minimum, will be available in the support zone during on-site activities. This is intended to control small fires. When a fire cannot be controlled with the extinguisher, the exclusion zone will be evacuated, and the fire department will be contacted immediately. The SSHC or the Field Leader will decide when to contact the fire department.

9.6. Emergency equipment

The following equipment, selected based on potential site hazards, will be maintained in the support zone for safety and emergency response purposes:

- Fire extinguisher
- First aid kit
- Eye wash bottles.

9.7. Emergency site communications

Hand and verbal signals will be used at the Market Basket Site for emergency communications.

9.8. Security and control

The SSHC or the Field Leader will monitor work zone security and control during emergencies, accidents, and incidents. The duties of the SSHC or the Field Leader include limiting access to the work zones to authorized personnel and overseeing emergency response activities.

10. Special precautions and procedures

10.1 Need for precautions and procedures

The activities listed in the RAWP may expose personnel to both chemical and physical hazards. The hazards associated with specific site activities are discussed in Chapter 2. The potential for exposure to hazardous situations will be significantly reduced through the use of air monitoring, PPE, hazard awareness, training, and administrative and engineering controls. Other general hazards that may be present on a hazardous waste work site are discussed below.

10.2. Heat stress

The timing and location of this project may be such that heat stress could pose a threat to the health and safety of site personnel. The SSHC will have a dry bulb thermometer on site and use it to implement work and rest regimens so that O'Brien & Gere personnel do not suffer adverse effects from heat. These regimens will be developed by the SSHC following the guidelines in Table 8-10 of the USEPA *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities,* which is attached. Special clothing and an appropriate diet and fluid intake will be recommended to O'Brien & Gere personnel involved in the activities specified in Chapter 2 to further reduce this hazard. In addition, ice and fluids will be provided as appropriate in the support zone.

10.3. Cold stress

Employees working under extremely cold conditions, particularly under windy conditions, may develop cold stress related injuries that can impair their ability to work safely. Therefore, the project employees will be trained to recognize warning signs and symptoms, which include reduced coordination, drowsiness, impaired judgment, fatigue, and numbness in toes and fingers. The SSHC will have a dry bulb thermometer and a wind velocity meter on site and use it to implement work, warming and rest regimens so that O'Brien & Gere personnel do not suffer adverse effects from cold. These regimens will be developed by the SSHC following the guidelines in Section 8.2 of the USEPA

Standard operating Safety Guides, which is attached. Special clothing and an appropriate diet and fluid intake will be recommended to O'Brien & Gere personnel involved in the activities specified in Chapter 2 to further reduce this hazard. In addition, a warming area and warm fluids will be provided as appropriate in the support zone.

10.4. Heavy machinery/equipment

O'Brien & Gere employees performing site activities may use or work near operating heavy equipment and machinery. Respiratory protection, hearing protection, and protective eyewear may be worn during portions of work activities. Since this protective equipment narrows the visual and acoustic environment of the wearer, O'Brien & Gere personnel should exercise extreme caution in the vicinity of operating equipment and machinery to avoid physical injury to themselves or others.

10.5. Additional safety practices

The following are important safety precautions that will be enforced during the completion of the activities listed in Chapter 2:

1. O'Brien & Gere will not conduct operations during severe weather. The Field Leader and the SSHC will decide when severe weather conditions exist or are forecast and take actions appropriate to the site and the anticipated severe weather to minimize the potential exposure of O'Brien & Gere employees.

2. O'Brien & Gere employees will refrain from unnecessary contact with plants, animals, and other biological hazards on the site. Should contact occur, the employee must report it to the Field Leader, the SSHC, and the Corporate Associate for Safety and Health, following the procedures in Vol. 3 of the O'Brien & Gere Quality Assurance Manual, Sections 001 and 017.

3. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the exclusion zone and buffer zones.

4. Hands and face must be thoroughly washed when leaving the support zone and before eating or drinking.

5. Contact with potentially impacted surfaces should be avoided whenever possible. Workers should minimize walking through puddles, mud, or other discolored surfaces; kneeling on ground; and leaning, sitting, or placing equipment on drums, containers, vehicles, or the ground.

6. Medicine and alcohol can mask the effects of exposure to certain compounds. Consumption of prescribed drugs must be at the direction of a physician.

7. O'Brien & Gere personnel and equipment in the work areas will be minimized consistent with effective site operations.

8. Unsafe or inoperable equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.

9. Activities in the exclusion zone will be conducted using the "Buddy System." The Buddy is another worker fully dressed in the appropriate PPE who can perform the following activities:

   - Provide partner with assistance
   - Observe partner for sign of chemical or heat exposure
   - Periodically check the integrity of partner's PPE
   - Notify others if emergency help is needed.

10. The HASP will be reviewed frequently for its applicability to the current and upcoming operations and activities.

10.6. Daily log contents

The Project Manager and the SSHC will establish a system appropriate to the Market Basket Site that will record, at a minimum, the following information:

1. O'Brien & Gere personnel and other personnel conducting the site activities, their arrival and departure times, and their destination at the site.

2. Incidents and unusual activities that occur on the site such as, but not limited to, accidents, breaches of security, injuries, equipment failures, and weather related problems.

3. Changes to the RAWP and the HASP.

4. Daily information, such as the following:

   - Work accomplished and the current site status.
   - Air monitoring equipment calibrations, repairs, and results.
   - Site work zones.

References

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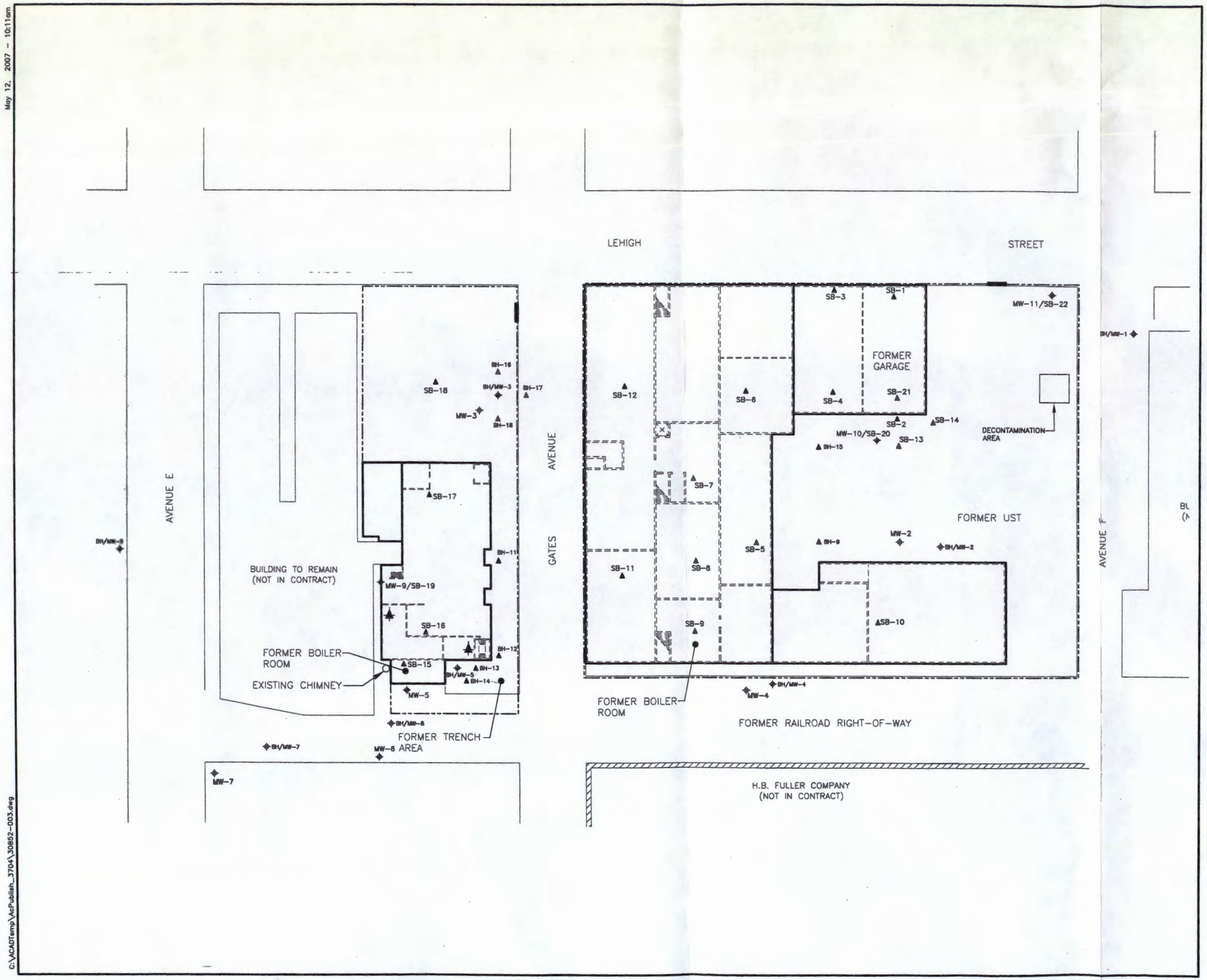
United States Environmental Protection Agency (USEPA), 1993 *Health and Safety Plan (HASP) Users Guide.* Publication EPA 9285.8-01. Washington, D.C.

United States Environmental Protection Agency (USEPA), 1992 *Standard Operating Safety Guides.* Publication EPA 9285.1-03, Washington, D.C.

NIOSH, OSHA, USCG, EPA. 1985 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. DHHS (NIOSH) Publication No. 85-115.

29 CFR 1910.120 Hazardous Waste Operations and Emergency Response

FIGURES



LEGEND

▲ SOIL BORING

SOIL BORING WITH MONITORING WELL

CITY OF GENEVA
FORMER
MARKET BASKET PROPERTY
ENVIRONMENTAL
RESTORATION PROGRAM
ONTARIO COUNTY, NEW YORK

SITE PLAN

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MAY 2007

O'BRIEN & GERE ENGINEERS INC.

May 12, 2007 - 10:11am

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