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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 sampling activities during demolition activities at the Ithaca Gun location in Ithaca, New York. Attachment 1 contains 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 remedial activities. O'Brien & Gere's 2008 Demolition Work Plan (DWP) dated May 2008, 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 DWP, 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 DWP and in the areas of the Ithaca Gun 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

Personnel involved in the activities at the Ithaca Gun 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.

Key project personnel and their responsibilities with regard to the Ithaca Gun Site DWP are discussed below.

1.2.1. Project Officer

Mr. Peter E. Grevelding 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.

1.2.2. 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.

1.2.3. 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.

1.2.4. Site Safety and Health Coordination

Mr. David Wilson, CIH 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 Project Safety and Health Officer, 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.

1.2.5. Field Leader

Mr. David Wilson, CIH 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
Peter E. Grevelding, 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
David Wilson, Site Safety and Health Coordinator, Syracuse, NY	315-437-6100
David Wilson, Field Leader, Syracuse, NY	315-437-6100

2. Hazard Analysis

The tasks to be conducted at the site will consist of collecting bulk samples for waste characterization and air samples for community air monitoring. The details of these tasks are presented in the DWP and will be conducted in accordance with the procedures outlined in the DWP. Both the potential health and safety hazards and the hazard and contaminant control procedures for each task are discussed below. Based on the available bulk sample data, lead is identified as the primary chemical hazard at the site.

Inhalation exposure pathway may occur from dusts generated from building debris. Skin contact with the building debris should be minimized in accordance with good work practices.

2.1. Building Material Sampling

Building materials suspected of being contaminated with lead are concentrated in the former basement test range of the Ithaca Gun facility. Representative samples of remaining building materials may be collected for characterization. O'Brien & Gere will collect building materials for lead analysis. Sample collection will be collected in a manner to limit the amount of airborne particulate.

2.1.1. Potential Safety and Health Hazards

Work surface conditions and debris may present trip hazards. Skin contact with lead-containing materials may lead to ingestion for inadequate skin protection or cleaning. The possibility exists for release of particulate matter onto workers' clothing and into the workers' breathing zones.

2.1.2. Hazard and Hazards Constitute Control

Level D PPE, consisting of a coverall or long sleeve shirt/long pants, leather safety boots, nitrile gloves where skin contact may be an issue, and a hard hat will be worn throughout the project. Personnel must wear hearing protection when working near operating heavy machinery and will remain upwind from vehicle exhaust.

A portable generator and 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.

If necessary, measurement equipment will be decontaminated in accordance with the guidelines in Chapter 8 of this HASP. Field decontamination wastes will be disposed in accordance with the procedures in the DWP, which specifies 55-gallon drums.

2.2. Building Demolition

During building demolition the potential exists for the release of airborne particulate. In accordance with the Community Air Monitoring Program (CAMP), airborne particulate matter will be monitored at upwind and downwind perimeter locations during demolition activities.

2.2.1. Potential Health Hazards and Hazardous Constituents

During building demolition, there is the potential for the release of airborne particulate. The possibility exists for release of particulate matter onto workers' clothing and into the workers' breathing zones. Dust suppression measures will be implemented to minimize this potential.

2.2.2. Hazard and Hazardous Constituent Control

Level D PPE, consisting of a coverall or long sleeve shirt/long pants, leather safety boots, nitrile gloves where skin contact may be an issue, and a hard hat will be worn throughout the project. Personnel must wear hearing protection when working near operating heavy machinery and will remain upwind from vehicle exhaust.

2.3. Ambient Air Quality Monitoring

Collect air samples to evaluate the potential for air transport of particulate matter less than 10 micrometers in size (PM 10), at locations down- and up-wind from the Site.

2.3.1. Hazard and Hazardous Constituent Control

Level D PPE is to be worn.

3. Personnel Training

3.1. Site Workers

O'Brien & Gere employees must comply with the O'Brien & Gere Health & Safety Manual. Manual Sections anticipated to apply to this site would include but not be limited to the following:

- ❑ Section 2.1 Demolition
- ❑ Section 2.25 Hazard Communication
- ❑ Section 2.30 Lead Exposure Plan
- ❑ Section 2.43 Respiratory Protection

3.2. 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 that may be required 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.

3.3. 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 Level D, as detailed in Section 4.2 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 Ithaca Gun Site is OSHA Level D. 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. Level D Protection

Level D protection consists of the following:

- Coveralls or long pants and long sleeve shirt
- Nitrile gloves where hand contact may occur
- Leather safety boots
- Hard hat
- Hearing protection required when heavy equipment is operating

4.2.2. Level C Protection

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

4.2.3. Protective Equipment Selection

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

<u>Activity</u>	<u>Level of PPE</u>
Building Demolition	Modified Level D
Building Material Sample	Modified Level D

5. Medical Monitoring

5.1. Medical Surveillance Program

O'Brien & Gere has implemented a medical monitoring program in accordance with 29 CFR 1910.120 and the O'Brien & Gere Health & Safety Manual. 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

There is a potential for hazardous materials to be present at the Ithaca Gun Site at levels that will pose a health hazard to workers. A dust action level of 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) has been selected for protection from exposure to remedial activities. 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.

6.1. Air Sample Collection

The air will be monitored with a real time aerosol dust monitor (RAM) during demolition 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.

6.1.1. 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.

6.2. Action Levels

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.

6.2.1. Particulates

There is the potential for exposure to dust generated during site activities. A total dust action level of $150 \mu\text{g}/\text{m}^3$ has been established.

The RAM will be used to measure airborne particulates. When respirable particulates are detected at $150 \mu\text{g}/\text{m}^3$ or greater, a half-face respirator with P100 filters will be worn. Employees will leave the work area when the respirable dust concentration exceeds $1,000 \mu\text{g}/\text{m}^3$ and may not return until it is less than $750 \mu\text{g}/\text{m}^3$. At dust concentrations that exceed $150 \mu\text{g}/\text{m}^3$ 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.

6.3. Field instrumentation and calibration

On-site air monitoring at the Ithaca Gun Site will include the use of a RAM.

6.3.1. 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 ($\mu\text{g}/\text{m}^3$).

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

In addition to the real-time aerosol dust monitoring, O'Brien & Gere will conduct perimeter sampling for airborne lead.

6.4.1. Additional Site Air Monitoring

Stationary air samples shall be collected at the fence line of the Ithaca Gun Property at one upwind and one downwind location for the measurement of airborne lead in accordance with NIOSH 7300.

- Airborne lead sample collection shall be conducted simultaneously, with the direct reading instrumentation for total particulate at the upwind and the downwind fenceline location of the work zone to establish direct reading based action levels for lead leaving the work area during work activities.
- Airborne lead samples shall be submitted to an American Industrial Hygiene Association (AIHA) accredited laboratory for analysis.

A correlation between the results of analytical samples and measurements collected by the real time monitors will be conducted to determine the need for lowering response levels and subsequent actions listed in the NYSDOH CAMP for airborne lead concentrations leaving the downwind perimeter of the work area.

O'Brien & Gere shall implement daily perimeter sampling during all work activities. Sampling will be performed to document airborne lead concentrations on selected days, for comparison to CAMP sampling program parameters outlined above and to establish background concentrations. O'Brien & Gere shall provide the personnel, instruments, and materials necessary to perform such air monitoring.

Perimeter sampling will include the following:

- Sampling shall be conducted daily during the course work activities for airborne lead (NIOSH 7300) at one upwind location and one downwind locations at the fenceline of the work area during site demolition activities.
- A hand held anemometer shall be used to record, at a minimum, outside wind velocity, and wind direction.
- Documentation – sampling will be performed during site work activities involving demolition activities performed at both the North and South building locations.
- Daily sampling durations will correlate with work activities occurring each day. O'Brien & Gere will assume 6-hour sample durations, to be adjusted upwind or downwind to reflect actual daily construction duration. Sampling flow rates will be designed to allow for sufficient sample to be collected as to meet detection limit criteria for the separate analytical methods.
- Perimeter samples will be collected continuously during demolition activities when occurring on site during normal working hours. At the end of each week, real-time monitoring data will be reviewed and the airborne lead samples from one day will be selected by O'Brien & Gere and will be analyzed for airborne lead based on the highest concentrations measured by the real time monitors. The other samples collected during that week shall be archived. A maximum of 48-hour turnaround time will be required on the perimeter samples.

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 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

The only work location that is considered to present a contamination concern is the former basement target range. Should personnel or equipment become contaminated by material from the target range, the SSHC will implement a decontamination protocol.

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.

8.3. Collection and Disposition of Impacted Materials and Refuse

Should decontamination activities be needed, field decontamination wastes will be stored in temporary containers. PPE will be placed in plastic garbage bags and disposed as general refuse. If appropriate, 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 or air horn). 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	911 or 607-272-1234
Police Department	911 or 607-272-9973
Ambulance	911 or 607-273-1161
Poison Control Center	1-800-942-5969
Cayuga Medical Center at Ithaca, Ithaca, NY (ER)	607-274-4011
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

Directions to Hospital from the site are as follows:

Head northwest on Lake Street toward Lincoln Street. Turn left onto Lincoln Street. Turn right onto Dey Street. Turn left onto NY-13 / NY-34 / N Meadow Street. Turn right onto NY-89 / NY-96 / West Buffalo Street. Turn right onto Harris B Dates Drive.

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.

The Project Manager, assisted by the SSHC and the Field Leader, must investigate any 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 O'Brien & Gere Health & Safety Manual Section 3.1.

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, the main front gate has been 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, based on potential site hazards, will be maintained for safety and emergency response purposes:

- Fire extinguisher
- First aid kit

9.7. Emergency Site Communications

Hand and verbal signals will be used at the Ithaca Gun 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

The activities listed in the DWP 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.

10.1. 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*. 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.

10.2. 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.

10.3. 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.

10.4. 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. 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 work zone.
3. 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.
4. Medicine and alcohol can mask the effects of exposure to certain compounds. Consumption of prescribed drugs must be at the direction of a physician.
5. O'Brien & Gere personnel and equipment in the work areas will be minimized consistent with effective site operations.
6. Unsafe or inoperable equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.
7. The HASP will be reviewed frequently for its applicability to the current and upcoming operations and activities.

10.5. Daily Log Contents

The Project Manager and the SSHC will establish a system appropriate to the Ithaca Gun 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 DWP 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.

11. References

American Conference of Governmental Industrial Hygienists 2005, *2005 TLV's and BEI's, Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices*, Cincinnati, OH

United States Environmental Protection Agency, *Health and Safety Plan (HASP) Users Guide*, Publication EPA 9285.8-01, July 1993

United States Environmental Protection Agency, *Standard Operating Safety Guides*, Publication EPA 9285.1-03, June 1992

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

29 CFR 1910.120 Hazardous Waste Operations and Emergency Response