Appendix C

Health and Safety Plan /Community Air Monitoring Plan

OBG

FINAL PLAN

Health and Safety Plan
Taconic Site
NYSDEC Site No. 442047

Taconic
Petersburgh, New York

December 2016

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Health and Safety Plan
Taconic Site
NYSDEC Site No. 442047

Prepared for:

Taconic
Petersburgh, New York

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1. INTRODUCTION

1.1 PURPOSE AND REQUIREMENTS

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. (OBG) personnel while performing field activities associated with implementation of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan (OBG, 2016b) developed for the Taconic facility located at 136 Coonbrook Road, Petersburgh, New York (the Site). Subcontractors will develop and implement their own activity-specific HASP as it relates to their scope of services.

1.2 SITE DESCRIPTION

Taconic owns a facility at 136 Coonbrook Road in Petersburgh, New York where it manufactures polytetrafluoroethylene (PTFE) coated fabrics. As shown on Figure 1, the Site is located in a rural area, at the northernmost intersection of Coonbrook Road and State Route 22. The Site is a 23.54-acre area that features nine structures related to manufacturing and three parking lots. There is an unnamed stream that runs through the Site. The surrounding parcels (some of which are owned by Taconic) are residential or undeveloped.

1.3 SCOPE OF WORK

The scope of work for the RI is presented in the RI/FS Work Plan. Tasks to be conducted at the Site associated with the RI include or may include the following:

- Groundwater sampling
- Surface water sampling
- Overburden and bedrock drilling (including use of direct push methods)
- Well installation and development
- Groundwater elevation measurements
- Hydrogeologic testing (including borehole geophysics and hydraulic conductivity testing)
- Soil sampling
- General Site visits and surveying.

1.4 IMPLEMENTATION OF HEALTH AND SAFETY PLAN

The requirements and guidelines presented in this HASP are based on a review of available information and an evaluation of potential hazards at the Site and surrounding parcels. This HASP incorporates by reference the applicable Occupational Safety and Health Administration (OSHA) requirements in 29 CFR Part 1910 and 29 CFR Part 1926, and the United States Environmental Protection Agency's (USEPA's) Health and Safety Plan Users Guide (USEPA, 1993). The protective equipment selection was made according to Subpart I of 29 CFR 1910. OBG personnel are required to read this HASP before beginning work on the Site. This HASP will be available for inspection and review by OBG employees while work activities are underway.

When conducting the field activities presented in the RI/FS Work Plan, OBG personnel will comply with this HASP. OBG personnel will notify the OBG Site Health and Safety Coordinator (SSHC) of matters regarding health and safety. The SSHC is responsible to the OBG 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 or field activities change.

1.5 PROJECT TEAM ORGANIZATION

Personnel involved in the field activities at the Site have a part in implementing the HASP. Among them, the Project Officer, Technical Director, Project Manager, Corporate Health and Safety Project Manager, Field

Operations Manager, and SSHC have specifically designated responsibilities. Their names and telephone numbers are listed in Table 1, below. Other key OBG project personnel, the project's organization, and other primary contacts for the project are presented in the RI/FS Work Plan. The Taconic Site contact name and telephone numbers are also provided in Table 1.

Key project personnel and their responsibilities with regard to the field activities are discussed below.

Project Officer

Douglas M. Crawford, P.E., 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 confirmation of the HASP and that information in the HASP is communicated to the project team.

Technical Director

Paul W. Hare, CPG, PG, is the Technical Director and reports directly to the Project Officer with respect to this project. The Technical Director is responsible for the technical progress of the project.

Project Manager

Janet M. Forsell, is the Project Manager and reports directly to the Project Officer. The Project Manager is directly responsible for the execution and financial control of the project, as well as the safety performance of the project.

Corporate Health and Safety Project Manager

Steven Thompson, is the OBG Corporate Health and Safety Project Manager and reports to the Project Manager with respect to this project. The Corporate Health and Safety Project Manager coordinates with the SSHC on overall project safety and health activities for the Site and reviews the HASP upon request of the Project Manager.

Field Operations Manager

Paul L. D'Annibale, CPG, is the Field Operations Manager and reports to the Project Manager. The Field Operations Manager will be responsible for the implementation of RI field activities and overall Site coordination, including implementation of the safety requirements in the HASP during fieldwork.

Site Safety and Health Coordinator

The SSHC for this investigation will be designated by the OBG Project Manager. The SSHC reports to the Project Manager, coordinates activities with the OBG Corporate Health and Safety Project Manager, 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 conducting the following actions:

- Provide a complete copy of the HASP at the Site prior to the initiation of field activities
- Familiarize OBG employees who participate in the field activities with the HASP
- Conduct daily Site health and safety briefing sessions
- Document the availability, use, and maintenance of personal protective and other health or safety equipment
- Maintain safety awareness among OBG employees during field activities and communicate health and safety matters to them

- Review field activities for performance in a manner consistent with OBG policy and this HASP
- Monitor health and safety conditions during field activities
- Coordinate with emergency response personnel and medical support facilities, if necessary
- Notify the Project Manager of the need to initiate corrective actions in the event of an emergency, an accident, a near miss, or identification of a potentially unsafe condition
- Notify 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
- Recommend improvements in health and safety measures to the Project Manager
- Conduct health and safety performance and system audits.

The SSHC has the authority to take the following actions:

- Suspend field activities, if the health or safety of an OBG employee or OBG subcontractor appears to be endangered
- Notify OBG personnel to alter work practices that the SSHC deems to be unsafe.

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

- Suspend an OBG employee from field activities at the Site for failing to adhere to the requirements of this HASP.

Table 1. Project Personnel

Name and Title	Telephone
Douglas M. Crawford, PE **OBG Project Officer** **Syracuse, New York**	(315) 956-6442
Paul W. Hare, CPG, PG **OBG Technical Director** **Albany, New York**	(518) 724-7274
Janet M. Forsell **OBG Project Manager** **Albany, New York**	(518) 724-7258
Steven Thompson **OBG Corporate Health and Safety Project Manager** **Liverpool, New York**	(315) 560-5018, cell
Paul L. D'Annibale, CPG **OBG Field Operations Manager** **Liverpool, New York**	(518) 724-7256 (518) 847-9838, cell
OBG Site Safety and Health Coordinator **Albany, New York**	To be identified
Karen Toth **Environmental Manager** **Taconic Site Contact**	(518) 658-3202 x288 (518) 424-0997, cell

2. HAZARD ANALYSIS

General Site chemical, physical, and environmental hazards are summarized in Section 2.1. Specific health and safety considerations for field tasks presented in the RI/FS Work Plan are discussed in separate subsections as outlined below:

- General Site visits and surveying. (Section 2.1.2 and 2.1.3)
- Overburden and bedrock drilling (Section 2.2.1)
- Well installation and development (Section 2.2.1)
- Soil sampling (Section 2.2.2)
- Groundwater sampling (Section 2.2.3)
- Surface water sampling (Section 2.2.3)
- Groundwater elevation measurements (Section 2.2.3)
- Hydrogeologic testing (Section 2.2.4).

2.1 GENERAL HAZARDS

2.1.1 Chemical Hazards

Chemical hazards associated with RI field activities are related to inhalation, ingestion, and skin exposure to Site constituents of potential concern (COPCs). Site COPCs include perfluorooctanoic acid (PFOA) and may also include other perfluorinated compounds (PFCs)[1] as well as volatile organic compounds (VOCs).[2]

USEPA has established a lifetime health advisory level of 70 parts per trillion (ppt) for PFOA and perfluorooctane sulfonate (PFOS), combined.

Because PFOA and other PFCs have been used in an array of consumer products, the use of several common items during field activities (especially sampling) is prohibited due to the potential for cross contamination. A list of prohibited items and acceptable substitutes is presented in Table 2.

The potential for inhalation of COPCs by unprotected personnel during ground intrusive RI field activities at the Site is considered low to moderate. The potential for dermal contact with soil or water containing COPCs by unprotected personnel during general Site visits, surveying, and groundwater elevation measurements is considered low to moderate. The potential for dermal contact with soil or water containing COPCs by unprotected personnel during drilling and sampling operations is moderate to high. Proper use of personnel protective equipment is intended to reduce potential exposure to Site COPCs.

2.1.2 Physical Hazards

Physical hazards involved with field activities are primarily associated with the Site and surrounding parcels. The Site is an active manufacturing facility located on either side of a public, residential road with a low speed limit and low to moderate traffic. The Site is bordered on the south by New York State Route 22 (NY 22), a state highway with a high speed limit and moderate to heavy traffic. Indoor-related hazards include the potential for incidents involving personnel struck by or struck against objects/machinery/forklifts resulting in fractures, cuts, punctures, or abrasions, and noise levels exceeding the OSHA Permissible Exposure Limit (PEL) of 90 decibels (dBA) that are both a hazard and a hindrance to communication.

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[1] PFCs represent a subset of a broader group of poly- and perfluoroalkyl substances (PFAS). However, for simplicity, PFAS and PFCs are used interchangeably in this HASP and the RI/FS Work Plan.

[2] Note that the results of groundwater samples collected in September 2016 from the three production wells at the Taconic facility showed no VOCs to be present. However, additional VOC data will be collected during the RI.

Outdoor-related hazards include wet or otherwise slippery walking surfaces, unstable soil, sunburn, lightning, rain, snow, ice, working on or near water, and heat and cold-related conditions. There exists a potential for incidents involving personnel struck by or struck against vehicles when parking on, crossing, or working along the public road and/or state highway resulting in severe injury. There is also the potential for contact with overhead and underground utilities present at the Site and surrounding parcels.

Materials handling and manual Site work may cause blisters, sore muscles, and joint and skeletal injuries; and may present eye, contusion, and laceration hazards. A common type of accident that occurs in material handling operations is the "caught between" situation when a load is being handled and a finger or toe gets caught between two objects. Extreme care should be taken when loading and unloading material. Proper lifting techniques should be employed.

Work areas present hazards of slips, trips, and falls from scattered debris and irregular walking surfaces. Walking surfaces during field activities may involve slip, trip, and fall hazards or drowning hazards when working on or near water. Personnel should frequently inspect walking surfaces and keep work areas clear of debris and moisture.

Refer to Section 2.2.1 for information related to working near heavy equipment, including drilling rigs.

2.1.3 Environmental Hazards

Environmental hazards, in addition to Site COPCs, include fauna, flora, and severe weather conditions. Aggressive fauna (biological hazards), such as ticks, mosquitoes, bees, wasps, spiders and rarely snakes, may be present at the Site and surrounding parcels. Poison ivy, poison oak, and giant hogweed may also be present. Prior to initiating field activities, the Site conditions will be discussed with the field personnel. Hazards will be identified and protective measures will be explained.

Safety controls for biological hazards include:

- Being able to identify hazardous plants, insects, and snakes commonly found in the area
- Wearing appropriate work clothing (long pants, long sleeve shirt, see Table 2)
- Performing a personal inspection of extremities for aggressive fauna (i.e., ticks, spiders) when leaving the work area
- Utilizing insect repellant as follows when entering brushy/overgrown areas where ticks are known to exist:
  - Use an approved insect repellent (see Table 2) on exposed skin (ankles/calves, hands/arms, and neck)
  - Use permethrin repellent on clothes (pants and shirts)
  - Apply insect repellant according to manufacturer directions.

In the event of severe weather conditions such as lightning storms, hurricanes, tornadoes, floods, and severe snow storms, Site work will be halted by the SSHC until the severe weather conditions subside.

2.1.3.1 Heat Stress

General

High relative humidity or the use of protective equipment, if required, may create heat stress. Monitoring of personnel should commence when the ambient temperature is 75 degrees Fahrenheit (°F) or above, as shown on Table 3 (shaded orange) provided below. The heat index is a measure of how the ambient temperature and relative humidity combined feels to the body. The table uses relative humidity and air temperature to produce the apparent temperature or the temperature the body feels.

- At apparent temperatures between 90°F and 102°F sunstroke, heat cramps, or heat exhaustion are possible

- At apparent temperatures between 102°F and 115°F sunstroke, heat cramps, or heat exhaustion are likely and heat stroke is possible
- At apparent temperatures greater than 115°F sunstroke and/or heat stroke is highly likely.

Monitoring frequency should increase as the ambient temperature increases or as slow recovery rates are observed. The SSHC or personnel trained to recognize heat stress symptoms should perform heat stress monitoring.

Table 3. Heat Index Chart

	Humidity																		
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Temperature (°F)	**Apparent Temperature**																		
115	111	115	120	127	135	143	151												
110	105	108	112	117	123	130	137	143	151										
105	100	102	105	109	113	118	123	129	135	142	149								
100	95	97	99	101	104	107	110	115	120	126	132	136	144						
95	90	91	93	94	96	98	101	104	107	110	114	119	124	128	134	140	147	154	161
90	85	86	87	88	90	91	93	95	96	98	100	102	106	109	113	117	122	127	132
85	80	81	82	83	84	85	86	87	88	89	90	91	93	95	97	99	102	105	108
80	75	76	77	77	78	79	79	80	81	81	82	83	85	86	86	85	86	88	89
75	70	71	72	72	73	73	74	74	75	75	76	76	77	77	78	76	76	77	77

Monitoring

For monitoring the body's recuperative abilities, one or more of the following techniques will be used. Other methods for heat stress monitoring, such as the Wet Bulb Globe Temperature (WBGT) Index from the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) Booklet, can be used. To monitor the worker, measure:

Heart Rate: Count the radial pulse during a 30-second period as early as possible in the rest period.

- If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same.
- If the heart rate still exceeds 110 beats per minute at the beginning of the next rest period, shorten the following work cycle by one-third.

Prevention

Proper training and preventive measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is of particular importance because once a person suffers from heat stroke or heat exhaustion, that person is more susceptible to additional heat-related illness. To avoid heat stress, the following steps should be taken.

- Adjust work schedules
- Mandate work slowdowns as needed
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided
- Provide shelter (air conditioned if possible) or shaded areas to protect personnel during rest periods
- Maintain workers' body fluid at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must equal the amount of water lost in sweat. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace that lost in sweat.

When heavy sweating occurs, require workers to increase drinking levels. Train workers to recognize the symptoms of heat-related illness in themselves and in co-workers. Heat stress symptoms include:

- Elevated heart rate
- Lack of concentration
- Irritability
- Headache, cramping
- Fatigue
- Clammy, moist and pale skin (severe heat exhaustion)
- Extremely dry and red skin (heat stroke).

2.1.3.2 Cold Stress

Work/rest schedules must be altered to minimize the potential for cold stress. Cold stress is defined as a decrease in core body temperature to 96.8°F and/or cold injury to body extremities. Decreases in core body temperature are associated with reduced mental alertness, reduction in rational decision making, or loss of consciousness in severe cases. Symptoms of cold stress include pain in extremities (e.g., hands and feet) and severe shivering. If workers experience these symptoms, then stop work and implement the following controls:

- Require personnel to don adequate dry insulating clothing
- Adjust the work/rest schedule to increase the amount of rest and rewarming time
- Discuss symptoms of cold stress, clothing requirements, and work/rest schedules at toolbox safety meetings when the wind chill temperature drops below 25°F.

The wind chill index, provided in Table 4, shows the effective cooling on exposed skin. When the wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When factors are the same, the faster the wind blows, the greater the heat loss, which results in a colder feeling. Wind chill temperatures that are 25°F below zero or more (shown below, shaded blue) can result in frost bite in 30 minutes or less. Workers should protect any exposed skin, especially the face, ears, and fingers.

Table 4. Wind Chill Index

	Wind Speed – mph						
Calm	**5**	**10**	**15**	**20**	**25**	**30**	**35**
Temperature (°F)	**Effective Wind Chill Temperature (°F)**						
45	43	34	29	26	23	21	20
40	37	28	23	19	16	13	12
35	32	22	16	12	8	6	4
30	27	16	9	4	1	-2	-4
25	22	10	2	-3	-7	-10	-12
20	16	3	-5	-10	-15	-18	-20
15	11	-3	-11	-17	-22	**-25**	**-27**
10	6	-9	-18	-24	**-29**	**-33**	**-35**
5	0	-15	**-25**	**-31**	**-36**	**-41**	**-43**
0	-5	-22	**-31**	**-39**	**-44**	**-49**	**-52**
-5	-10	**-27**	**-38**	**-46**	**-51**	**-59**	**-64**
-10	-15	**-34**	**-45**	**-51**	**-59**	**-64**	**-67**
-15	-21	**-40**	**-51**	**-60**	**-66**	**-71**	**-74**
-20	**-26**	**-46**	**-58**	**-67**	**-74**	**-79**	**-82**
-25	**-31**	**-52**	**-65**	**-74**	**-81**	**-86**	**-89**

2.2 TASK HAZARDS

Hazard controls for task hazards will identify personal protective equipment (PPE) as described in more detail in Section 3.7 of this HASP. Other safety controls and safety procedures will also be referenced as necessary to mitigate task hazards.

2.2.1 Overburden and Bedrock Drilling

The overburden and bedrock drilling task will include the completion of exploratory borings through overburden and into bedrock for approximately 25 feet to evaluate the depth and nature of the overburden materials and bedrock at the Site. The physical hazards of this task are primarily associated with operation of the drill rig and contact with soil/bedrock boring contents.

Potential health hazards and contaminants

Hazards generally associated with drilling operations include noise levels exceeding the OSHA PEL of 90 dBA that are both a hazard and a hindrance to communication, carbon monoxide from the drill rig, and overhead or underground electrical and telephone wires which can be hazardous when the drill rig boom is in the upright position. Moving parts on the drill rig may catch clothing. Free or falling parts from the cat head may cause head injury. Moving the drill rig over uneven terrain may cause the vehicle to roll over or get stuck. High pressure hydraulic lines and air lines used on drill rigs can be hazardous when they are in disrepair or incorrectly assembled. There may be underground utilities in the area where drilling is being performed.

During the retrieval of augers/drilling rods, the possibility exists for splashing of exposed subsurface materials onto the workers and release of dust and volatile materials onto workers' bodies and into the workers' breathing zones.

Hazard and contaminant control

General PPE requirements presented in Section 3.7 apply to this task. At a minimum, personnel must wear Level D PPE including 29 CFR 1910.95 Appendix B compliant ear muffs and/or ear plugs when working near operating heavy machinery. Nitrile gloves will be worn during drilling and when there is a need to handle or work with potentially impacted soil or liquid. Good work practices will be followed to minimize the potential for potentially impacted soil or liquid to get on the sampler's work clothing. Prior to approaching a drill rig, loose clothing will be secured and the boom position will be checked.

OBG personnel will remain upwind from the vehicle exhausts unless required by drilling and sampling work. Work zone air monitoring and subsequent monitoring (although unlikely, including action levels for respirator use) will be in accordance with Section 3 of this HASP.

The drilling subcontractor will be required to inspect equipment daily to ensure it is in good working order. The drilling subcontractor will be required to make repairs as necessary. To avoid contact with overhead lines, the drilling subcontractor will maintain a minimum distance of 20 feet with the drill rig, and will lower the drill rig boom prior to moving the rig. The drilling subcontractor will be required to verify the location of underground utilities with both the facility and the local power and utility companies prior to drilling. Overhead and underground utilities will be considered "live" until verified otherwise.

Drilling equipment (augers/drilling rods) that is potentially impacted will be cleaned to the satisfaction of the Field Operations Manager or SSHC. The equipment will be cleaned and decontaminated using the equipment decontamination procedures outlined in the Field Sampling and Analysis Plan (FSAP), which is part of the RI/FS Work Plan. The field decontamination wastes will be collected and disposed of properly according to the FSAP.

2.2.2 Soil Sampling Activities

This task will include the collection of surface and subsurface soil samples for laboratory analysis. The physical hazards of this task are primarily associated with contact with soil boring contents.

Potential health hazards and contaminants

Hazards generally associated with collection of soil samples include contact with potentially impacted subsurface materials and release of dust and volatile materials onto workers' bodies/clothing and into the workers' breathing zones.

There is the potential for blisters, sore muscles, joint and skeletal injuries, contusions, laceration, and eye injuries during soil sample collection.

Hazard and contaminant control

General PPE requirements presented in Section 3.7 apply to this task. Nitrile gloves will be worn when there is a need to handle or work with potentially impacted soils. Good work practices will be followed to minimize the possibility for potentially impacted soils to get on the sampler's work clothing.

Strains and joint and skeletal injuries can be prevented by employing proper lifting techniques (i.e., bending at the legs, two-person lifting, refraining from lifting and twisting). Proper lifting techniques will be employed when handling heavy equipment or objects.

Field sampling equipment that is potentially impacted will be cleaned to the satisfaction of the Field Operations Manager or SSHC. The field sampling equipment will be cleaned and decontaminated using the equipment decontamination procedures outlined in the FSAP, which is part of the RI/FS Work Plan. The field decontamination wastes will be collected and disposed of properly according to the FSAP.

2.2.3 Groundwater and Surface Water Sampling Activities

This task includes the collection of groundwater elevation measurements, groundwater and surface water samples from locations at the Site, and development of newly installed monitoring wells. The physical hazards of this task are primarily associated with operating field sampling equipment, working on or near water, and contact with groundwater or surface water.

Potential health hazards and contaminants

Hazards generally associated with collection of groundwater and surface water samples include contact with potentially impacted water, electrical hazards from field sampling equipment, such as pumps and generators, and the potential for drowning when working on or near open water (e.g., streams, ponds, rivers). During the retrieval of pumps or dipper buckets, the possibility exists for splashing of potentially impacted water onto workers' bodies. During surface water sampling activities, sample locations may be near roadways.

There is the potential for sore muscles, joint and skeletal injuries during the purging and sampling of the groundwater wells and/or surface water locations. Moving parts on field sampling equipment may catch clothing.

Hazard and contaminant control

General PPE requirements presented in Section 3.7 apply to this task. Nitrile gloves will be worn when there is a need to handle or work with potentially impacted water. Good work practices will be followed to minimize the possibility for potentially impacted water to get on the sampler's work clothing.

Ground fault circuit interrupters will be used on all electrified equipment to minimize the potential for electrocution and/or shock. Field sampling equipment will be inspected daily for weak spots, frays, and other signs of wear. Damaged equipment will be removed from service until repaired or replaced.

Strains and joint and skeletal injuries can be prevented by employing proper lifting techniques (i.e., bending at the legs, two-person lifting, refraining from lifting and twisting). Proper lifting techniques will be employed when handling heavy equipment or objects. Inspection of work areas and walking surfaces for slip, trip, and fall hazards and use of the "buddy system" can be used to prevent drowning when working near water. During

surface water sampling activities, sample locations will be accessed from Taconic property when feasible to minimize working along roadways. Parking on NY 22 with a field vehicle will be prohibited. When feasible, pull offs and driveways should be backed into off of NY 22, especially if the line of sight is limited upon egress.

In addition, when working on or near larger bodies of water (i.e., the Little Hoosick River), a United States Coast Guard-approved Type I, II, or III personal floatation device will be worn.

Field sampling equipment that is potentially impacted will be cleaned to the satisfaction of the Field Operations Manager or SSHC. The field sampling equipment will be cleaned and decontaminated using the equipment decontamination procedures outlined in the FSAP. The field decontamination wastes will be collected and disposed of properly according to the FSAP.

2.2.4 Hydrogeologic Testing Activities

This task will include the evaluation of hydrogeologic conditions at the Site using various testing methods. The physical hazards of this task are primarily associated with operating hydrogeologic testing equipment, working on or near water, and contact with groundwater.

Potential health hazards and contaminants

Hazards generally associated with hydrogeologic testing include contact with potentially impacted groundwater, electrical hazards from field testing equipment, such as pumps and generators. During the retrieval of pumps or other hydrogeologic testing equipment, the possibility exists for splashing of potentially impacted water onto workers' bodies.

There is the potential for sore muscles, joint and skeletal injuries during the installation and removal of testing equipment from wells. Moving parts on field sampling equipment may catch clothing.

Hazard and contaminant control

General PPE requirements presented in Section 3.7 apply to this task. Nitrile gloves will be worn when there is a need to handle or work with potentially impacted water. Good work practices will be followed to minimize the possibility for potentially impacted water to get on the sampler's work clothing.

Ground fault circuit interrupters will be used on all electrified equipment to minimize the potential for electrocution and/or shock. Hydrogeologic testing equipment will be inspected daily for weak spots, frays, and other signs of wear. Damaged equipment will be removed from service until repaired or replaced.

Strains and joint and skeletal injuries can be prevented by employing proper lifting techniques (i.e., bending at the legs, two-person lifting, refraining from lifting and twisting). Proper lifting techniques will be employed when handling heavy equipment or objects. Inspection of work areas and walking surfaces will be performed for slip, trip, and fall hazards.

Hydrogeologic testing equipment that is potentially impacted will be cleaned to the satisfaction of the Field Operations Manager or SSHC. The field sampling equipment will be cleaned and decontaminated using the equipment decontamination procedures outlined in the FSAP. The field decontamination wastes will be collected and disposed of properly according to the FSAP.

3. PERSONNEL TRAINING

3.1 SITE WORKERS

OBG employees performing the field activities associated with implementation of the RI/FS Work Plan and subcontractors performing work on the Site and surrounding parcels must have completed a training course of at least 40 hours meeting the requirements of 29 CFR 1910.120(e). If the course was completed more than 12

months before the date of Site work, completion of an approved 8-hour refresher course on health and safety is required. Training certificates will be made available upon request.

OBG employees must comply with OBG's Health, Safety and Environment Manual (OBG, 2016a). The respiratory protection program is specified in Appendix B – Respiratory Protection. The Hazard Communication Program is specified in Appendix B – Hazard Communication. The Audit Program is specified in Appendix A – Audits and Inspections.

3.2 EMERGENCY RESPONSE PERSONNEL

OBG 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.

3.3 SITE-SPECIFIC TRAINING

OBG employees and subcontractors must complete the Taconic-required contractor safety training prior to performing RI related field activities at the Site and surrounding parcels. The Taconic Contractor Safety Manual is presented in Exhibit A.

3.4 DAILY SAFETY BRIEFING

OBG personnel and subcontractors will be briefed daily by the Field Operations Manager or by the SSHC as to the potential hazards that may be encountered during that day. The briefing will be documents using the Safety/Toolbox Meeting Form (see Attachment 1). Topics may include:

- Availability of this HASP
- Tasks to be performed
- General Site hazards and specific hazards in the work areas
- Hazards that may be encountered, including their effects, how to recognize symptoms or monitor them, concentration limits, or other danger signals
- Selection, use, testing, and care of the body, eye, hand, foot, and respiratory protective equipment being worn and the limitations of each (as applicable)
- Decontamination procedures for OBG personnel, their PPE, and other equipment used (as applicable)
- Emergency response procedures and requirements
- Emergency notification procedures and evacuation routes to be followed
- Time constraints (e.g., rest breaks, cartridge changes)
- Other emergency procedures.

3.5 TRAINING CERTIFICATION

A record of employee training completion will be maintained by the SSHC for OBG employees who are trained. This record will include the dates of the completion of worker training, refresher training, emergency response training, and Site-specific training for OBG employees (i.e., OSHA 40-hour Hazardous Waste Operations and Emergency Response [HAZWOPER] and 8-hour HAZWOPER refresher, and Taconic Contractor Safety Manual).

3.6 MEDICAL MONITORING

OBG has implemented a medical monitoring program in accordance with 29 CFR 1910.120. The 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 an annual basis and as warranted by symptoms of exposure or of specialized activities. The post-hire examination provides baseline data. The examining physician is required to make a report to OBG of any medical condition that would increase the employee's risk when wearing a respirator or other PPE. OBG maintains Site personnel medical records as required by 29 CFR 1910.120 and by 29 CFR 1910.1020, as applicable.

OBG employees performing the RI field activities have or will receive medical tests as regulated by 29 CFR 1910.120. Where medial requirements of 29 CFR 1910.120 overlap those of 29 CFR 1910.134 or 29 CFR 1910.1025, the more stringent requirements will be followed.

3.7 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.

3.8 PERSONNEL PROTECTION

3.8.1 General

Workers and authorized visitors will be required to wear PPE and clothing appropriate to their work task and potential exposure and Taconic requirements. The PPE has been selected in accordance with the applicable provisions of Subpart I, 29 CFR Part 1910 and the list of acceptable equipment presented in Table 2. 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. PPE 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 SSHC will monitor the protective equipment maintenance procedures.

PPE will be used during the investigation to minimize exposures to site-related COPCs and physical and biological hazards. Levels of protective clothing and equipment have been assigned to specific tasks at Level C or Level D as shown in Table 5, below. These personal protection levels are detailed below. If field measurements/ observations or the SSHC indicate that an exposure is greater than the protection afforded by the equipment or procedures specified in this or other sections of this HASP, work will be stopped and workers removed until the exposure has been reduced and/or the level of protection has been increased. The basic level of PPE to be used during field activities 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.

OBG respirator users have been trained and medically approved to use respiratory protection. Respirators issued are approved for protection against dust and organic vapors by the National Institute for Occupational Safety and Health. 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 and verify the integrity of the respirator and 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.

Table 5. Protective Clothing and Respiratory Equipment Requirements			
Task	**Monitoring**	**Airborne Action Level***	**Initial PPE Level**
Overburden and bedrock drilling	VOCs	5 ppm	Level D
Soil sampling	VOCs	5 ppm	Level D
Groundwater and surface water sampling	VOCs	5 ppm	Level D
Hydrogeologic testing	VOCs	5 ppm	Level D
Notes: *** Exceedance of airborne action level will require upgrade to Level C respiratory protection or implementation of engineering controls.** **ppm = Parts per million (by volume).**			

3.8.2 Protective Equipment Description

The level of PPE is categorized as Level A, B, C, or D, based upon the degree of protection required. Levels A and B require the use of supplied air respirators and are not anticipated for field activities associated with this project. The following is a brief summary of the levels that may be used for this Site; Level D or modified Level D is expected for the work, but information about Level C is provided as a contingency.

Level C

Personnel will move upwind or upgrade the level of personal protection to Level C if the VOC concentration is sustained for one minute at 5 ppm above background. When it is necessary to upgrade to Level C, a half-face air-purifying respirator equipped with organic vapor and P100 or N95 dust filter combination cartridges will be worn in addition to the level D Protection. For tasks with a potential for significant direct contact with contaminated materials, Modified Level D PPE will be worn in addition to respiratory protection.

Modified Level D

Modified Level D PPE is worn when significant direct contact with contaminated materials is anticipated. Protective outer clothing will be required to protect Site personnel and to prevent spreading contaminated materials into support areas. At a minimum, modified Level D PPE will include Level D PPE, chemical resistant gloves, such as nitrile gloves, overboots or disposable boot covers, and disposable cloth overalls. A faceshield may also be required to prevent splashes to the face and must be worn over safety glasses or goggles. If field activities are not related to PFOA/PFC sampling, modified Level D PPE will include chemical protective clothing (in place of the disposable cloth overalls), such as Tyvek to prevent contact with dry or dusty materials or polycoated Tyvek or Saranex to prevent contact with wet or corrosive materials when conditions warrant.

Level D

Level D PPE includes routine field safety PPE and may include a work uniform affording minimal protection used for nuisance contamination only. Level D protection will be worn initially for all field activities. The following constitute Level D equipment:

- Overalls (cloth) or long pants
- Gloves (leather or other cut resistant type, nitrile for sampling)
- Boots or shoes, leather, steel toe and shank
- Eye protection meeting the requirements specified in Z87.1-2010 (goggles, face shield or safety glasses)

- Hard hat (Class C), when overhead hazard exists near drill rigs
- Hearing protection when heavy equipment is operating
- High visibility vest when working along roadways and/or vehicle traffic.

3.9 MONITORING REQUIREMENTS

3.9.1 Work Zone Air Monitoring

A PID will be used to periodically monitor the work zone area. Breathing zone action levels presented in Table 5 above will be used to establish whether respiratory protection is needed. Organic vapor concentrations in the work zone will be monitored at the start and at 15-minute intervals during intrusive work using a PID. The instrument will be calibrated according to the manufacturer's instructions. Organic vapor concentrations will be compared to action level criteria (Table 5 above) for implementing additional precautions or procedures.

3.9.2 Community Air Monitoring Plan

The Community Air Monitoring Plan (CAMP) is implemented to monitor the downwind community (i.e., off-site locations including residences and businesses and on-site workers not directly involved with the investigation activities) for potential airborne contaminant releases as a direct result of ground intrusive work activities. Ground intrusive activities that would require real-time monitoring includes:

- Soil excavations
- Test pits or trenches
- Completion of soil borings
- Installation of monitoring wells.

The CAMP provides real-time monitoring for particulates (i.e., dust) at the perimeter of the immediate work area during ground intrusive activities at contaminated sites. The work area perimeter should be a minimum of 20 feet from the ground intrusive activities. Although there is a potential for VOCs to be present in the subsurface, it appears less likely because VOCs were reported as not being present in the samples collected from the three Site production wells in September 2016. Based on this, VOC monitoring will initially be conducted manually with a PID as described in Section 3.8.1 of this HASP. If the PID measurements indicate sustained levels of VOCs at 5 ppm above background for a period of one minute, the ground intrusive work will be suspended until a real-time air monitoring device can be installed for continuous monitoring of VOCs as described in Section 3.8.4.

Exceedance of the action levels defined below will require increased monitoring, corrective actions to minimize vapors and/or particulates, and work shutdown.

3.9.2.1 Particulate Action Levels

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work areas where ground intrusive activities are being performed. Particulate monitoring will be performed using equipment capable of measuring material less than 10 micrometers in size (PM-10) and automated recording and calculation of 15-minute running average concentrations for comparison to the action levels. In addition, visual assessment of particulate migration will be performed during ground intrusive work activities.

If the downwind particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (i.e., the upwind particulate level) for the 15-minute average or if particulates are observed leaving the perimeter of the work area, then:

- Particulate suppression techniques will be applied
- Work activities can resume if the downwind particulate levels do not exceed 150 $\mu g/m^3$ over background.

If the downwind particulate level is 150 µg/m^3 greater than background, then:

- Work activities will be halted
- Corrective actions will be taken to minimize particulate generation
- Particulate suppression techniques will be applied
- Work activities can resume if the downwind particulate levels do not exceed 150 µg/m^3 over background.

Particulate levels recorded by the equipment will be documented to allow subsequent review.

3.9.2.2 VOC Monitoring Action Levels

Although there is a potential for VOCs to be present in the subsurface, it appears less likely because VOCs were reported as not being present in the samples collected from the three Site production wells in September 2016. Based on this, VOC monitoring will initially be conducted manually with a PID as described in Section 3.8.1 of this HASP. If the PID measurements indicate sustained levels of VOCs at 5 ppm above background for a period of one minute, the ground intrusive work will be suspended until a real-time air monitoring device can be installed for continuous monitoring of VOCs as described in Section 3.8.4. If warranted, VOCs will be monitored at the downwind perimeter of the work area on a continuous basis during ground intrusive activities. Upwind concentrations should be measured at the beginning of the work day and periodically thereafter to establish background concentrations, particularly if wind direction shifts during the work day. VOC monitoring will be performed using equipment appropriate to measure known and/or potential contaminants (i.e., photoionization detector with 10.6 electron volt [eV] lamp). The equipment will be calibrated daily when in use. The equipment will be capable of automated recording and calculating 15-minute running average concentrations which will be compared to the action levels.

If the ambient air concentration of total VOCs at the downwind perimeter of the work area where ground intrusive activities are being performed exceeds 5 parts per million (ppm) above background on a 15-minute average basis, then:

- Work activities will be temporarily halted
- Instantaneous manual monitoring will be initiated
- If the total VOC level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued automated monitoring.

If the concentrations of total VOCs at the downwind perimeter of the work area where ground intrusive activities are being performed persist at levels greater than 5 ppm over background, but less than 25 ppm, then:

- Work activities will be halted
- The source of the vapors will be identified
- Corrective actions will be taken to minimize vapors
- Instantaneous manual monitoring will be initiated
- Work activities can resume if the total VOC concentration is below 5 ppm over background.

If the total VOC concentration is above 25 ppm at the perimeter of the work area where the ground intrusive activities are being performed, then those activities will be shut down and VOC mitigation controls will be reevaluated.

VOC concentrations recorded by the equipment will be documented to allow subsequent review.

3.9.2.3 Additional Considerations

When ground intrusive work activities are performed within 20 feet of the downwind community/occupied structures, the downwind perimeter monitoring location for VOCs and particulates

should be positioned by the nearest potential exposure point and/or ventilation system intake for occupied structures. Additional engineering controls (i.e., vapor/dust barriers, temporary negative pressure enclosures, fans or blowers) may be utilized to minimize the potential for exposure.

4. WORK ZONES AND DECONTAMINATION

4.1 SITE WORK ZONES

During ground intrusive (i.e., drilling) activities, work zones will be delineated at the Site to reduce the potential spread of COPCs by workers from the work area to the clean areas. The flow of personnel between the zones shall be controlled. The establishment of the work zones will help ensure that: personnel are protected against the hazards/COPCs present where they are working, that work activities and COPCs are confined to the appropriate areas, and that personnel can be located and evacuated in an emergency.

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

4.1.1 Exclusion Zone

The exclusion zone (EZ) is where drilling activities are conducted. The SSHC will identify this zone. It should be a minimum of 30 feet in diameter and centered, when possible, on the work activities. This zone may be demarcated with rope, flagging, cones, or a combination thereof before beginning the fieldwork. The zone may be enlarged to contain the necessary ancillary equipment and personnel for the work to be done.

4.1.2 Contamination Reduction Zone

The contamination reduction zone (CRZ) contains personnel and equipment decontamination stations. As needed, this zone will be established between the exclusion zone and the support zone. Personnel and equipment in the exclusion zone must pass through this zone before entering the support zone. The CRZ will be located upwind from the work activities, when feasible. 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 may be designated with rope, flagging, cones, or a combination thereof. 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.

4.1.3 Support Zone

The remainder of the Site is defined as the support zone. The support zone contains support facilities, extra equipment, transport vehicles, and the additional personnel and equipment necessary to manage and perform work activities. No equipment or personnel will be permitted to enter the support zone from the exclusion zone without passing through the CRZ. Eating will be allowed only in this area.

4.1.4 Site Communications

A cellular telephone will be used during field activities to facilitate communications for emergency response and other purposes and to serve as the primary off-site communication network. Hand signals may be used between personnel during heavy equipment operation.

4.2 DECONTAMINATION

4.2.1 Decontamination of Personnel

Personnel decontamination will not be necessary if Level D or modified Level D protection is used. However, personnel will be encouraged to remove clothing and shower as soon as is practicable at the end of the day. All clothing should be machine-washed. All personnel must wash hands and face prior to eating.

Decontamination will be necessary if Level C protection is used. 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. Wastewaters from personnel decontamination will be disposed of with the wastewaters

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.

4.2.2 Decontamination Supplies

The following equipment and supplies will be available as needed to decontaminate personnel and equipment. Equipment, supplies, and potable water used for decontamination will be selected in accordance with Table 2.

- Plastic drop cloths
- Plastic wash tubs
- Soft bristled toilet brushes
- Plastic drums or carboys, to collect wash and rinse water
- Hand spray units for decontamination
- Sufficient soap, water, and towels to wash hands, faces and respirators (if needed).

4.2.3 Decontamination Protocol

As appropriate given the level of protection worn, the following decontamination protocol will be used:

1. Segregate equipment and place on plastic drop clothes. Deposit equipment used (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) on plastic drop cloths. During hot weather operations, a cool down station may be set up within this area.
2. Set up 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. Remove and deposit outer boots in a container with a plastic liner. If the boots are to be reused (e.g., when the worker is dressed in Level C protection), after cleaning, place them in a secure location, preferably in plastic.
4. Remove and deposit outer gloves 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. Remove and deposit outer garment in a container with a plastic liner.
6. Remove respirator. Avoid touching face with fingers. Deposit respirator on a plastic sheet.
7. Remove and deposit inner gloves in a container with a plastic liner.
8. Field wash hands and face thoroughly.

4.2.4 Equipment Decontamination Procedures

Equipment (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) will be cleaned of visible contamination between each use, and after final use. Equipment, after decontamination, will be stored separately from PPE. Decontaminated or clean equipment not in use will be 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. Deionized/distilled water rinse.

4.2.5 Collection and Disposition of Impacted Materials and Refuse

Investigation derived material (IDM), including used PPE, will be managed as described in the RI/FS Work Plan. Other waste that has not come in contact with environmental media (e.g., empty water bottles, food wrappers, etc.) will be placed in plastic trash bags and managed with other solid, non-hazardous waste at the facility.

5. ACCIDENT PREPAREDNESS AND CONTINGENCY PLAN

5.1 ACCIDENT PREPAREDNESS

Personnel must have received health and safety training prior to the initiation of field activities. While working, personnel must be constantly alert for indicators of potentially hazardous situations and for signs and symptoms in themselves and others warning of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency and an emergency response requirement.

In an emergency, OBG personnel will signal distress either verbally or with three blasts from a horn (e.g., vehicle horn). The SSHC, Field Operations Manager, or the Project Manager will be notified as soon as practicable of the nature and extent of the emergency.

Table 6 contains emergency telephone numbers. This table will be maintained by the SSHC and updated as needed. A mobile phone will be used to notify off-site personnel (i.e., the Project Manager) of emergencies. The operating condition of this phone will be verified daily before initiation of field activities.

Table 6. Emergency Telephone Numbers

Location	Telephone
Fire Department	911
Police Department	911
Ambulance	911
Poison Control Center	1-800-942-5969
National Spill Response Center	1-800-424-8802
OBG Project Manager – Janet Forsell	518-724-7258 518-269-8740 (cell)
OBG Project Officer – Douglas Crawford, P.E.	315-956-6862
OBG Corporate Health and Safety Project Manager – Steven Thompson	315-560-5018 (cell)

In the event that a Hospital is needed, the closest hospital with an **Emergency Department** is the following:

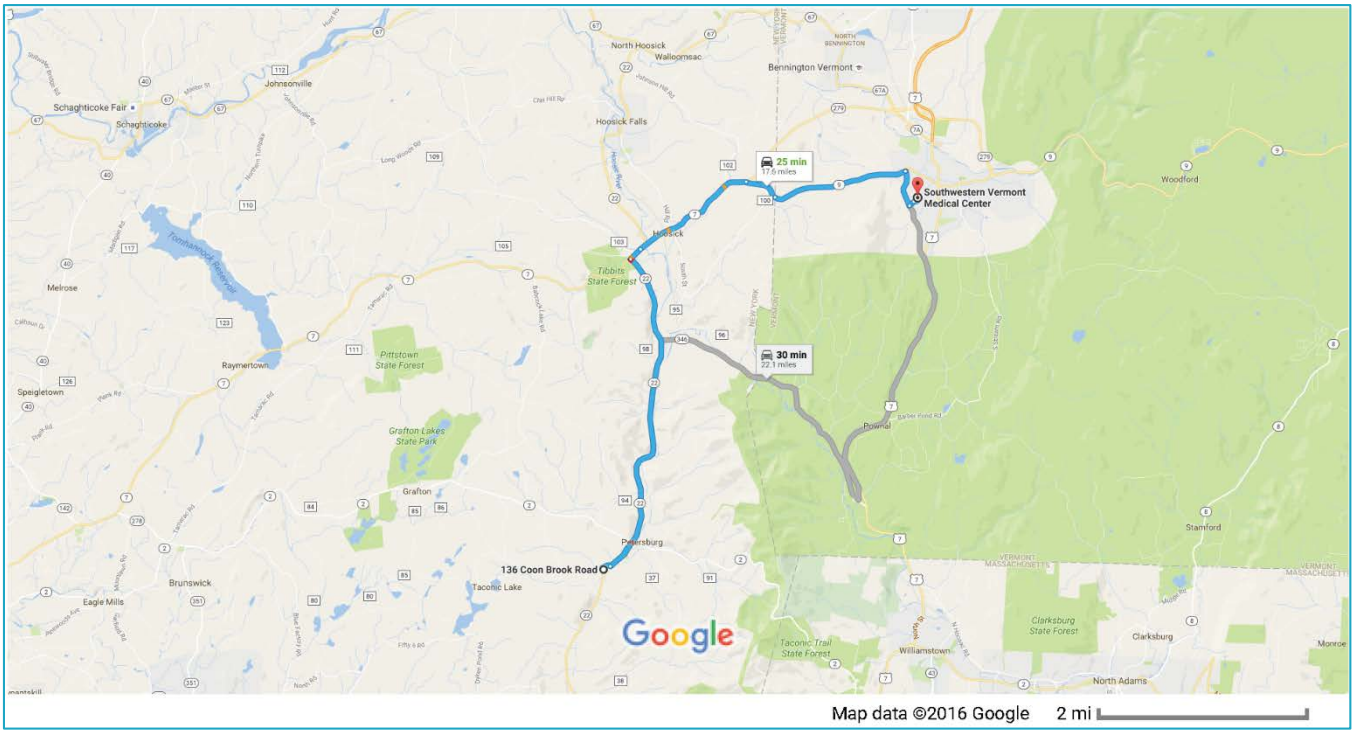
Southern Vermont Medical Center
100 Hospital Drive
Bennington, VT 05201

Phone: (802) 442-6361

Directions to Southern Vermont Medical Center from the Site are as follows (see Figure 2):

	DIRECTIONS	DISTANCE
1	Head northeast on COONBROOK ROAD towards RUSSELL ROAD.	0.2 miles
2	Turn LEFT onto NY-22 NORTH.	12 miles
3	Turn RIGHT to stay on NY-7 E (Entering Vermont)	3.4 miles
4	Continue Straight onto VT-9 E/W Rd	0.9 miles
5	Turn RIGHT onto West Road	118 feet
6	Turn RIGHT at first cross street onto Monument Ave	0.9 miles
7	Turn LEFT onto Hospital Drive	0.2 miles
8	Arrive at SOUTHERN VERMONT MEDICAL CENTER 100 Hospital Drive, Bennington, Vermont 05201	

Figure 2. Southern Vermont Medical Center



5.2 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 Operations Manager in arranging follow-up actions. Upon notification of an incident, the SSHC will call 911 and request that hospital, fire, and police emergency response personnel, as necessary. The Field Operations Manager will contact local, state, and federal government agencies, as appropriate.

Prior to field activities at the Site, the SSHC will:

1. Confirm that the following safety equipment is available: eyewash, first aid supplies, and fire extinguisher (during drilling activities).
2. Have a working knowledge of the OBG safety equipment.

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 Operations Manager, 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 Operations Manager.

5.3 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 and to protect others from hazards. If necessary, personnel trained in first aid procedures will provide immediate medical care. Personnel competent in first aid response to an injury or illness will provide assistance in such matters. For serious injuries, an ambulance should be called to transport the victim to the nearest hospital or medical center. Only persons with very minor injuries should be transported by a company vehicle. Follow-up action should be taken to correct the situation that caused the accident. Accidents will be reported to the Taconic Site contact as soon as practicable and to OBG following the procedure in the OBG Health, Safety and Environment Manual including verbal notification to the Corporate Health and Safety Project Manager, followed by a written Incident Report within 24 hours. The SSHC or the Field Operations Manager is responsible for completing the accident report.

5.3.1 Evacuation Procedures

In the event the Site must be evacuated, the following procedures should be followed:

- The SSHC or Site contact will initiate evacuation procedure by signaling to leave the work area or Site
- Personnel in the work area will evacuate the area and meet in the nearest designated muster area as described in the Taconic Contractor Safety Manual (see Exhibit B)
- Personnel must be accounted for
- The SSHC or Site contact will give further instruction.

5.4 MUSTER AREAS

Before commencing field activities, the muster area for OBG workers will be identified by the Site contact and/or the SSHC per the Taconic Contractor Safety Manual (Exhibit B). In case of an emergency, personnel should evacuate the work area both for their own safety and to prevent hampering rescue efforts. Following an evacuation, the SSHC will account for OBG and subcontractor personnel. If evacuation from the muster area is necessary, the project vehicles will be used to transport personnel to the place of refuge.

5.5 FIREFIGHTING 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 drilling activities. This is intended to control small, incipient 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, Field Operations Manager, or Site contact will decide when to contact the fire department.

5.6 EMERGENCY EQUIPMENT

The following equipment, selected based on potential Site hazards, will be maintained for safety and emergency response purposes:

- First aid kit
- Eye wash bottles
- Fire extinguisher during drilling activities.

5.7 EMERGENCY SITE COMMUNICATIONS

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

5.8 SECURITY AND CONTROL

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

REFERENCES

OBG, 2016a. *Health, Safety and Environment Manual*. January, 2016.

OBG, 2016b. *Remedial Investigation/Feasibility Study (RI/FS) Work Plan*, *Taconic Site, NYSDEC Site No. 442047, Petersburgh, New York*. November, 2016.

Taconic, 2015. *Safety Manual, Contractor Safety Procedure – SAFE-SOP-14*. March 3, 2015.

USEPA, 1993. *Health and Safety Plan Users Guide*, Publication EPA 9285.8-01, July 1993.

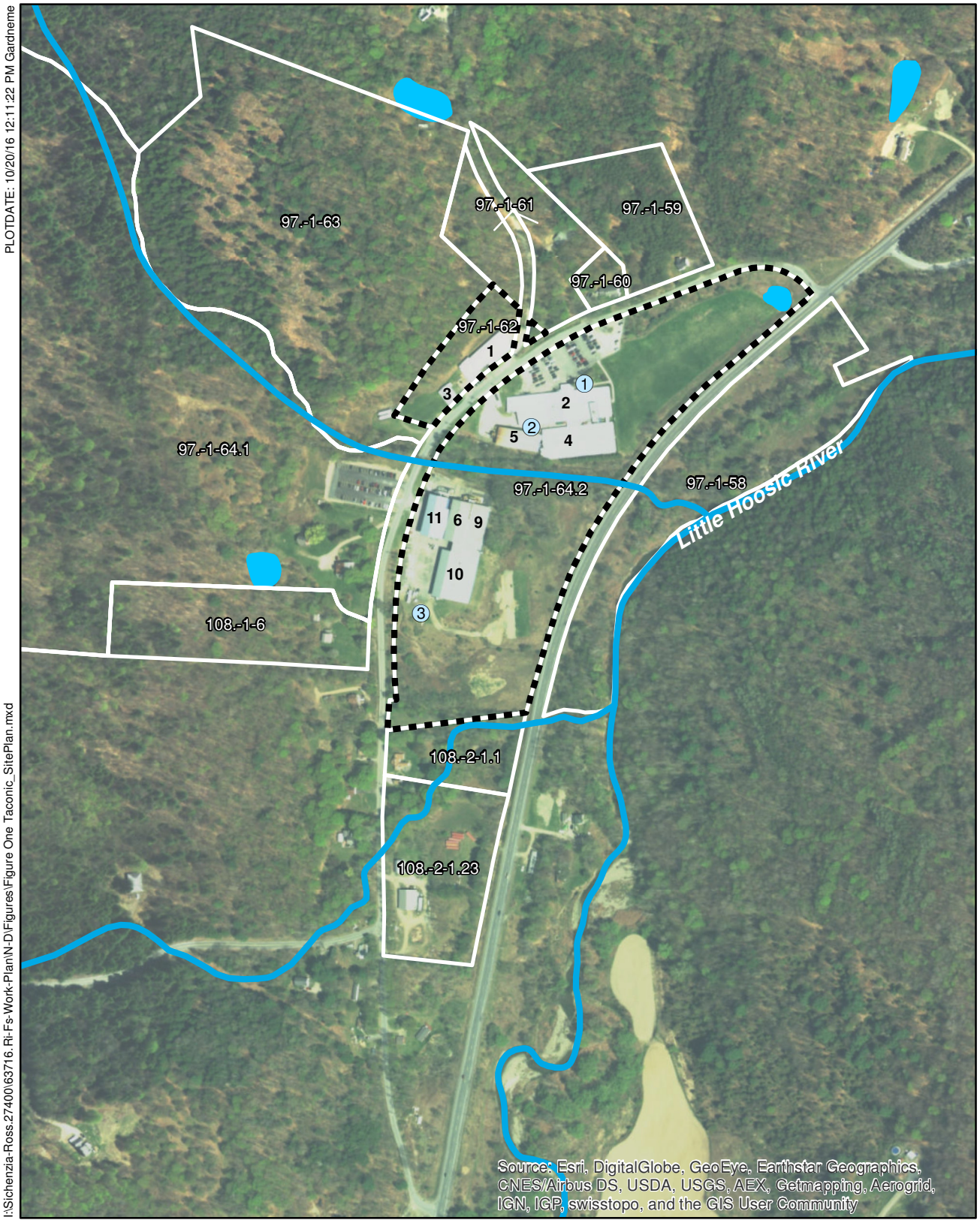
29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*.

Table 2
Summary of Prohibited and Acceptable Items for PFC Sampling

Table 2. Summary of Prohibited and Acceptable Items for PFC Sampling	
Prohibited	**Acceptable**
Field Equipment	
Teflon® containing materials	High density polyethylene (HDPE), stainless steel or polypropylene materials
Low density polyethylene (LDPE) materials	Acetate liners
	Silicon tubing
Waterproof field books, waterproof paper and waterproof sample bottle labels	Loose non-waterproof paper and non-waterproof sample labels
Plastic clipboards, binders, or spiral hard cover notebooks	Aluminum field clipboards or with Masonite
Waterproof markers / **Sharpies®**	Pens
Post-It Notes®	
Chemical (blue) ice packs	Regular ice
Field Clothing and PPE	
New cotton clothing or synthetic water resistant, waterproof, or stain-treated clothing, clothing containing Gore-Tex™	Well-laundered clothing made of natural fibers (preferable cotton)
Clothing laundered using fabric softener	No fabric softener
Boots containing Gore-Tex™ or treated with water-resistant spray	Boots made with polyurethane and PVC
Tyvek®	Laundered cotton clothing
No cosmetics, moisturizers, hand cream, or other related products as part of personal cleaning/showering routine on the morning of sampling Sunscreens or insecticides except as noted on right	**Sunscreens** - Alba Organics Natural Sunscreen, Yes To Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss My Face, and baby sunscreens that are "chemical free", “toxin free” or "natural" **Insect Repellents** - Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect repellant, Herbal Armor, California Baby Natural Bug Spray, Baby Ganics **Sunscreen and insect repellant** - Avon Skin So Soft Bug Guard Plus - SPF 30 Lotion
Sample Containers	
LDPE or glass containers	HDPE or polypropylene
Teflon®-lined caps	Unlined polypropylene caps
Rain Events	
Waterproof or resistant rain gear	Wet weather gear made of polyurethane and PVC only; field tents that are only touched or moved prior to and following sampling activities
Equipment Decontamination	
Decon 90®	Alconox® and/or Liquinox®
Water from an on-site well Potable water from untested public water supply	Potable water from tested (and PFC free) public drinking water supply
Food Considerations	
All food and drink, with exceptions noted on right	Bottled water and hydration fluids (i.e., Gatorade® and Powerade®) to be brought and consumed only in the staging areas
Vehicle Considerations	
Vehicle fabrics, carpets and mats may contain PFC	Avoid utilizing areas inside vehicle as sample staging areas.

Figure 1
Site Location Map

FIGURE 1



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Legend

- Site Outline
- Streams
- Ponds
- Production Wells

Note:
1. Tax parcels for Taconic-owned properties shown in white.
2. Building numbers shown on buildings.

PETERSBURG, NEW YORK

SITE LOCATION MAP

N

0 250 500 1,000
Feet

O'BRIEN & GERE ENGINEERS, INC.

Exhibit A
Taconic Contractor Safety Manual

Contractor Safety		*Safety Manual*
Doc. #: SAFE-SOP-14	Rev.: 3	Taconic 136 Coonbrook Road Petersburgh, NY 12138
Date: March 3, 2015		
Approved By: Safety Coordinator		

1. Purpose

This procedure is written to ensure contractors are aware of Taconic's potential onsite hazards. Contractors must provide information to Taconic regarding the chemicals or hazards the contractor may bring into the facility, thus avoiding potential accidents that may harm to human health or the environment.

2. Scope

This procedure applies to outside contractors performing construction, assembly, repair work, or other services onsite to Taconic Petersburgh, NY location as required by OSHA 29 CFR 1910.1200. Any questions regarding implementation of this procedure should be directed to the Safety Coordinator.

3. Responsibility

All employees who bring in outside contractors onsite are expected to fully participate in all aspects of the program. All contractor employees must receive Taconic's site-specific safety training by the Safety Coordinator before starting the job at least once every year. Failure of a contractor's employee to comply with site safety rules and procedures as defined shall be cause for Taconic to require the contractor's employee dismissal from work performed on site. Any loss sustained by the contractor when these violations occur will be borne exclusively by the contractor.

4. Procedures

All contractor employees are to sign in at the receptionist's desk upon arrival. Contractors must sign out at the completion of each workday. All contractor employees must receive Taconic's site-specific safety training before starting the job at least once every year.

PPE and Safety Equipment

All contractor employees must possess and wear appropriate personal protective equipment (PPE) when required by the work being performed. The contractor shall furnish all safety equipment and apparel. Specifically;

- Safety glasses (with side shields) meeting the requirements specified in Z87.1 – 2010, are to be worn within the facility and outside the facility whenever performing a task which exposes the employee to eye or face hazards. Additional eye and face protection meeting the requirements specified in ANSI Standard Z87.1 - 2010 shall be worn whenever machines or operations present additional potential for eye or face injury.
- Hard-hats are to be worn when the danger of falling objects is present while someone is performing work overhead. Metal hard hats are prohibited.
- Because of potential chemical exposures, substantial footwear (leather oxfords or safety toe shoes preferably) shall be worn on the job site. Sneakers and open-toe, open side, or open back sandals are prohibited. Shorts are prohibited.
- Know the location of the fire alarm and fire extinguishers in your area. Taconic fire extinguishers shall not be removed from emergency stations for fire watch during welding and hot operations. Contractors shall furnish own fire extinguisher for hot work permit operations.
- Know the locations of safety showers and eyewash fountains in your work area.

Emergency Procedures

In the event of an imminent or actual emergency situation, employees have been instructed to pull an alarm for a fire or explosion, otherwise immediately notify the Supervisor and the Maintenance Department. In addition, outside emergency personnel will be called directly via 911. The Maintenance Department will call the Emergency Coordinator.

Maps of evacuation routes are displayed in hallways and departments of occupied buildings. Each map will show the way to an exit, depending on where employees and contractors are located in the building. It will be the responsibility of the supervisor to inform employees and contractors of these evacuation routes.

In the event of an emergency requiring the evacuation of the facility, all employees and contractors are to immediately leave the facility by the designated route and report to their assigned evacuation point. Contractor personnel are required to shutdown equipment and evacuate along with Taconic employees. Each contractor must be accounted for at the building mustering location and provide any information regarding the incident to the Emergency Coordinator prior to leaving the site.

On arrival at your designated evacuation point, report to your supervisor. Supervisors will be responsible for conducting head counts to ensure all employees and contractors are accounted for. They shall also be responsible for reporting to responding authorities the names and last whereabouts of any missing personnel.

There are three designated muster areas for this facility (See map in Appendix A.):

- Buildings 1/3; Parking lot in front of general trash bin.
- Buildings 2/4/5; Far northeast corner of parking lot by tree.
- Buildings 6/9/10/11; South end of parking lot.

Contractors are required to report any accidents/incidents that result in the need for first aid treatment by either a First Responder or by self administered first aid. Immediately report the injury to either the supervisor or the Safety Coordinator.

In the event of a medical emergency, ask an employee to use the public address system to announce that a first responder is needed and the location.

- Do not move victim unless absolutely necessary. Until rescue personnel arrive, Taconic's First Responder will administer first aid in the building or, in the event of a complete evacuation, at a Designated Muster Area outside.
- The first responder, supervisor or lead operator will dial 911, if necessary. If an ambulance is not requested and the employee requires hospital treatment, only the trained first responder may transport the employee to the hospital.

General Safety Guidelines

1. Materials, tools and debris shall not be placed in personnel or vehicular traffic lanes nor block safety showers, eye wash fountains, fire blankets, respiratory equipment, fire alarms, extinguishers, fire doors, fire exits or any other fire or personal protection equipment.
2. Nails protruding from scrap shall be removed or otherwise rendered safe. All scrap shall be cleaned up and removed from the work site at the end of the workday.
3. Hazardous materials (such as chemical solutions, oil wastes, and solvents) shall be disposed of by the contractor in a manner approved by Taconic.
4. Special work permits (cutting, welding, hot work, confined space and pipe opening) must be issued by Taconic personnel before the work begins. The contractor's own permits can be used as long as they are reviewed by Taconic, and they are equivalent to or exceed Taconic's standards.
5. Contractors shall notify Dig Safe and obtain a Dig Safe permit before excavation work can begin.
6. Provide barricades and safety roping to isolate work areas, especially where danger exists of falling into open pits or excavations. All areas underneath overhead work must be suitably roped off to insure adequate exclusion of non-contractor personnel from falling objects.
7. Contractor personnel shall not manipulate any switch, control, valve or instrument without the advance approval and current presence of Taconic personnel. Taconic's Lockout Tagout Procedures are to be utilized with Taconic's maintenance personnel when working on equipment. Contractors shall be responsible for providing their own locks.
8. The contractor shall control his operations so as to prevent the entrance/dumping of hazardous liquids or solids into sinks, drains, sewers, ditches, drainage systems or receiving streams; or casting aside of debris and litter that results in offensive, noxious, harmful or unsightly gases, liquids or solids.
9. In the event of a spill of hazardous material that could enter a sanitary or storm sewer, or drainage system, the Taconic Environmental Health and Safety Department shall be notified immediately.
10. All spills of material shall be cleaned up immediately; hazardous conditions caused by such spills shall be corrected as soon as possible. Abrasive materials shall be placed on all surfaces made slippery by oil, ice, etc.
11. The contractor shall furnish and use such warning signs as are appropriate to identify dangerous or hazardous conditions.
12. Guard every floor hole into which a worker can accidentally walk by use of a railing and toe board or a floor hole cover.
13. Provide a guardrail and toe board around every open-sided platform, floor or runway that is 4 feet or higher off the ground or next level. Other means of fall protection that may be required on certain jobs include safety harness and line, safety nets, stair railings and handrails.
14. All platforms or scaffolds shall have guardrails and toe boards in compliance with the regulations cited in 29 CFR 1910 and 29 CFR 1926.
15. Safe means of access shall be provided for all work areas. (For example, ladders shall be used for access to scaffolds rather than cross braces).
16. All inclined ramps shall have nailed cleats or abrasive surfaces to provide sure footing.
17. All employees of the contractor shall conduct themselves in a proper manner. Horseplay, practical joking, substance abuse, intoxicants, illegal drugs, firearms, ammunition, explosives, cameras, etc. are prohibited.
18. All "No Smoking" rules shall be strictly adhered to. Smoking is allowed only in designated areas. The use of a welding permit in a no smoking area does not remove the prohibition of smoking.
19. Unusual conditions, especially those involving danger to individuals, or potential damage to property, shall be reported immediately to the Safety Coordinator.
20. Vehicles required to be operated on the site shall be driven in a safe and reasonable manner, not exceeding posted speed limits, and shall be parked only as designated.

21. Contractors are not allowed to operate forklift trucks, unless certified by Taconic as a trained operator.
22. Each contractor bringing chemicals on-site must provide the appropriate hazard information on these chemicals, including the SDS, the labels used, and the precautionary measures to be taken in working with these chemicals. Contractors must provide a list of all chemicals they will be using at Taconic, as well as a SDS for each chemical to the Safety Coordinator for review and approval.

Hazard Awareness

Flammable and Combustible Liquids

- Flammable and combustible liquids in quantities greater than one gallon shall be kept in approved metal safety cans. "Safety can" means an FM or Underwriter Laboratory (UL) approved closed-container of not more than five gallons capacity, with a flash-arresting screen at each opening (fill and dispensing), spring-closing lid and spout cover, and so designed that it will safely relieve internal pressure when subjected to fire exposure.
- Flammable or combustible liquids shall not be stored in area used for exits, stairways, or normally used for the safe passage of pedestrian or vehicular passage of pedestrian or vehicular traffic.
- Building 1 contains the Chemical Storage Room. This room stores drums of hazardous chemicals and is also the Central Hazardous Waste Storage Area. No welding or smoking is allowed near this area.

Compressed Gas Cylinders

- Compressed gas cylinders shall be properly and legibly marked with the trade name of the gas content. When transporting, moving and storing compressed gas cylinders, valves shall be closed, and protection caps shall be in place and secured. All cylinders shall be secured in an upright position by chains or other approved means to prevent accidental falling.
- Oxygen cylinders shall be stored separately from fuel gas cylinders. Cylinders containing oxygen or fuel gases shall not be taken into confined spaces.
- Overnight storage of cylinders of compressed flammable gases or oxygen inside building will not be permitted without the prior approval of the Safety Coordinator. Cylinders so stored must have valves closed, regulators removed, be capped and placed in an approved location.
- Gas cylinders shall be stored in an area assigned by the Safety Coordinator. This area will be well ventilated and away from sources of ignition or heat.

Electrical

- All portable electrical tools with metal frames shall be Underwriter Laboratory Approved of the self-grounding type or equipped with an Underwriter Laboratory approved system of double insulation.
- Temporary electrical wiring used for lights and power shall comply with the National Electrical code. Taconic must approve all temporary electrical wiring installations, tie-ins and pick-ups.
- The contractor shall install contractor owned ground fault circuit interrupters (GFCI's) on all 120 volt, single phase, 15 to 20 ampere receptacle outlets which are used in construction operations and are not part of the permanent wiring of the building or structure. Receptacles on a two-wire, single-phase portable or vehicle-mounted generator rated not more than 5 KW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with GFCI's.

- All branch circuits including receptacles, fixtures and switch legs installed, modified or repaired by the contractor, shall be grounded by using a continuous green ground wire which shall extend from each receptacle, fixture or switch leg to the ground buss on the respective power panel. The size of the ground and neutral conductors shall be the same size as the power lead as a minimum. Mechanical grounding through conduit or flexible encasement is not considered to be an equivalent or acceptable means of grounding.
- All electrical panels, disconnects and switches installed, repaired or modified by the contractor shall be labeled with the voltage existing in the equipment.
- All electrical installations having more than a single source of power shall be so labeled.

Tools and Equipment

- All tools and equipment shall be in good condition. Tools with mushroomed heads, split handles, or other defects, which impair their strength or render them unsafe for use, will not be allowed on the site. Wheels, belts, cutters, etc. shall be properly guarded. Abrasive wheels and rotating blades shall not be operated in excess of manufacturers rated or recommended speeds.
- Straight ladders shall have safety feet and shall be tied, blocked or otherwise secured to prevent their being displaced. Working from the top two steps of ladders is prohibited. The use of metal ladders is prohibited. The side rails of ladders in use shall extend not less than 36 inches above the work surface landing.
- Non-sparking tools and equipment shall be required in areas stipulated to be a hazard because of an explosive atmosphere.

Oven Room/Clean Room/Laminate Operations - Restrictions

Should the contractor employees be required to pass-through or work within the Oven Room areas or Clean Room area when production is in operation, the contractor employees are required to wear the appropriate hair protection bonnets or other protective clothing in use by Taconic employees to help prevent product contamination.

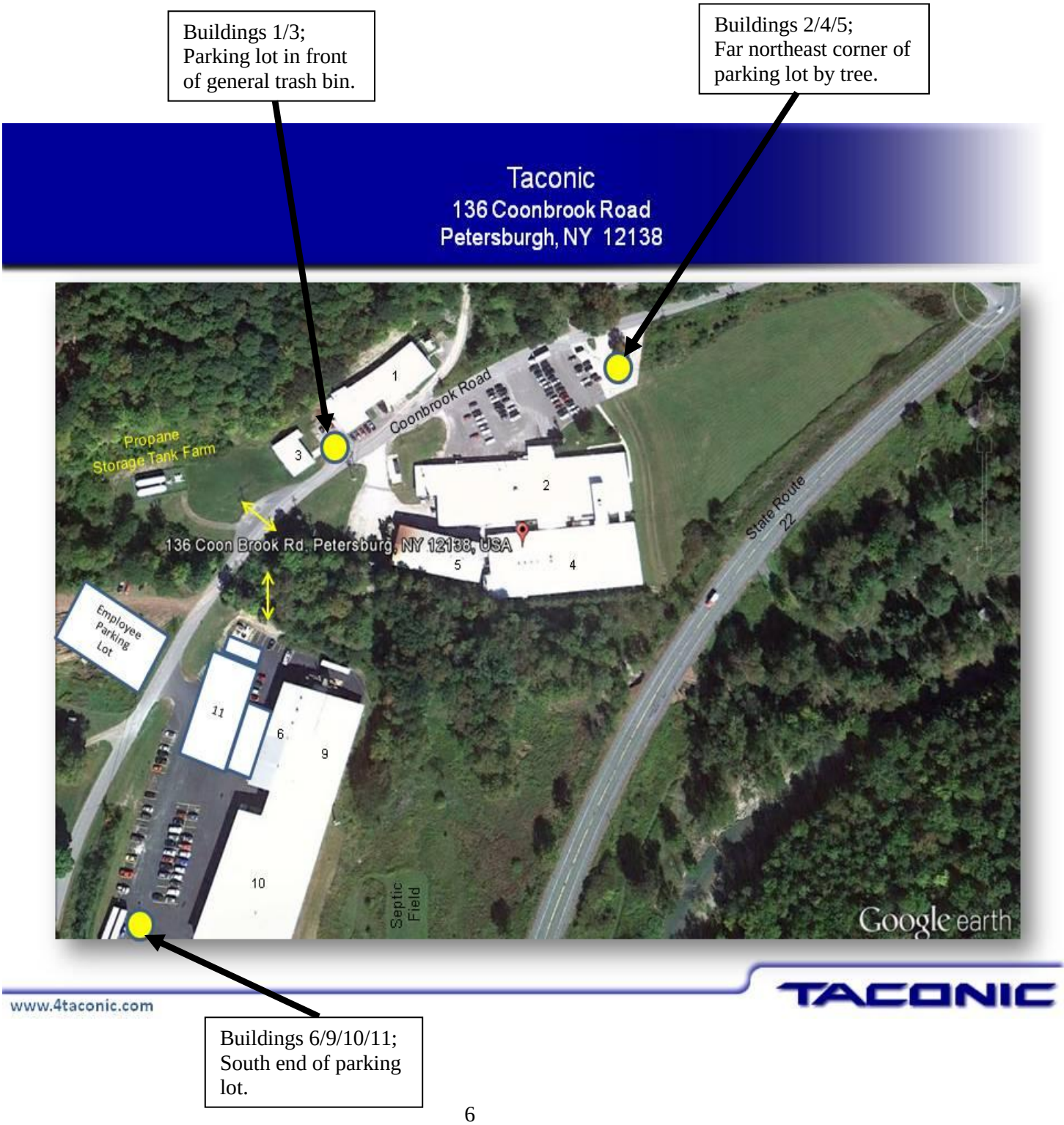
Hazard Communication (HAZCOM) Program

Taconic has a written Hazard Communication (HAZCOM) program available on the Taconic Intranet Safety Manual web page. The HAZCOM program includes compiling a hazardous chemicals list, using safety data sheets (SDS), ensuring that containers are labeled, and providing our employees with training and information availability about hazardous chemicals used at Taconic.

- Contractors have access to SDS's or can request a copy of an SDS if needed. SDS's will be kept readily accessible at all times in the public\keep\MSDS folder and on the Taconic Intranet Safety Manual web page.
- Hazardous chemical containers must be labeled with the chemical or common name, appropriate hazard warnings (such as a hazard diamond), and be prominently displayed, legible, accurate, and in English. If contractors transfer hazardous chemicals from a labeled container to a portable container, the temporary portable container must be labeled. All hazardous chemical pipes must be labeled with the chemical or common name.
- All contractor employees must receive Taconic's site-specific safety training by the Safety Coordinator or Project Manager before starting the job at least once every year.

APPENDIX A

MUSTER LOCATION MAP



CONTRACTOR SAFETY TRAINING CHECKLIST

Contractor Employee Name: _____Date: _____

Contractor Employee Signature: _____

Contractor Company Name: _____

Description of Project Work to be performed: _____

Taconic Project Manager: _____

Check When Completed:

☐ ***Personal Protective and Safety Equipment***
- Minimum – Safety Glasses, Safety Shoes
- Other PPE Required Based on Job
- Location of Emergency/Safety Equipment

☐ ***General Safety Guidelines***
- Housekeeping
- Permits (Lockout/Tagout, Hot Work, Confined Space, Dig Safe/Excavation, Line Breaking)
- Waste Disposal
- Spills
- Tools/Ladders
- Vehicles/Forklifts
- No Smoking Policy

☐ ***Emergency Procedures***
- Notification Alarms
- Evacuation Procedures
- Mustering Areas
- Incident Reporting/Treatment

☐ ***Hazard Awareness***
- Flammable and Combustible Liquids
- Compressed Gas Cylinders
- Electrical Equipment
- Tools and Equipment
- Oven Room/Clean Room/Laminate Operations - Restrictions

☐ ***HAZCOM***
- Written Program
- SDS Access
- Labeling
- Annual Training

Trainer's Signature: _____ Date: _____

Attachment 1
Safety/Toolbox Meeting Form

Safety/Toolbox Meeting

File Name: TOOLBOX.doc
Revised: June 22, 2007

Client:	Taconic	**Project No.:**	63893.100.016
Project Name:	RI/FS and Related Activities	**Today's Date:**	
Project Location:	Petersburgh, N.Y.		
Conducted By:			
Meeting Topic:	Pre-Work Health and Safety Briefing		

	Name	Signature	Company Name
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Meeting Topics (be specific):

KEEP COPIES OF ALL TOOLBOX MEETING MINUTES WITH PROJECT RECORDS