



TRC Project No. 451068

September 1, 2022

U.S. Environmental Protection Agency
Office of Site Remediation and Restoration
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
Attn: GE-Pittsfield/Housatonic River Site

**RE: Utility Work Excavation Activity Notification
Eversource 1715/1816 Transmission Line
GE Hill 78 Area (GECD160)
Pittsfield, Massachusetts
Release Tracking Number 1-00714**

To Whom It May Concern:

On behalf of NSTAR Electric d/b/a Eversource Energy (Eversource), TRC Environmental Corporation (TRC) is submitting this Utility Work Excavation Activity Notification for utility work within the Hill 78 Area associated with the General Electric (GE)-Pittsfield/Housatonic River Site in Pittsfield, Massachusetts (the Site). This notification is being provided in accordance with Paragraph 4.D of the Grant of Environmental Restriction and Easement (ERE Grant) for the Site. The proposed work is anticipated to consist of the replacement of 13 transmission line structures (Structures 5011, 5011.5A, 5011.5, 5013A, 5013B, 5014A, 5014B, 5015A, 5015B, 5016A, 5016B, 5017A, and 5017B) along the 1715/1816 Transmission Line at the Site, as shown on **Figure 1**. However, structures may be added or removed from the scope of work subsequent to the submittal of this notification letter.

The proposed new structures will be installed approximately 25 feet away from the existing structures. Five new structure foundations (Structures 5011, 5011.5A, 5011.5, 5017A, and 5017B) will be concrete caissons that are expected to range from 8-10 feet in diameter and be 30 feet deep. The remaining eight structure foundations (Structures 5013A, 5013B, 5014A, 5014B, 5015A, 5015B, 5016A, and 5016B) will be direct embed foundations that are expected to be less than 6 feet in diameter and 7 to 15.5 feet deep. Structures 5011, 5013A, 5013B, 5014A, and 5014B consist of three foundations, Structures 5011.5 and 5011.5A consist of two foundations, and Structures 5015A, 5015B, 5016A, 5016B, 5017A, and 5017B consist of one foundation.

In advance of structure replacement work, GZA GeoEnvironmental, Inc. (GZA) will advance geotechnical soil borings at the proposed caisson foundation locations to support structure design. Additionally, TRC will advance two soil borings per structure location to pre-characterize soil for off-site disposal. The soil borings will be advanced to the proposed depth of the foundation at each location. The geotechnical and pre-characterization work is scheduled to begin on September 19, 2022. The structure replacement work will begin in fall/winter 2022.

The work will be conducted in accordance with the ERE Grant, including the Soil Management Protocol (SMP) and Health and Safety Protocol. Attached are GZA's Health and Safety Plan (HASP) and SMP and TRC's HASP. Additionally, excavation work at the Site will be

conducted in accordance with the Utility-Related Abatement Measure (URAM) provisions of the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000).

Soil generated during soil boring activities will be backfilled in accordance with the SMP. Excess soil generated during structure replacement work will be managed by Eversource as Polychlorinated Biphenyl (PCB) Remediation Waste in accordance with the Toxic Substances Control Act (TSCA), 40 CFR 761. Eversource will coordinate with GE to determine and appropriate receiving facility for excess soil. Eversource will utilize a Licensed Site Professional (LSP) to oversee excavation and soil management activities at the Site. The work will be summarized in a subsequent report, which will be submitted within 30 days of the completion of the work, in accordance with the ERE Grant.

If there are any questions regarding this submittal, please feel free to contact me at (978) 656-3512.

Sincerely,
TRC Environmental Corporation



Matthew Oliveira, LSP, CHMM
Senior Project Manager

cc: David Askew, Eversource

Attachments

Figure 1 - 1715/1816 Line – Structure Replacement Project

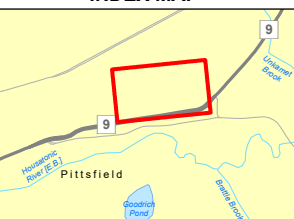
Attachment 1 – GZA HASP and SMP

Attachment 2 – TRC HASP



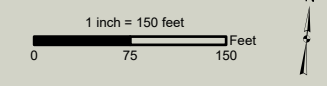
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INDEX MAP



- Existing Structure to be Removed
- Proposed Structure
- Overhead Eversource Line
- Railroad
- ▭ Existing Right-of-Way
- ▭ Parcel Boundary
- - - 2' Contour
- 10' Contour
- ▭ Hill 78 Area

Map Notes:
 Data valid as of February 2022.
 Basemap: 2021 Orthophotographs, MassGIS
 Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs.
 ROW, Structure, and Overhead Line data provided by Eversource.
 This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.



NO.	DATE	REVISIONS

EVERSOURCE ENERGY

1715/1816 Line - Structure Replacement Project

PITTSFIELD, MA MAP SHEET 1

Date: June, 2022

TRC

Attachment 1



Known for excellence.
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GEOTECHNICAL
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WATER
CONSTRUCTION
MANAGEMENT

5 Commerce Park North
Suite 201
Bedford, NH 03110
T: 603.623.3600
F: 603.624.9463
www.gza.com



VIA EMAIL

August 29, 2022
File No. 04.0190664.41

U.S. Environmental Protection Agency
Office of Site Remediation and Restoration
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
Attn: GE-Pittsfield/Housatonic River Site

Department of Environmental Protection
Western Regional Office
436 Dwight Street
Springfield, Massachusetts 01103
Attn: GE Housatonic Removal Action Project Manager

Department of Environmental Protection
Bureau of Waste Site Cleanup
One Winter Street
Boston, Massachusetts 02108
Attn: GE Housatonic Removal Action Project Manager

General Electric Company
Corporate Environmental Programs
159 Plastics Avenue
Pittsfield, Massachusetts 01201

Re: Utility Work Excavation Activity Notification
Eversource 1715/1816 Transmission Line
GE Hill 78 Area (GECD160)
Pittsfield, Massachusetts
Release Tracking Number 1-00714

To Whom It May Concern:

On behalf of NSTAR Electric d/b/a Eversource Energy (Eversource), GZA GeoEnvironmental, Inc. (GZA) is submitting this Utility Work Excavation Activity Notification for geotechnical utility work within the Hill 78 Area associated with the General Electric (GE) – Pittsfield/Housatonic River Site in Pittsfield, Massachusetts (Site). This notification is being provided in accordance with Paragraph 4.D of the Grant of Environmental Restriction and Easement (ERE) for the Site. The proposed work includes the replacement of 13 transmission line structures along the 1715/1816 Transmission Line, as shown in the attached documents. Five of the proposed new structures will be supported on drilled shaft foundations that are anticipated to range from 8 to 10 feet in diameter and will be approximately 30 feet deep, with the remaining structures being



August 29, 2022

04.0190664.41

Eversource 1715/1816 Transmission Line - GE Hill 78 Area (GECD160)

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supported by direct embed foundations anticipated to be less than 6 feet in diameter and approximately 7 to 15.5 feet deep.

In advance of the structure replacement work, geotechnical test borings will be advanced at the four structure locations where drilled shaft foundations are anticipated (Structures 5011, 5011.5, 5011.A, and 5017A/B). These test borings will be to characterize subsurface soil and bedrock conditions to provide geotechnical engineering parameters for use in foundation design. The geotechnical test borings are scheduled to begin on September 19, 2022. The structure replacement work is anticipated to start in the fall of 2022.

The test borings will be conducted in accordance with the ERE Grant for the Site, including the attached Soil Management Protocol and Health and Safety Protocol. Geotechnical test boring work will be completed under the oversight of a GZA Licensed Site Professional (LSP) to oversee excavation and soil management activities at the Site at the five replacement structures where drilled shaft foundations will be utilized. The work will be summarized within 30 days of completion of the work, in accordance with the ERE.

If there are any questions regarding this notification, please feel free to contact Ms. Mary Brittain at 413-726-2137 or Mr. David Lamothe at 603-232-8716 if you have any questions.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Handwritten signature of Mary J. Brittain in blue ink.

Mary J. Brittain, LSP
Senior Project Manager

Handwritten signature of Deborah M. Zarta Gier in black ink.

Deborah M. Zarta Gier, CNRP
Consultant/Reviewer

Handwritten signature of David G. Lamothe in black ink.

David G. Lamothe, P.E.
Associate Principal

MJB/DGL/DMZ:

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Attachments: Health and Safety Plan/Protocol and Soil Management Protocol

**Health and Safety Plan/Protocol and
Soil Management Protocol**

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

1. CLIENT/SITE/PROJECT INFORMATION		
Client: Eversource Energy		
Site Address: 1715/1816 Transmission Line ROW – Structures 5000 through 5016A/B in Pittsfield, MA. Section of ROW from Doreen Substation north, crossing East Street and Merrill Road and onto General Electric property located off of New York Avenue. Structures 5000 through 5006 accessed is via gravel road within ROW accessed at 1816 East Street. Structures 5007 through 5010 accessed via East Street and Commercial Street. Structures 5011 through 5017 accessed via gated General Electric property off of New York Avenue.		
Site Description (be sure to list pertinent site features, chemicals used at the facility, and other potential hazard sources: Active transmission lines with overhead powerlines		
Work Environment (active manufacturing, office, vacant site, undeveloped property, etc.): 115 kV Transmission Line Right of Way		
Job/Project #: 04.0190664.41	Estimated Start Date: 7/20/22	Estimated Finish Date: 10/6/22
Site is Covered by the Following Regulations:	OSHA HAZWOPER Standard <input checked="" type="checkbox"/> (Structures 5011 through 5017)	Mine Safety and Health Administration <input type="checkbox"/>
	OSHA Construction Regulations <input checked="" type="checkbox"/>	

2. EMERGENCY INFORMATION		
Hospital Name: Berkshire Medical Center		Hospital Phone: (413) 447-2000
Hospital Address: 725 North Street, Pittsfield, MA 01201		Directions and Street Map Attached: <input checked="" type="checkbox"/> Yes
Local Fire #: 911 or: Pittsfield Fire, (Engine 2 Station): (413) 448-9752	Local Ambulance #: 911 or: County Ambulance Service.: (413) 499-2527	Local Police #: 911 or: Pittsfield Police: (413) 448-9700
WorkCare Incident Intervention Services:	For non-emergencies, if an employee becomes hurt or sick call 888-449-7787	
Other Emergency Contact(s): Jennifer Baron	Phone #'s: (207) 232-5832	
Site-Specific Emergency Preparedness/Response Procedures/Concerns: Eversource COVID-19 Contractor Safe Work Practices Conduct pre job site briefing and daily tailgate meetings with project members, including subcontractors and client representatives (as applicable), to review site specific hazards, emergency procedures and responsibilities prior to start of each day's work, upon changes in scope of work, or after significant break in work (i.e. lunch break). Review emergency contact information, locations of emergency equipment (e.g. first aid kits, fire extinguishers, evacuation routes), current location and access to hospital. Ensure that cell phones are charged daily and have vehicle phone chargers on hand. Wear high-visibility vest, hard hat, and eye protection. Anticipated emergencies on site include physical injuries and potential for heart attacks. Personnel on site will have current first aid and CPR training and will be able to respond to minor injuries and potential heart attacks while emergency response personnel are contacted for assistance. All personnel will pay attention to drilling operations, surroundings, and overhead and underground utilities. Kill switches will be tested prior to initiating work. High tick area therefore the use of permethrin is highly recommended and frequent body checks for the presence of ticks. Before start of each day's work a Site briefing will be conducted by the Field Safety Officer to ensure that all Site personnel are aware of the identity of the emergency coordinator on Site and that everyone is aware of the following: <ul style="list-style-type: none"> • Location and proper use of fire extinguishers • Evacuation procedures and gathering points • Location of emergency names and numbers • Address of nearest hospital – NOTE DIRECTIONS CHANGE BASED ON SPECIFIC STRUCTURE LOCATIONS. 		
The following minimum emergency equipment shall be kept and maintained on Site:		

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

- Industrial first aid kit

Personal Injury: For minor injuries, such as cuts, burns, exhaustion, heat cramps, insect stings, etc., the affected employee will be removed to an uncontaminated area for administration of appropriate first aid. If the injury warrants additional medical attention, the affected employee will be properly decontaminated, as necessary and appropriate to the situation, and transported to the nearest hospital or emergency medical facility.

For more serious injuries the Field Safety Officer (FSO) or designee will summon emergency assistance to the project site. No attempt will be made by GZA personnel to move the victim, unless in imminent danger, without the aid and/or instructions of qualified emergency response personnel.

STRUCTURES 5011 THROUGH 5017A/B: These structures are located on General Electric property included in a Grant of Environmental Restriction and Easement (ERE) executed on June 8, 2011 for the “GE Pittsfield/Housatonic River Site” (parcel K11-7-2 located north of Merrill Road). In addition to this drilling HASP, reference the Soil Management Protocol and Health and Safety Protocol, prepared by GZA, for these locations. (to comply with Exhibits D and E of the ERE).

Polychlorinated Biphenyls (PCBs): Prolonged skin contact with PCBs may cause the formation of comedones, sebaceous cysts, and/or pustules (a condition known as chloracne). PCBs are considered to be suspect carcinogens and may also cause reproductive damage.

The OSHA permissible exposure limits (PELs) for PCBs are as follows:

<i>Compound</i>	<i>PEL (8-hour time-weighted average)</i>
Chlorodiphenyl (42% Chlorine)	1 mg/m ³ -Skin
Chlorodiphenyl (54% Chlorine)	0.5 mg/m ³ -Skin

It should be noted that PCBs have extremely low vapor pressures (0.001 mm Hg @ 42% Chlorine and 0.00006 mm Hg @ 54% Chlorine). This makes it unlikely that any significant vapor concentration (i.e., exposures above the OSHA PEL) will be created in the ambient environment. This minimizes the potential for any health hazards to arise due to inhalation unless the source is heated or generates an airborne mist. If generated, vapor or mists above the PEL may cause irritation of the eyes, nose, and throat. The exposure limits noted above are considered low enough to prevent systemic effects but it is not known if these levels will prevent local effects. It should also be noted that both PELs carry the *Skin* notation, indicating that these compounds adversely affect or penetrate the skin. OSHA specifies that skin exposure to substances carrying this designation be prevented or reduced through the use of the appropriate personal protective equipment (PPE). Wear appropriate gloves when in contact with materials with suspected PCB content and wash hands prior to eating, drinking, applying make-up or smoking.

STRUCTURES 5008 THROUGH 5010: – Given site history and proximity to GE Pittsfield/Housatonic River Site, test borings at these structure locations will follow protocols below and as outlined in Soil Management Protocol and Health and Safety Protocol prepared for Structures 5011 through 5017A/B.



 <p>LIFTING</p> <p>Get help lifting or carrying anything over 50 pounds</p>	 <p>SITE RECON</p> <p>Walk your site before starting work to find and mark slips/trips/falls and insect nests</p>	 <p>DRIVING</p> <p>Don't use your mobile phone while driving</p>	 <p>ERGONOMICS</p> <p>Take a 5-minute break for every hour you work, whether it's in the office or the field</p>
 <p>CUTS</p> <p>Wear cut-resistant gloves when using knives or other sharp objects</p>	 <p>PPE</p> <p>At a minimum, always wear safety glasses and protective footwear in the field</p>	 <p>HASP</p> <p>Develop a HASP and have it with you in the field</p>	 <p>WORKCARE</p> <p>Without delay, call WorkCare immediately for any minor injury or illness at 888-449-7787</p>

- All EHS Events must be reported immediately to the Project Manager and to the GZA People-Based Safety mobile app.

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

- In the event of a chemical release greater than 5 gallons, site personnel will evacuate the affected area and relocate to an upwind location. The GZA Field Safety Officer and client site representative shall be contacted immediately.
- Site work shall not be conducted during severe weather, including high winds and lightning. In the event of severe weather, stop work, lower any equipment (drill rigs), and evacuate the affected area.
- All EHS Events MUST BE reported to Eversource site contact please see the list below for your first contact. If listed contact is unavailable please follow the chain until all parties have been notified and have acknowledged the EHS event.**

1st EVERSOURCE SITE CONTACT (Eversource Construction Representative): Brian Lucas, (860) 620-2530 (Cell)

2nd EVERSOURCE SITE CONTACT (Eversource Safety Coordinator): Michael Siegel, (929) 319-9680 (Cell)

3rd EVERSOURCE SITE CONTACT (Eversource Project Manager): Jared Kupiec, (860) 933-2731 (Cell)

Electrical Safety Personal Protective Equipment (PPE) Requirements		
PPE	Components & Requirements	Required Activity
“Standard” PPE	<ul style="list-style-type: none"> Hardhat, ANSI Z89.1 Type 1, class G or E Safety shoes, ASTM 2413, impact & compression rating of 75, EH-rated Eye protection, ANSI Z87.1 wrap-around or with side shields Safety vest / clothing, ANSI 107 Class 3 hi-visibility 	At all times working on the project and out of the vehicle.
Safety gloves	ANSI 105 Class A3 cut-resistant	At all times with the exception of time periods requiring sensitive finger dexterity to complete a task (i.e. writing, etc.)
FR (Flame resistant) Outerwear	HRC2: Min. 8 cal/cm ² pants and shirt or coveralls over natural fiber (cotton, wool) or FR undergarments	<ul style="list-style-type: none"> At all times working out of the vehicle and inside of energized substation fence or within energized ROW. Grounding the drill rig
FR outerwear <u>AND</u> rubber gloves	<ul style="list-style-type: none"> HRC2 outerwear Rubber gloves ASTM D120 Class 2, air tested daily 	<ul style="list-style-type: none"> Grounding the drill rig Pre-Excavation within energized substation Staking or probe installation within energized substation

3. SCOPE OF WORK

General project description, and phase(s) or work to which this H&S Plan applies.	<p>Drill test boring within existing transmission line ROWs:</p> <ul style="list-style-type: none"> Drill 16 test borings near existing structures in the 1715/1816 transmission line ROW. <p>Test borings will be drilled to 30 feet below ground surface (bgs) or refusal; 10 feet of bedrock core will be obtained if bedrock is encountered prior to this depth.</p> <p>Structures 5000A thru 5007 – standard classification/sampling</p> <p>Structures 5008 thru 5017A/B – SPT, visual-manual classification only, no sample collection/removal from site. Follow Soil Management Protocol. Drilling equipment will be steam cleaned at the completion of each boring.</p>
Specific Tasks Performed by GZA:	Observation of test borings.
Concurrent Tasks to be Performed by GZA-hired Subcontractors (List Subcontractors by Name):	NEBC will perform the drilling and coordinate utility clearance.
Concurrent Tasks to be Performed by Others:	Eversource Civil Contractor – placement of matting to access Structures 5002 through 5007.

Any OSHA PERMIT-REQUIRED CONFINED SPACE entry?

YES NO

IF YES, ADD CONFINED SPACE ENTRY PERMIT FOR THAT PORTION OF THE WORK

Any INDOOR fieldwork? YES NO

IF YES, EXPLAIN:

4. SUB-SURFACE WORK, UNDERGROUND UTILITY LOCATION

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

Will subsurface explorations be conducted as part of this work (drilling or excavation)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Will GZA personnel be required to use a hand-auger as part of this work?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Site property ownership where underground explorations will be conducted on: 1715/1816 Transmission ROW Structures 5011 through 5017 accessed via General Electric property	Public Access Property <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Private Property <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Have Necessary Underground Utility Notifications for Subsurface Work Been Made?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Yet to be conducted
Specify Clearance Date & Time, Dig Safe Clearance I.D. #, And Other Relevant Information: Digsafe No.: Structures 5000, 5000A and 5001: Digsafe # 2022709135, clears 7/12/22, Utilities include Berkshire Gas, Eversource western Mass electric, Kinder Morgan Gas Structures 5002 through 5017: Digsafe # TBD Utilities include Verizon telephone, GE Pittsfield (electric, fiber, fire alarm, sewer, telephone, water), CenturyLink telephone, Sprint/Nexel telephone, Berkshire Gas, Eversource western Mass electric, Time Warner Cable, Kinder Morgan Gas (EDIT LIST PER UTILITIES NOTIFIED)	
IMPORTANT! For subsurface work, prior to the initiation of ground penetrating activities, GZA personnel to assess whether the underground utility clearance (UUC) process has been completed in a manner that appears acceptable, based on participation/ confirmation by other responsible parties (utility companies, subcontractor, client, owner, etc.), for the following:	
Electric:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Other _____
Fuel (gas, petroleum, steam):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Other _____
Communication:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Other _____
Water:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Other _____
Sewer:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Other _____
Other: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> Other _____
Comments: GZA is relying upon NEBC contractors to complete DigSafe notifications. Penetration activities shall not proceed until utility locations are marked and verified. Prior to any site work all GZA employees and any GZA SUBCONTRACTORS MUST read EVERSOURCE Appendix H (Contractor Work Rules) and SIGN Appendix I signature page. Daily check list (as appropriate): 1. Conduct Tailgate Safety Meeting (each day on site). 2. Equipment inspection sheets. (if applicable, each day on site).	

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

5. HAZARD ASSESSMENT (CHECK ALL THAT APPLY AND ADDRESS EACH HAZARD IN SECTION 6)

A. GENERAL FIELDWORK HAZARDS

<input type="checkbox"/> Confined Space Entry (Add Confined Space Entry Permit) <input type="checkbox"/> Abandoned or vacant building/Enclosed Spaces <input checked="" type="checkbox"/> Significant Slip/Trip/Fall Hazards <input type="checkbox"/> Unsanitary/Infectious Hazards <input checked="" type="checkbox"/> Poisonous Plants <input checked="" type="checkbox"/> Biting/Stinging Insects <input checked="" type="checkbox"/> Feral Animal Hazards <input checked="" type="checkbox"/> Water/Wetlands Hazards <input type="checkbox"/> Remote Locations/Navigation/Orientation hazards <input checked="" type="checkbox"/> Heavy Traffic or Work Alongside a Roadway <input checked="" type="checkbox"/> Weather-Related Hazards <input checked="" type="checkbox"/> Motor vehicle operation Hazards <input checked="" type="checkbox"/> Heavy Equipment Hazards <input type="checkbox"/> Structural Hazards (i.e. unsafe floors/stairways/roof) <input type="checkbox"/> Demolition/Renovation <input checked="" type="checkbox"/> Presence of Pedestrians or the General Public	<input checked="" type="checkbox"/> Overhead Hazards (i.e. falling objects, overhead power lines) <input type="checkbox"/> Portable Hand Tools or Power Tools <input checked="" type="checkbox"/> Significant Lifting or Ergonomic Hazards <input checked="" type="checkbox"/> Electrical Hazards (i.e. Equipment 120 Volts or Greater, Work Inside Electrical Panels, or Maintenance of Electrical Equipment) <input type="checkbox"/> Other Stored energy Hazards (i.e. Equipment with High Pressure or Stored Chemicals) <input checked="" type="checkbox"/> Fire and/or Explosion Hazard <input checked="" type="checkbox"/> Elevated Noise Levels <input type="checkbox"/> Excavations/Test Pits <input type="checkbox"/> Explosives or Unexploded Ordinance/MEC <input checked="" type="checkbox"/> Long Distance or Overnight Travel <input type="checkbox"/> Personal Security or High Crime Area Hazards <input type="checkbox"/> Working Alone <input type="checkbox"/> Ionizing Radiation or Non-Ionizing Radiation <input type="checkbox"/> Chemical/Exposure Hazards (See Part B for Details) <input checked="" type="checkbox"/> Other: COVID-19
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B. CHEMICAL/EXPOSURE HAZARDS (CONTAMINANTS ARE CONTAINED IN SOIL, WATER, GROUNDWATER)

Structures 5000 to 5007 – No hazards anticipated. Standard classification/sampling.

Structures 5008 and 5009 – Located within MassDEP Disposal Site RTN 1-00563 – Contaminated soil removal and replacement in 2009 for PCB-impacted soil, remaining soil anticipated to be at or below 25 ppm (MasDEP standard for commercial use). **Visual-manual classification only. No soil sample collection. Follow decontamination protocol for Structures 5011 to 5017A/B. Reference GZA’s Soil Management Protocol and Health and Safety Protocol for additional soil handling information.**

Structure 5010 – Outside of regulated areas, but given proximity – **Visual-manual classification only. No soil sample collection. Follow decontamination protocol for Structures 5011 to 5017A/B. Reference GZA’s Soil Management Protocol and Health and Safety Protocol for additional soil handling information.**

Structures 5011 to 5017A/B – Located within “GE-Pittsfield/Housatonic River Site” and regulated by an ERE. **Visual-manual classification only. No soil sample collection. Reference GZA’s Soil Management Protocol and Health and Safety Protocol for additional soil handling information.**

<input type="checkbox"/> No chemical hazards anticipated <input type="checkbox"/> Hydrogen Sulfide (H2S) <input type="checkbox"/> Cyanides, Hydrogen Cyanide (HCN) <input type="checkbox"/> Carbon Monoxide <input type="checkbox"/> Herbicides, Pesticide, Fungicide, Animal Poisons <input type="checkbox"/> Metals, Metal Compounds: <input type="checkbox"/> Corrosives, Acids, Caustics, Strong Irritants <input checked="" type="checkbox"/> Polychlorinated Biphenyls (PCBs) <input type="checkbox"/> Polycyclic Aromatic Hydrocarbons (PAHs) <input type="checkbox"/> Compressed Gases <input type="checkbox"/> Flammable/Combustible Liquids	<input type="checkbox"/> Methane <input type="checkbox"/> Chemicals Subject to OSHA Hazard Communication (attach Safety Data Sheet for each chemical GZA brings to the site) <input type="checkbox"/> Containerized Waste, Chemicals in Piping & Process Equipment <input type="checkbox"/> Emissions from Gasoline-, Diesel-, Propane-fired Engine, Heater, Similar Equipment <input type="checkbox"/> General Work Site Airborne Dust Hazards <input type="checkbox"/> Volatile Organic Compounds (VOCs), BTEX <input type="checkbox"/> Chlorinated Organic Compounds <input type="checkbox"/> Fuel Oil, Gasoline, Petroleum Products, Waste Oil <input type="checkbox"/> Asbestos <input type="checkbox"/> Oxygen Deficiency, Asphyxiation Hazards
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GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

<input type="checkbox"/> Radiation Hazards (i.e. radioactive sealed/open source, x-rays, ultra violet, infrared, radio-frequency, etc.)	<input type="checkbox"/> Other:
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6. SITE-SPECIFIC OVERVIEW OF H&S HAZARDS/MITIGATIONS (NOTE: Based on Hazard Assessment, Section 5)	
Describe the major hazards expected to be present at the jobsite, and describe the safety measures to be implemented for worker protection (refer to items checked in Section 5 above). Use brief abstract statements or more detailed narrative as may be appropriate.	
ON-SITE HAZARDS:	HAZARD MITIGATIONS:
Structures 5011 through 5016A/B	<p>These structures are located on General Electric Property included in a Grant of Environmental Restriction and Easement (ERE) executed on June 8, 2011 for the "GE Pittsfield/Housatonic River Site" (Parcel K-11-7-2 located north of Merrill Road).</p> <p>See attached: Soil Management Protocol Health and Safety Protocol</p>
Contaminants in Soil	<p>Structures 5000 to 5007 – No hazards anticipated</p> <p>Structures 5008 and 5009 – Located within MassDEP Disposal Site RTN 1-00563 – Contaminated soil removal and replacement in 2009 for PCB-impacted soil, remaining soil anticipated to be at or below 25 ppm (MasDEP standard for commercial use). Visual-manual classification only. No soil sample collection. Follow decontamination protocol for Structures 5011 to 5017A/B. Reference GZA's Soil Management Protocol and Health and Safety Protocol for additional soil handling information.</p> <p>Structure 5010 – Outside of regulated areas, but given proximity – Visual-manual classification only. No soil sample collection. Follow decontamination protocol for Structures 5011 to 5017A/B. Reference GZA's Soil Management Protocol and Health and Safety Protocol for additional soil handling information.</p> <p>Structures 5011 to 5017A/B – Located within "GE-Pittsfield/Housatonic River Site" and regulated by an ERE. Visual-manual classification only. No soil sample collection. Reference GZA's Soil Management Protocol and Health and Safety Protocol for additional soil handling information.</p> <p>Proper PPE: hard hat, safety glasses, steel toe boots, gloves; will be used while working in contamination zone area.</p> <p>Soil may contain hazardous PCB materials. Wear proper PPE for contaminants expected.</p> <p>Potential PCB contaminants in soil present both an inhalation and ingestion hazard to workers within the project area. Project specific action levels, PPE, decontamination, and access control procedures have been established to minimize hazards that exist at the site. Protective measures to minimize contact with contaminated soils are addressed elsewhere in this plan.</p> <p>In the work area, food, beverages and tobacco products shall not be present or used, and cosmetics are not to be applied. Upon exiting the work area project staff shall properly decontaminate, including washing hands, forearms and face with soap and water prior to entering vehicle, eating, drinking, smoking or applying cosmetics</p> <p>Equipment will be steam cleaned for decontamination at the completion of each test boring.</p> <p>PPE, poly sheeting, and any other disposable material that comes in contact with soil during test borings 5008 through 5017A/B will be collected and disposed of as solid waste.</p>
Task Hazard Analyses	(list task hazard analysis applicable to the project and attach to this HASP)
Owning Zero	Ensure all GZA personnel on-site have downloaded the People-Based Safety app to their mobile phones and are familiar with using it to report safety events. Prior to work each day, review Owning Zero rules with all on-site during the morning safety meeting.
General field work Hazards	<p>See attached Job Hazard/ Task Hazard Analysis:</p> <p>Task 4.1 Drilling observations, monitoring well installation observations, and soil sampling</p> <p>Task 21.01 General outdoor field work</p> <p>GZA policy 03-3003 Electrical Safe Work Practices</p> <p>GZA policy 03-3009 Manual Lifting Safety</p>

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	<p>GZA policy 03-3019 Lyme Disease Prevention</p> <p>JHA COVID-19</p>
Stop Work Authority	<p>Pause and Stop Work Authority is allowed by GZA policy for GZA and GZA-hired contractor personnel. If a true Stop Work occurs, GZA personnel will take prudent corrective action to secure the Work and provide safe conditions for Site personnel and the environment. In order to resume work, the onsite Field Safety Officer, PM, and (if possible) project PIC must all agree that work is safe to resume. All Stop Work occurrences must be accompanied by a GZA EHS Event report as directed in this HASP, and shall be provided as soon as possible but, at a minimum, by 10 a.m. the next day. GZA's Core Safety Team may require an incident investigation to occur, depending on the circumstances of the Stop Work situation.</p>
Motor vehicle operation Hazards	<p>Ensure vehicle is operating properly prior to leaving office. Review directions and check air pressure in vehicle tires prior to departure. Plan to take periodic breaks while driving long distances. Do not use cell phone (handheld or hands-free) while vehicle motor is running. While driving, be observant of other drivers and potential for severe weather conditions. Maintain appropriate speeds for the road conditions.</p>
Drilling Rig/Heavy Equipment, Overhead Hazards, Utility-related Hazards	<p>Prior to mobilization to the project site, all known underground utilities will be located and properly marked. All personnel working in proximity to heavy equipment will be familiarized with the location and operation of emergency kill switches prior to equipment start-up. A first aid kit and fire extinguisher will be available at all times. No loose clothing, jewelry or unsecured long hair is permitted near equipment. Keep hands and feet AWAY from all moving parts while excavation is in progress. Watch for moving vehicles and equipment. Stay out of equipment swing radius while work is in progress. Maintain visibility and eye contact with operators when walking around rig. Wear high visibility vest.</p> <p>Keep rig at least 25 feet from all overhead power lines; use spotters to assist driver in to positioning rigs when overhead power lines or other obstructions are near.</p> <p>All excavations will be adequately backfilled and/or barricaded if left unattended for any period of time to prevent injury.</p> <p>Stay clear of equipment at all times. Operators must be aware of your position on the site at all times. Wear high visibility reflective vests at all times while on site. Heed back up alarms of all equipment. Do not approach operating heavy equipment until eye contact is made with operator and equipment operation is stopped. Be especially aware of and clear of the swing radius of all heavy equipment. Confirm that underground utility clearance procedures have been completed. Confirm with contractor that safe distance from utilities, above ground piping and equipment are being maintained. Have contractor hand excavate where required to expose utilities.</p> <p>When water is used, care must be taken to avoid creating muddy or slippery conditions. If slippery conditions are unavoidable, barriers and warning signs must be used to warn of these dangers. Never turn your back to operating machinery.</p> <p>Never wear loose clothing, jewelry, hair, or other personal items around rotating equipment or other equipment that could catch or ensnare loose clothing,</p> <p><u>SEE ATTACHED JOB HAZARD ANALYSIS – TASK 4.1 DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, AND SOIL SAMPLING</u></p>
Struck by, caught by, run over by equipment	<p>Do not stand near or where equipment operators cannot see you. Always be in line of sight. Do not make sudden moves and always let the operator know of your intentions. Wear high-visibility safety vest, hard hat, eye protection, steel toe boots and use common sense and good housekeeping practices to avoid injury. Stay within sight of rig/excavator operator but at least 6-10 feet away from rig and excavator swing area. Maintain clear lines of communication (verbal and/or visual) with the operator. Stand clear of exhaust from operating equipment and stay out of the swing radius of heavy equipment. Be aware of overhead equipment and potential for falling objects (i.e. tree branches). Avoid any “pinch points” where one could become trapped between the equipment and other objects. Maintain awareness of general rig movement/operation and communication with drill crew. Do not conduct soil classification/sampling directly adjacent to the drill rig. Equipment should be situated so that at full extension of bucket arm, the equipment is at least 10 feet away from overhead lines.</p>
Noise	<p>The primary source of noise is anticipated to be the drill rigs / excavator. Hearing protection in the form of disposable ear plugs shall be sufficient to reduce noise levels to acceptable levels.</p> <p>In accordance with 29 CFR 1910.95(b)(1) When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.</p> <p>TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)</p> <p style="text-align: center;">Duration per day, hours Sound level dBA slow response</p>

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	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-bottom: 1px solid black;">8.....</td><td style="border-bottom: 1px solid black; text-align: right;">90</td></tr> <tr><td style="border-bottom: 1px solid black;">6.....</td><td style="border-bottom: 1px solid black; text-align: right;">92</td></tr> <tr><td style="border-bottom: 1px solid black;">4.....</td><td style="border-bottom: 1px solid black; text-align: right;">95</td></tr> <tr><td style="border-bottom: 1px solid black;">3.....</td><td style="border-bottom: 1px solid black; text-align: right;">97</td></tr> <tr><td style="border-bottom: 1px solid black;">2.....</td><td style="border-bottom: 1px solid black; text-align: right;">100</td></tr> <tr><td style="border-bottom: 1px solid black;">1 1/2</td><td style="border-bottom: 1px solid black; text-align: right;">102</td></tr> <tr><td style="border-bottom: 1px solid black;">1.....</td><td style="border-bottom: 1px solid black; text-align: right;">105</td></tr> <tr><td style="border-bottom: 1px solid black;">1/2</td><td style="border-bottom: 1px solid black; text-align: right;">110</td></tr> <tr><td style="border-bottom: 1px solid black;">1/4 or less.....</td><td style="border-bottom: 1px solid black; text-align: right;">115</td></tr> </table> <p>Hearing protection in the form of disposable ear plugs will be worn during field work with sound levels anticipated above those listed in Table G-16. Use sound meter app on phone to assess required PPE. Be aware that hearing protection can diminish warning sounds - do not stand with back to operating equipment and be alert for changing conditions.</p> <p>See attached Job Hazard Analysis – Task 4.1 Drilling observations</p>	8.....	90	6.....	92	4.....	95	3.....	97	2.....	100	1 1/2	102	1.....	105	1/2	110	1/4 or less.....	115
8.....	90																		
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General Hazards (Housekeeping, Lifting, Portable Hand Tool)	<p>Lift and transport hand tools using proper lifting techniques and keep a clean and orderly workspace. Use a team lift for lifting objects that are bulky, over 50 lbs, or in awkward starting positions. Feet should be planted flatly and a proper lifting technique should be performed to prevent injuries.</p> <p>Check extension cords and power cords keep all cords organized to avoid tripping hazards. Check cords for sign of fraying, or damage. Use GFCI when using extension cords and power tools. Do not use portable tools that shows signs of damage. Always use electrically grounded tools.</p> <p>See attached GZA policy 03-3009 Manual Lifting Safety</p>																		
Slip, trips, and falls	<p>Be aware of changing on-site conditions and identify with flagging or paint potential slip/trip/fall hazards. Personnel will be wearing appropriate boots with good tread to prevent slips and falls. Maintain one free hand to break falls. Watch for equipment on ground, changing ground contour and slippery surfaces. Keep work area clean, no running, be mindful of changing weather conditions that may change footing conditions. All borings and openings will be adequately covered and/or barricaded if left unattended for any period of time to prevent injury.</p>																		
Weather-Related Hazards	<p>Assess weather conditions prior to on-site work and examine forecast for anticipated period of work. Dress appropriately for weather conditions (e.g., precipitation, temperature ranges over anticipated duration of field work). Be sure to consume plenty of liquids even when temperatures are colder. Use protective ointments such as sunscreen and chap stick, as appropriate to the field conditions.</p> <p>Be aware of the anticipated weather conditions prior to mobilization to the site. Unacceptable field work conditions are not precise, but may include site specific conditions, general location, extreme weather conditions (e.g., lightning, excessive heat/cold, heavy snow, heavy rain), travel conditions, and other factors. Professional judgment is required, and personal assessment of safety must always be individually assessed. See attached Job Hazard Analysis – Task 21.01 General Outdoor Field Work</p>																		
Biting/Stinging Insects, Spiders, Lyme Disease	<p>Ticks carry risk of Lyme and other Diseases. Tick season is basically any field day above 40 degrees F. Tuck pants into long socks and apply DEET (or permethrin pre-treatment) to clothing in season to control exposure to ticks. Check clothing for ticks frequently. Check whole body immediately upon returning from field and shower. Be aware of intermittent seasonal reports of mosquito borne diseases, such as West Nile disease and Eastern Equine Encephalitis (EEE), and their locations relative to your field site. Use DEET or other mosquito repellent. Be aware of potential cavity, suspended or ground nesting bee/wasp/hornet nests. Avoid undue disturbance or approach with appropriate safety clothing protection and netting.</p> <p>Wear appropriate PPE (long pants/ sleeves, sturdy boots, safety glasses, high visibility vests). Tuck pants into long socks. Apply DEET (or permethrin pre-treatment) to clothing in season to control exposure to biting insects is recommended. Conduct tick checks at regular intervals. See attached GZA policy 03-3019 Lyme Disease Prevention</p>																		
Overhead Hazards	<p>Check for overhead lines at each work location. Wear steel toed boots, hardhat and safety glasses/goggles – EH rated as necessary. Stand clear of stored materials. If stack appears unstable inform site representative. Awareness while equipment is advancing into soil / sediment. Do not stand directly in immediate vicinity of equipment in case malfunction occurs. Maintain safe work distance and maintain eye contact and communication with operator. Never stand under elevated loads or equipment. Keep equipment at least 10 feet from overhead utilities.</p>																		

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	<p>Overhead hazards can include low hanging structures which can cause injury due to bumping into them. Other overhead hazards include <i>falling objects, suspended loads, swinging loads and rotating equipment</i>. Hardhats must be worn by personnel in areas where these types of physical hazards may be encountered. Electrical wires are another significant overhead hazard. According to OSHA (29 CFR 1926.550), <i>the minimum clearance which must be maintained from overhead electrical wires is 10 feet</i> from an electrical source rated < 50 kV. Sources rated > 50 kV require a minimum clearance of 10 feet plus 0.4 inch per kV above 50 kV. According to Eversource Contactor Safety Requirements, until a qualified electrical worker confirms the MAD, all equipment and loads shall maintain a 20 foot minimum approach distance. A lift plan needs to be prepared and discussed before lifting a load – as applicable. A safety observer shall be present to assist with lifts and excavation work. Equipment shall be grounded when working within Minimum Approach Distances of energized equipment.</p> <p>Check for overhead lines at each boring location and between locations. Wear steel toed boots, hardhat and safety glasses/goggles. Stand clear of stacked drill rods. Do not stack NW or AW drill rods greater than 1.5 times the drill rigs mast height. Watch for DROPPED (fallen) objects when lifting with the drill rig wireline and cable systems. When drilling with sonic drill rigs stand a minimum of 10-20 feet away from the drill rig to avoid potential failure of pressurized hydraulics lines along drill mast.</p>
Utilities	<p>Dig Safe/One Call must be contacted prior to drilling, look for utility markings, new road cuts, signs of underground utilities. Scan area and be aware of overhead utilities. Look for Eversource and contractor to provide guidance on safe dig locations. GZA employees maintain safe working distance from equipment to prevent exposure to electrical hazards should contact be made.</p>
Poisonous Plants	<p>Know the appearance of poison ivy and poison sumac in all seasons, and if sensitive to these toxins, carry and use special cleaning soaps/solutions when thought to be exposed. Stock first aid kit with poison ivy/sumace cleaning soaps/solutions.</p>
Feral Animals	<p>Be aware of feral animals along the banks of the water or on the wooded portion of the Site. Do not work at the Site alone. Do not approach if you encounter animals.</p>
Utility Hazards/ Electrical Hazards	<p>Check in with EVERSOURCE personnel to receive guidance for access to areas and work being conducted. Identify locations of electrical conductors and maintain minimum approach distance of 15 feet. Be aware of on-site activities and maintain appropriate distance from electrical and construction work. Additional PPE shall include EH [electrical hazard] rated boots and FR clothing when inside the energized substation or active right-of-way.</p>
Electrical arcing	<p>Check in with EVERSOURCE personnel to receive guidance for access to areas and work being conducted. Identify location of electrical conductors and maintain minimum approach distances as provided by electric utility. Be aware of on-site activities and maintain appropriate distance from electrical and construction work. Site staff shall wear FR clothing (consisting of coveralls 8 cal/cm², hrc 2) to wear on the outermost layer of clothing during work adjacent to energized transmission lines. During periods on inclement weather, arc-resistant rain gear will be provided where FR clothing is required. In addition, employees will wear natural fiber (cotton) garments underneath the FR coveralls. Additional PPE shall include EH (electrical hazard) rated boots when working within proximity of energized lines and conductors.</p> <p>When operating equipment energized right-of-way OR within the security fence of an energized substation, ground equipment:</p> <ul style="list-style-type: none"> • C-Clamps, 20,000 V capacity • Min AWG 4/0 copper cable, not coiled • Connect to station ground, water hydrant, tensioned guy, common neutral wire, or structure ground cable at the discretion of the safety observer. <p>Alternatively, install and connect to ½” dia., 8-ft long ground rod, min. 6 ft embedded in ground.</p> <p>In general, when working within 25 feet of conductors, Site staff shall wear FR clothing (meeting or exceeding 8 cal/cm², HRC 2) on the outermost layer of clothing. During periods of inclement weather, arc-resistant rain gear will be provided where FR clothing is required. In addition, employees will wear natural fiber (cotton) garments underneath the FR coveralls. Additional PPE shall include EH [electrical hazard] rated boots when the line work is energized. Work outside the 50 foot range does not require FR to be worn.</p>
Electrical Shocks	<p>Follow all Eversource protocols while working in / near energized lines.</p> <p>GZA employees are non-electrically qualified. Maximum voltage of any conductor is assumed to be 115 kV. Check in with Eversource personnel to receive guidance for access to areas and work being conducted. Identify location of electrical conductors and maintain minimum approach distance (MAD) of 15 feet from all energized conductors. Be aware of on-site activities and maintain appropriate distance from electrical and construction work.</p>

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	<p>When working near the overhead 115 kV lines, site staff shall wear FR clothing (meeting or exceeding 8 cal/cm², HRC 2) as the outermost layer of clothing. In addition, employees will wear natural fiber (cotton) garments underneath the FR coveralls. Additional PPE shall include EH [electrical hazard] rated boots.</p> <p>Stand clear of stacked drill rods. If stack appears unstable inform driller. Be aware of drilling rods and other support equipment that may be extended overhead during drilling activities. Drilling rods may dislodge overhead tree limbs (if any) during both drilling or mobilization around the Site. Existing transmission lines assumed to be 115kV. The drilling subcontractor should not allow drill rods to be raised within 15 feet of existing electrical lines. An on-site, qualified electrical safety spotter shall be responsible for the drilling subcontractor maintaining the MAD. Drilling equipment should be grounded by a qualified electrical safety spotter when working in the vicinity of energized electrical equipment.</p> <p><u>REVIEW GZA'S ELECTRICAL SAFE WORK PRACTICES PROGRAM 03-3003.</u></p>
<p><u>ELECTRICAL HAZARDS (I.E. EQUIPMENT 120 VOLTS OR GREATER, WORK INSIDE ELECTRICAL PANELS, OR MAINTENANCE OF ELECTRICAL EQUIPMENT)</u></p>	<p>Follow all Client protocols while working in along ROW.</p> <p>GZA employees are non-electrically qualified. Maximum voltage of any conductor is assumed to be 115 kV. Check in with Client representative to receive guidance for access to areas and work being conducted. Identify location of electrical conductors and maintain minimum approach distance (MAD) of 25 feet from all energized conductors. Be aware of on-site activities and maintain appropriate distance from electrical and construction work. Drilling equipment should be grounded by a qualified electrical safety spotter when working in the vicinity of energized electrical equipment.</p> <p>When working near the overhead 115 kV lines, site staff shall wear FR clothing (meeting or exceeding 8 cal/cm², HRC 2) as the outermost layer of clothing. In addition, employees will wear natural fiber (cotton) garments underneath the FR coveralls. Additional PPE shall include EH [electrical hazard] rated boots. Drilling equipment should be grounded by a qualified electrical safety spotter when working in the vicinity of energized electrical equipment.</p> <ul style="list-style-type: none"> • Deactivation of utilities, when necessary, should be certified by the proper utility company personnel and the certification record retained. • Verify, mark and discuss located utilities at the daily safety meeting prior to beginning work for the day. <p>Electricity is a strong, invisible force that gives power to tools, machinery, lights, heaters, and many other forms of equipment that can be used at the site. Electricity can be very dangerous. Accidental contact with electrical currents can cause injury, fire, extensive damage, and even death. It is very important to remember that working with and around electricity requires the full attention and respect of all workers. Follow these guidelines to avoid contact with electricity:</p> <ul style="list-style-type: none"> • Wear rubber gloves and rubber-soled shoes or boots, especially if you are working around electricity in a damp environment. • Inspect electrical tools on a regular basis, and do not use if the tool produces a slight shock, smokes, or sparks. • Check insulation around the power cord to make sure it is in good condition. • Check the plug at the end of the cord to make sure the prongs are secure in the plug and none are missing. • Inspect extension cords. No extension cord can be kinked, tied in a knot, crushed, cut, or bent and still insulate the electric current safely. <p>Equipment Grounding</p> <ul style="list-style-type: none"> • All equipment that has the potential to contact energized components or encroach on safe work boundaries shall be grounded in accordance with the grounding procedure. • Equipment must be grounded directly to the substation facility grounding grid utilizing appropriate grounding clamps. • If the work is not performed within a PSE&G substation, ground rods should be used. • Ground rods should be located as far as possible from workers. • Equipment should be installed in accordance with the manufacturer's recommendations. • Always connect the ground end first. • When removing, take the equipment side off first then the ground. • When installing or removing a ground, required PPE includes 20 kV high-voltage gloves, 15 kV dielectric overboot footwear, fire-retardant (FR) suit (ATPV Rating 1:8 cal/cm²), safety glasses, and face shield. <p>Types of grounds to be utilized include:</p> <ul style="list-style-type: none"> • Mechanical equipment used within the stations must be grounded using 4/0Cu grounds with Grade 5 clamps.

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	<ul style="list-style-type: none"> • Grounds used in Outside Plant Transmission shall be 4/0 Cu with Grade 5 clamps. • Grounds used in Outside Plant Distribution/Sub-transmission must be 2/0 Cu with Grade 3 clamps. <p>If operation near overhead lines is necessary, the following tables provide minimum clearance required for specific lines:</p> <p>MINIMUM APPROACH DISTANCE*</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">PHASE TO PHASE VOLTAGES (kV)</th> <th style="text-align: left;">MINIMUM CLEARANCE DISTANCE (FEET)</th> </tr> </thead> <tbody> <tr> <td>Up to 50</td> <td>10 ft. 0 in.</td> </tr> <tr> <td>50 to 200</td> <td>15 ft. 0 in.</td> </tr> <tr> <td>200 to 350</td> <td>20 ft. 0 in.</td> </tr> <tr> <td>350 to 500</td> <td>25 ft. 0 in.</td> </tr> <tr> <td>500 to 750</td> <td>35 ft. 0 in.</td> </tr> </tbody> </table> <p>* Table A – Minimum Clearance Distances 1926.1408(a)2(iii). Determine if any part of equipment, load line, or load could get closer than 20 feet for less than 350 kV or 50 feet for greater than 350 kV if operated up to the equipment’s maximum working radius.</p> <p>MINIMUM CLEARANCE DISTANCES WHILE TRAVELING WITH NO LOAD+</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Voltage (nominal, kV, alternating current)</th> <th style="text-align: left;">While traveling – minimum clearance distance (feet)</th> </tr> </thead> <tbody> <tr> <td>Up to 0.75</td> <td>4</td> </tr> <tr> <td>Over 0.75 to 50</td> <td>6</td> </tr> <tr> <td>Over 50 to 345</td> <td>10</td> </tr> <tr> <td>Over 345 to 750</td> <td>16</td> </tr> <tr> <td>Over 750 to 1,000</td> <td>20</td> </tr> <tr> <td>Over 1,000</td> <td>(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution)</td> </tr> </tbody> </table> <p>+ Table T under 1926.1411(b)(2). Note: kV = kilovolts</p> <p><u>REVIEW GZA’S ELECTRICAL SAFE WORK PRACTICES PROGRAM 03-3003 AND EVERSOURCE SAFETY REQUIREMENTS WHILE WORKING IN A SUBSTATION.</u></p>	PHASE TO PHASE VOLTAGES (kV)	MINIMUM CLEARANCE DISTANCE (FEET)	Up to 50	10 ft. 0 in.	50 to 200	15 ft. 0 in.	200 to 350	20 ft. 0 in.	350 to 500	25 ft. 0 in.	500 to 750	35 ft. 0 in.	Voltage (nominal, kV, alternating current)	While traveling – minimum clearance distance (feet)	Up to 0.75	4	Over 0.75 to 50	6	Over 50 to 345	10	Over 345 to 750	16	Over 750 to 1,000	20	Over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution)
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<p><u>COVID-19</u></p>	<p>Observe social distancing, i.e. stay 6 feet away from others.</p> <p>If exhibiting any symptoms (cough, fever, prolonged shortness of breath), please stay home. Notify PM for rescheduling site visits.</p> <p>Wash hands for 20 seconds after touching any shared equipment.</p> <p>The situation is rapidly developing, so keep up to date by checking guidelines from GZA’s Pandemic Flu Response Team here regularly:</p> <p>HTTPS://GZAINC.SHAREPOINT.COM/SITES/HUB/HS/SITEPAGES/CORONAVIRUS-AND-PANDEMIC-FLU-PREPAREDNESS.ASPX</p> <ol style="list-style-type: none"> 1. For project sites under GZA oversight, begin each day by gathering everyone under GZA oversight together for a safety meeting 2. Tell everyone that the rules about mask wearing and social distancing on the project may be different for vaccinated and unvaccinated individuals and explain the differences 3. Ask if anyone currently has or has had symptoms of COVID-19 in the past 14 days. Send anyone home that answers yes and suggest they get a COVID-19 rapid test. 4. Establish the following good ground rules with everyone under GZA oversight during the meeting, at a minimum: <ol style="list-style-type: none"> a. No one should work if they don’t feel well or develop COVID-19-specific symptoms during the day b. If allowed by state rules and client requirements, fully vaccinated individuals are not required to wear face coverings while on the project site. c. Unvaccinated individuals must continue to social distance while on the project site and wear face coverings if required by state rules and/or client requirements. <p><u>IF ANYONE BECOMES ANXIOUS OR BELIEVES SOMEONE IS ONSITE THAT IS SHOWING SYMPTOMS OF COVID-19 LET RICK ECORD KNOW</u></p> <p>See attached JHA</p>																										
<p>Remote Locations/ Navigation /Orientation Hazards</p>	<p>Phone will be fully charged before arriving at site. Plan the tasks before going into the field. A site plan will be kept with the employee at all times. Use GPS navigation when possible / applicable. If performing solo</p>																										

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	fieldwork, the employee will notify PM when they arrive/leave the site. Bring water and other supplies as necessary.
Long distance or Overnight Travel	Get proper rest prior to work shift. Do not attempt to drive should GZA representative feel drowsy. Get rest as needed to maintain alertness prior to attempting to drive. Project work within a single 24 period should not exceed 16 hours (combined on site time and driving) without prior approval from the DOM.
Other hazards to be added as needed upon commencement of field work based on initial and daily safety tailgate meetings.	Daily safety meetings and updates, add new hazards as work dictates, utilize work pauses and stoppages if unsafe conditions are identified and additional safety procedures are required.

7. AIR MONITORING ACTION LEVELS – Make sure air monitoring instruments are in working order, calibrated before use, and ‘bump-checked’ periodically throughout the day and/or over multiple days of use

Is air monitoring to be performed for this project? Yes No

ACTION LEVELS FOR OXYGEN DEFICIENCY AND EXPLOSIVE ATMOSPHERIC HAZARDS (Action levels apply to occupied work space in general work area)

Applicable, See Below. Not Applicable

Parameter	Response Actions for Elevated Airborne Hazards
Oxygen	At 19.5% or below – Exit area, provide adequate ventilation, or proceed to Level B, or discontinue activities Verify presence of adequate oxygen (approx. 12% or more) before taking readings with LEL meter. Note: If oxygen levels are below 12%, LEL meter readings are not valid.
LEL	Less than 10% LEL – Continue working, continue to monitor LEL levels Greater than or Equal to 10% LEL – Discontinue work operations and immediately withdraw from area. Resume work activities ONLY after LEL readings have been reduced to less than 10% through passive dissipation, or through active vapor control measures.

ACTION LEVELS FOR INHALATION OF TOXIC/HAZARDOUS SUBSTANCES (Action levels are for sustained breathing zone concentrations)

Applicable, See Below. Not Applicable

Air Quality Parameters (Check all that apply)	Remain in Level D or Modified D	Response Actions for Elevated Airborne Hazards
<input type="checkbox"/> VOCs	0 to ppm	From ppm to ppm: Proceed to Level C, or Ventilate, or Discontinue Activities If greater than ppm: Discontinue Activities and consult EHS Team
<input type="checkbox"/> Carbon Monoxide	0 to 35 ppm	At greater than 35 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities.
<input type="checkbox"/> Hydrogen Sulfide	0 to 10 ppm	At greater than 10 ppm, exit area, provide adequate ventilation, proceed to Level B, or discontinue activities
<input type="checkbox"/> Dust	0 to mg/m ³	
<input type="checkbox"/>	0 to	

SPECIAL INSTRUCTIONS/COMMENTS REGARDING AIR MONITORING (IF APPLICABLE)

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

8. HEALTH AND SAFETY EQUIPMENT AND CONTROLS

AIR MONITORING INSTRUMENTS

- PID Type: Lamp Energy: eV
- FID Type:
- Carbon Monoxide Meter
- Hydrogen Sulfide Meter
- O₂/LEL Meter
- Particulate (Dust) Meter
- Calibration Gas Type
- Others:

OTHER H&S EQUIPMENT & GEAR

- Fire Extinguisher -ABC 10lb
- Caution Tape
- Traffic Cones or Stanchions
- Warning Signs or Placards
- Decon Buckets, Brushes, etc.
- Portable Ground Fault Interrupter (GFI)
- Lockout/Tagout Equipment
- Ventilation Equipment
- Others: cell phone(s), first aid kit, flashing amber vehicle light, soap, water

PERSONAL PROTECTIVE EQUIPMENT

- Respirator – Type
- Respirator - Cartridge Type:
- Hardhat
- Outer Gloves Type: Work, Nitrile
- Inner Gloves Type: Nitrile
- Steel-toed boots/shoes
- Coveralls – Type
- Outer Boots – Type
- Eye Protection with side shields
- Face Shield
- Traffic Vest
- Personal Flotation Device (PFD)
- Fire Retardant Clothing
- EH (Electrical Hazard) Rated Boots, Gloves, etc.
- Noise/Hearing Protection
- Others: seasonal clothing, face masks

Discuss/Clarify, as Appropriate:

9. H&S TRAINING/QUALIFICATIONS FOR FIELD PERSONNEL

- | | |
|---|---|
| <p><input checked="" type="checkbox"/> Project-Specific H&S Orientation (Required for All Projects/Staff)</p> <p><input checked="" type="checkbox"/> OSHA 40-Hour HAZWOPER/8 Hour Refreshers</p> <p><input type="checkbox"/> Hazard Communication (for project-specific chemical products)</p> <p><input checked="" type="checkbox"/> First Aid/CPR (required for HAZWOPER for at least one individual on site)</p> <p><input type="checkbox"/> Current Medical Clearance Letter (required for HAZWOPER)</p> <p><input checked="" type="checkbox"/> OSHA 10-hour Construction Safety Training</p> <p><input type="checkbox"/> Fall Protection Training</p> <p><input type="checkbox"/> Trenching & Excavation</p> | <p><input type="checkbox"/> Lockout/Tagout Training</p> <p><input checked="" type="checkbox"/> Electrical Safety Training</p> <p><input type="checkbox"/> Bloodborne Pathogen Training</p> <p><input checked="" type="checkbox"/> Safe Drilling SOP</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> |
|---|---|

Discuss/Clarify, as needed:

10. PERSONNEL AND EQUIPMENT DECONTAMINATION (SECTION ONLY REQUIRED FOR HAZWOPER SITES)

Describe personnel decontamination procedures for the project site, including "dry decon" (simple removal of PPE)

PPE, poly sheeting and any other disposable material that comes in contact with excavated soil for the work at Structures 5008 through 5016 will be collected and disposed of as solid waste.

11. PROJECT PERSONNEL - ROLES AND RESPONSIBILITIES


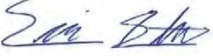

GZA ON-SITE PERSONNEL:

Name(s)	Project Title/Assigned Role	Telephone Numbers
Dylan Shaffer	Site Supervisor	Work: (603) 232-8781 Cell: (603) 361-0205

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Dylan Shaffer	Field Safety Officer	Work: (603) 232-8781 Cell: (603) 361-0205
Dylan Shaffer	First Aid Personnel	Work: (603) 232-8781 Cell: (603) 361-0205
Kyle Ashe	GZA Project Team Members	Work: (603) 232-8778 Cell: (603) 361-4222
<p>Site Supervisors and Project Managers (SS/PM): Responsibility for compliance with GZA Health and Safety programs, policies, procedures and applicable laws and regulations is shared by all GZA management and supervisory personnel. This includes the need for effective oversight and supervision of project staff necessary to control the Health and Safety aspects of GZA on-site activities.</p> <p>Field Safety Officer (FSO): The FSO is responsible for implementation of the Site Specific Health and Safety Plan.</p> <p>First Aid Personnel: At least one individual designated by GZA who has current training and certification in basic first aid and cardiopulmonary resuscitation (CPR) must be present during on-site activities involving multiple GZA personnel at HAZWOPER sites.</p> <p>GZA Project Team: Follow instructions relayed by the HASP and GZA manager on-site.</p>		
OTHER PROJECT PERSONNEL:		
Name	Project Title/Assigned Role	Telephone Numbers
David Lamothe	Principal-in-Charge	Work: (603) 232-8716 Cell: (603) 622-8459
Jennifer Baron	Project Manager	Work: (603) 232-8758 Cell: (207) 232-5832
Samuel P. Despins	Office Safety Coordinator	Work: 603-232-8721 Cell: 603-767-4318
Richard Ecord	GZA EHS Director	Work: 781-278-3809 Cell: 404-234-2834
<p>Principal-in-Charge: Responsible of overall project oversight, including responsibility for Health and Safety.</p> <p>Project Manager: Responsible for day-to-day project management, including Health and Safety.</p> <p>Health and Safety Coordinator: General Health and Safety guidance and assistance.</p> <p>GZA EHS Director: H &S technical and regulatory guidance, assistance regarding GZA H&S policies and procedures.</p>		

GZA SITE-SPECIFIC HEALTH, SAFETY & ACCIDENT PREVENTION STANDARD-PLAN

12. PLAN ACKNOWLEDGEMENT AND APPROVALS		
GZA Project Site Worker Plan Acknowledgement		
<i>I have read, understood, and agree to abide by the information set forth in this Safety and Accident Prevention Plan. I will follow guidance in this plan and in the GZA Health and Safety Program Manual. I understand the training and medical monitoring requirements covered by the work outlined in this plan and have met those requirements.</i>		
GZA Employee Name	GZA Employee Signature	Date
Subcontractor Site Worker Plan Acknowledgement		
<i>GZA has prepared this plan solely for the purpose of protecting the health and safety of GZA employees. Subcontractors, visitors, and others at the site must refer to their organization's health and safety program or site-specific HASP for their protection. Subcontractor employees may use this plan for general informational purposes only. Subcontractor firms are obligated to comply with safety regulations applicable to their work, and understand this plan covers GZA activities only.</i>		
Subcontractor Employee Name	Subcontractor Employee Signatures	Date
GZA HASP Approval Signatures		
<i>The following individuals indicate their acknowledgement and/or approval of the contents of this Site Specific H&S Plan based on their understanding of project work activities, associated hazards and the appropriateness of health and safety measures to be implemented. A signed copy of this document must be present at the project site at all times work is being performed.</i>		
GZA Author/Reviewer Role	Signature	Date
Jennifer Baron HASP Preparer		7/13/22
EHS Reviewer Eric Stein		7/15/2022
David Lamothe Principal in Charge		7/18/2022



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ELECTRICAL SAFE WORK PRACTICES PROGRAM

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1.0 INTRODUCTION

The GZA GeoEnvironmental, Inc. (“GZA”) Electrical Safe Work Practices is intended to provide GZA employees with the guidance necessary to identify, evaluate, and control electrical hazards to which GZA personnel may be exposed in the normal course of employment. Because electrical work has the potential for personnel electrocution and the potential hazard of catastrophic property damage, extreme caution must be exercised when working with electricity and electrical equipment. Electrical shocks may also be the cause of secondary serious injuries, such as falls from elevated platforms or ladders, temporary unconsciousness and consequential injury. Electrical equipment can also cause fire because of its potential as an ignition source for causing fire or explosion. Fire is frequently caused by short circuits, overheating equipment and failure of current limiters, thermal sensors, and other safety devices. Explosions may occur when flammable liquids, gases, and dusts are exposed to ignition sources generated by electrical equipment.

2.0 PURPOSE

The primary purpose of this program is to prevent injuries and accidents and protect GZA employees from low voltage electrical hazards. “Low Voltage” is defined by the Occupational Safety and Health Administration (OSHA) as work performed directly on or in proximity of systems of 600 volts, nominal, or less. “High voltage” electrical hazards (>600 v) are addressed in this program to a limited extent, pertaining only to the hazards associated with potential contact with or disturbance of underground and overhead utilities, or where GZA employees may work in close proximity to high voltage installations (substations, transformers, switchgears, and similar equipment). No GZA employees are authorized to conduct installation, maintenance, repair, or similar work on systems having voltages greater than 600 volts (often referred to as “power distribution work”), either energized or de-energized; therefore, hazards associated with high voltage work are not addressed in this program.

This program references the primary laws, regulations and codes related to electrical safe work practices, and presents general practices, procedures, training requirements, and other guidelines pertaining to GZA operations. This program is applicable to all GZA operating units, employees, jobsites, and projects involving potential electrical shock hazards to GZA employees. Facility-specific or project-specific

safety procedures for preventing electric shock or other injuries resulting from direct/indirect electrical contact to employees working on or near energized or de-energized parts will be developed and implemented as required on a facility-specific or project-specific basis.

While some GZA employees may work with equipment in the 120 to 600 volt range (as related to remediation system or water treatment system equipment and facilities, and similar project work) most GZA employees who may be at risk of electrical shock normally work in areas with electrical equipment and appliances that operate at 120 volts or less.

3.0 RESPONSIBILITIES

The goal of the electrical safety program is to ensure that all GZA employees who may be exposed to electrical hazards understand the hazards associated with electric energy and are capable of performing the necessary steps to protect themselves and their coworkers.

Primary objectives of this program are to ensure systems are in place for the recognition and identification of electrical safety hazards, providing electrical safety training to employees, commensurate with their job duties, providing necessary safety equipment to employees that will enable to protect themselves from electrical hazards, and ensuring that employees report electrical hazards to their supervisors and/or EHS Coordinators or EHS Director so that hazardous conditions may be promptly corrected.

GZA employees must be aware of electrical safety concerns related to their work, must comply with safe operating procedures when working with electrical equipment, must attend appropriate safety training, and report safety concerns to appropriate managers and supervisors.

Project management staff (Principals, Project Managers) on projects involving electrical safety hazards, particularly on projects involving the operation and maintenance of electrical equipment (such as remediation systems, water treatment systems, and similar electrical equipment), are responsible for adhering to EHS requirements for staff to be trained, qualified, and authorized to work on electrical equipment, shall support policies for conducting periodic hazard analysis of work areas and for correcting identified safety hazards.

The EH&S personnel shall provide assistance in identifying electrical safety issues, provide guidelines on electrical safety laws, regulations and codes, shall provide or facilitate electrical safety training for GZA staff, and provide assistance in the review of electrical equipment safe operating procedures as necessary.

EHS staff coordination with project management staff shall be responsible for providing or making available appropriate levels of training for authorized or qualified persons, and that appropriate personal protective equipment is provided to authorized or qualified staff who work with electrical equipment

4.0 GENERAL ELECTRICAL SAFETY

GZA employees use electric powered equipment and systems during many aspects of their work at GZA, whether in offices or other facilities or as part of field work. Voltages as low as 12 volts can be dangerous, especially pertaining to 12 volts systems which allow for high (and hazardous) current flows. When working with or around electrical equipment, one may inadvertently become part of an electrical circuit. Only trained and authorized or qualified individuals should do any repair or work on electrical equipment.

As part of GZA's ongoing injury and illness prevention efforts, departments are required to conduct a hazard analysis of the workplace. This analysis will provide a mechanism for defining work unit specific hazards associated with electricity and create a plan for hazard mitigation and employee training.

4.1 GENERAL PRECAUTIONS FOR ALL STAFF

- Never work on "hot" or energized equipment unless it is necessary to conduct equipment troubleshooting;
- Use extension cords only as temporary power sources.
- Do not connect too many pieces of equipment to the same circuit or outlet as the circuit or outlet could become overloaded;
- Be sure that ground-fault circuit interrupters (GFCI) are used in high-risk areas such as wet locations, outdoors (GFCI's are designed to shut off electrical power within as little as 1/40 of a second);
- Plug strips, such as those used on computers, should be plugged directly into outlets and not into extension cords or other plug strips;
- Inspect all electrical equipment periodically for defects or damage;
- Electrical cords that are worn, frayed, abraded, corroded or otherwise damaged must be replaced;
- When removing a plug from an electrical socket, grasp the plug to remove it from a socket - never pull the cord;
- Keep all cords away from heat, oil and sharp edges, and other sources of potential damage;
- Always follow the manufacturer's instructions for use and maintenance of all electrical tools, equipment and appliances;
- Keep equipment operating instructions on file and readily available to equipment users;
- Never touch an electrical appliance and facility plumbing at the same time;
- Always unplug electrical appliances before attempting any repair or maintenance;
- All electrical devices must be properly grounded with approved three wire plugs unless they are "double insulated". Grounding provides a safe path for electricity to the ground, preventing leakage of current in circuits or equipment.
- Electrical equipment used by GZA personnel and in GZA facilities and on GZA job-sites should be UL or FM approved, or equivalent;
- Keep cords out of the way of foot traffic so they don't become tripping hazards or become damaged by traffic.
- Minimize the use of electrical equipment in wet areas; where electrical equipment must be used in wet or potentially wet locations (outdoors, treatment systems, etc.), ensure proper precautions are taken to minimize the risk of electrical shock;
- Ensure energized parts of electrical equipment operating at 50 volts or more are guarded against accidental contact. Similar precautions must be taken with systems less than 50 volts, except when current is limited by equipment design features to less than 5 millivolts.
- Only properly trained employees should work on electrical equipment;
- Know how to respond to emergencies such as electric shock incidents or fires;
- NEVER work with electricity greater than 600 volts without specific permission, training and written procedures. Notify your supervisor immediately if you have any questions;
- Be able to recognize electrical safety hazards in your work area;
- Ensure that all authorized or qualified persons have received appropriate training in order to operate or repair equipment;
- Keep equipment in good working order to help prevent electrical accidents;
- Maintain a three-foot clearance around electrical panels;
- Electrically operated equipment must be de-energized before work may commence;

- Always follow lockout/tag-out procedures when working on electrical equipment (Lockout/Tag-out Program) and wear appropriate Personal Protective Equipment (PPE) such as safety glasses, rated rubber gloves, rated rubber sleeves, insulated boots, or face shield;
- Never override safety devices such as electrical interlocks;
- Remove all rings, key chains or other metal objects when working around electricity; conductive items of jewelry or clothing shall not be worn unless rendered non-conductive by covering, wrapping or other insulating means;
- Wear appropriate personal protective equipment, such as eye protection or insulated gloves, as needed;
- Never use metal ladders when working near energized wiring; portable ladders shall have non-conductive side rails;
- Where workers are required to handle long dimensional conductor objects (ducts, pipes, ladders, etc.) in the vicinity of potentially exposed electrical system components, or overhead power lines, appropriate safety measures shall be incorporated in the work practices.
- Damp or wet environments may be dangerous when working with electricity;
- Never plug in cords that are wet or touch electrical equipment with wet hands;
- Employees working with lasers, performing hardware or software testing, or other activities that do not require direct contact with electrical components, should be aware of electrical safety issues and be alert to the possibility of other employees conducting energized work in the area.

4.2 GENERAL REQUIREMENTS PERTAINING TO ELECTRICAL EQUIPMENT

- Electrical installations and utilization equipment will be in accordance with the current edition of the National Electrical Code, National Fire Protection Association (NFPA 70), American National Standards Institute (ANSI) Standard C, and related OSHA standards (see section 8). This code will also apply to every replacement, installation, or utilization equipment
- Equipment or facilities designed, fabricated for, and intended for use by Facilities Department personnel will be procured to meet the requirements of the National Electric Code.
- Frames of all electrical equipment, regardless of voltage shall be grounded.
- Exposed non-current carrying metal parts of electrical equipment that may be come energized under abnormal conditions shall be grounded in accordance with the National Electrical Code.
- Wires shall be covered wherever they are joined, such as: outlets, switches, junction boxes, etc.
- Parts of electrical equipment which in ordinary operation produce arcs, sparks, etc., shall not be operated or used in explosive atmospheres or in close proximity to combustible materials.
- Equipment connected by flexible extension cords shall be grounded either by a 3-wire cord or by a separate ground wire (except double insulated equipment).
- Ground fault circuit interrupters (GFCI) shall be used on all 120-volt, single-phase, 15- and 20-ampere receptacle outlets at job sites when the receptacles are not a 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 kilowatt, where the circuit conductors of the generator are insulated from the generator frame and all or the grounded surfaces, need not be protected with GFCI's [**NFPA70E-NEC110.9(c)**].

4.3 REPORTING ELECTRICAL SAFETY HAZARDS

Employees who observe workplace conditions that represent potential electrical safety hazards to GZA employees, other employees, guests or the general public, shall report this conditions to your supervisor or EHS Coordinator or EHS Director. Such hazardous conditions may include discrepancies between instruction, procedures, policies and manual, faulty or damaged equipment, misapplication of an electrical device, presence of hazardous materials in locations where electrical sparking or arcing may occur.

Report malfunctioning equipment or devices to your supervisor, EHS Coordinator or EHS Director. Typical concerns that should be reported include:

- Damaged cords, plugs or outlets;
- Receiving a shock when touching the equipment; and
- Arcing, sparking, smoking, or otherwise malfunctioning equipment.

Any electrical equipment not operating properly should be:

- Taken out of service immediately;
- Tagged or labeled as “Do Not Use”;
- Dispose of the equipment or report to the appropriate qualified individual for repair.

Do not attempt to repair any electrical equipment yourself unless you are properly trained and authorized to do so.

If safety issues persist, please notify your supervisor or submit an Incident Analysis Report to the EHS Coordinator.

5.0 ELECTRIC UTILITY HAZARDS

5.1 UNDERGROUND UTILITIES

Much of the field work performed by GZA involves borings, probes or excavation below the ground surface. Underground utilities, especially electric and gas, pose some of the major potential hazards to which GZA and subcontractor employees are exposed during subsurface explorations. The process of locating underground utilities is the contractual responsibility of the subcontractors who perform subsurface work, not GZA (except in some jurisdictions where both the engineer and its subcontractors have explicit statutory responsibilities). In some cases, particularly on private property, the client may be the primary source of information pertaining to the location of underground utilities. GZA staff shall specify a general location for borings or other subsurface exploration, allowing the subcontractor to make the final decision for the specific location.

Notwithstanding the subcontractor’s responsibility, GZA project staff must be observant in the field and coordinate the utility location process, consistent with our project role, in order to minimize the potential for striking an underground utility. GZA personnel engaged in subsurface investigation receive training on the general nature of underground utilities, the process of notifying call centers (“Digsafe,” “Call Before You Dig,” etc.), call center limitations, utility locating techniques, and underground utility risk management and due diligence practices. A national directory of underground utility call centers, by State, is provided on the GZA Intranet...click “Health and Safety” on the home page side bar, and see the document entitled “National Directory of Utility Location Call Centers.”

5.2 OVERHEAD UTILITIES

Also related to much of the work conducted by GZA is the use of equipment that has the potential to come into contact with overhead power lined, such as excavation equipment, trucks, drill rigs, etc. Generally, this equipment is operated by GZA subcontractors, but on-site GZA personnel have the responsibility to conduct general oversight regarding safety performance of contractors. Furthermore, GZA personnel may be at risk from overhead utility hazards, for example if they are in contact with a drill rig or excavator, climbing scaffolds, or may be carrying a conductive ladder or other materials or equipment which may come in contact with overhead lines. The following safety measures shall be followed at all times:

- Conduct initial and daily surveys of the worksite and implement control measures and communication with coworkers to address hazards at the site. When designing underground exploration plans, take into account the location of overhead utilities.
- Don't operate equipment near overhead power lines if at all possible; take into account the potential for equipment to contact power lines during normal operation and also in case of unanticipated tipping/falling of equipment. At a minimum, if it is necessary to work near overhead lines, maintain minimum clearance distances summarized below.
- If an object (scaffolds, crane, etc.) must be moved in the area of overhead power lines, ensure that a competent person is appointed whose sole responsibility is to observe the clearance between the power lines and the object. Warn others if the minimum distance is not maintained.
- Never touch an overhead line if it has been brought down by machinery or has fallen. Never assume lines are dead.
- When a machine is in contact with an overhead line, DO NOT allow anyone to come near or touch the machine. Stay away from the machine and summon outside assistance.
- Also, never touch a person who is in contact with a live power line.
- Be trained in cardiopulmonary resuscitation (CPR).
- If you should be in a vehicle that is in contact with an overhead power line, DON'T LEAVE THE VEHICLE. As long as you stay inside and avoid touching metal on the vehicle, you may avoid an electrical hazard. If you need to get out to summon help or because of fire, jump out without touching any wires or the machine, keep your feet together, and hop to safety.
- When mechanical equipment is being operated near overhead power lines, employees standing on the ground may not contact the equipment unless it is located so that the required clearance cannot be violated even at the maximum reach of the equipment.
- To maximize his or her own safety, an employee should always use tools that work properly. Tools must be inspected before use and, those found questionable, removed from service and properly tagged. Tools and other equipment should be regularly maintained. Inadequate maintenance can cause equipment to deteriorate, resulting in an unsafe condition.
- Tools that are used by employees to handle energized conductors must be designed and constructed to withstand the voltages and stresses to which they are exposed.
- Use the personal protective equipment appropriate for the job that is performed. This equipment may consist of rubber insulating gloves, hoods, sleeves, matting, blankets, etc. These items must be inspected prior to each use and tested annually.
- When working near overhead power lines, the use of non-conductive wooden or fiberglass ladders is recommended. Aluminum ladders and metal scaffolds or frames are efficient conductors of electricity.
- Avoid storing materials under or near overhead power lines.

5.3 WORKING CLEARANCES FROM OVERHEAD ELECTRIC POWER LINES

State and federal safety standards state the minimum safe working clearance from any overhead line is 10 feet, for lines carrying voltages greater than 300 volts. Greater clearances are required for overhead lines operating at voltages exceeding 50,000 volts to ground. A summary of OSHA working clearance requirements is provided below:

From OSHA Construction Safety Standard 1926.451 paragraph (f)(6):

INSULATED LINES

Voltage	Minimum distance	Alternatives
Less than 300 volts	3 feet (0.9 m)	
300 volts to 50 kV	10 feet (3.1 m)	
More than 50 kV	10 feet (3.1 m) plus 0.4 inches (1.0 cm) for each 1 kV over 50 kV	2 times the length of the line insulator, but never less than 10 feet (3.1 m)
UNINSULATED LINES		
Voltage	Minimum distance	Alternatives
Less than 50 kV	10 feet (3.1 m)	
More than 50 kV	10 feet (3.1 m) plus 0.4 inches (1.0 cm) for each 1 kV over 50 kV	2 times the length of the line insulator, but never less than 10 feet (3.1 m)

Exception to paragraph (b)(6)

Scaffolds and materials may be closer to power lines than specified above where such clearance is necessary for performance of work, and only after the utility company, or electrical system operator, has been notified of the need to work closer and the utility company, or electrical system operator, has de-energized the lines, relocated the lines, or installed protective coverings to prevent accidental contact with the lines.

From OSHA Construction Safety Standard 1926.550 paragraph (a)(15):

- 1926.550(a)(15)
 - Except where electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines, equipment or machines shall be operated proximate to power lines only in accordance with the following:
- 1926.550(a)(15)(i)
 - For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet;
- 1926.550(a)(15)(ii)
 - For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet;
- 1926.550(a)(15)(iii)
 - In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for

voltages less than 50 kV, and 10 feet for voltages over 50 kV, up to and including 345 kV and 16 feet for voltages up to and including 750 kV;

- 1926.550(a)(15)(iv)
A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means;
- Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices shall not alter the requirements of any other regulation of this part even if such device is required by law or regulation;
- 1926.550(a)(15)(vi)
Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded;
- 1926.550(a)(15)(vii)
Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be de-energized or tests shall be made to determine if electrical charge is induced on the crane. The following precautions shall be taken when necessary to dissipate induced voltages:
 - 1926.550(a)(15)(vii)(a)
The equipment shall be provided with an electrical ground directly to the upper rotating structure supporting the boom; and
 - 1926.550(a)(15)(vii)(b)
Ground jumper cables shall be attached to materials being handled by boom equipment when electrical charge is induced while working near energized transmitters. Crews shall be provided with nonconductive poles having large alligator clips or other similar protection to attach the ground cable to the load.
 - 1926.550(a)(15)(vii)(c)
Combustible and flammable materials shall be removed from the immediate area prior to operations.

Work may be performed closer than the established working clearances only if the power lines have been de-energized and grounded, or if other protective measures (insulators) have been installed under the direction of a Qualified Electrical Worker, Qualified for High Voltage Power Distribution Systems.

6.0 ELECTRICAL SAFETY REQUIREMENTS GZA-OPERATED FACILITIES AND EQUIPMENT

In GZA offices, laboratories, storage facilities, equipment annexes and other non-project-related facilities, GZA personnel shall not engage in electrical design, installation or maintenance activities. Such activities are typically the responsibility of the facility owner and its qualified electrical subcontractors. GZA personnel in these facilities shall adhere to normal and typical occupancy activities, and shall conform to typical electrical safe work practices as outlined in Section 4.0 of this program. For various types of project-related activities performed by GZA personnel, such as the design, construction, operation and maintenance of electrical equipment used in remediation system facilities, water treatment systems, air monitoring and other environmental testing systems, specifically with the voltages of such systems typically range from 50 to 600 volts, nominal, GZA shall adhere to applicable laws, codes and regulations pertaining to electrical installations and electrical safe work practices.

6.1 DESIGN OF ELECTRICAL INSTALLATIONS

1. National Electrical Code (NFPA)
2. Lighting circuits separate from equipment circuits so that if equipment needs to be shut down and locked out for maintenance work, lighting is still available
3. To facilitate access to low-voltage information ports, and similar sources of data by “non-qualified” workers, such ports shall be designed to be accessed in a manner that does not expose live electrical components above 50 volts, nominal. This may be accomplished through various means such as, but not limited to, the following:
 - Segregation of low voltage (< 50 V) components and information ports from higher voltage components
 - Incorporating equipment shutoff devices so that boxes are de-energized when data ports are accessed
 - Shielding higher voltage live electrical components
 - Installing links to information ports accessed via outside of electric box without opening box.
4. Installing sufficient number of 120 v electrical outlets within a system to minimize the potential for reliance on flexible cords (extension cords) as permanent wiring.
5. 120 volt outlets shall all be GFI-protected

6.2 EQUIPMENT LABELING

Voltage, Shut offs, breakers (reference the National Electric Code), and arc flash data (see section 6.5-6.10) shall be labeled in accordance with Article 100 of the NFPA 70E standard for electrical safety in the workplace.

6.3 CLEARANCE DISTANCES/CONFINED SPACES

Electrical panels and fuse/breaker boxes shall have proper clearance distances in front of the panel. Equipment shall be located so as to allow panel doors to be open a minimum of 90 degrees. Electrical installations shall be so designed as to provide minimum clearance distances in anticipation of necessary operations and maintenance work, so as to preclude the requirement for using protective shields, barriers or insulating materials during maintenance work. Where such conditions exist, the necessary protective equipment shall be made available at the work site.

6.4 ILLUMINATION

Where exposed energized electrical equipment will be present in a work space, including temporary work when electrical enclosures must be opened, the work area shall have proper and adequate illumination in order to perform the work safely.

6.5 NFPA AND OSHA REQUIREMENTS FOR ELECTRICAL SAFE WORK PRACTICES

The NFPA 70e standard addresses electrical safety requirements for employee workplaces that are necessary for the practical safeguarding of employees during activities such as the installation, operation, maintenance, and demolition of electric conductors, electric equipment, signaling and communications conductors and equipment, and raceways for the following:

- Public and private premises, including buildings, structures, mobile homes, recreational vehicles, and floating buildings
- Yards, lots, parking lots, carnivals, and industrial substations
- Installations of conductors and equipment that connect to the supply of electricity

- Installations used by the electric utility, such as office buildings, warehouses, garages, machine shops, and recreational buildings, that are not an integral part of a generating plant, substation, or control center.

Compliance with NFPA 70e involves an understanding of safety related work practices, safety related maintenance requirements, and safety requirements for special equipment as specified in NFPA 70e Articles 100-130, 200-250, 300-350. Annex D, “Incident Energy and Flash Protection Boundary Calculation Methods”, is used to determine the threshold to exposure to dangerous energy.

ESWP-NFPA 70e is a professionally accepted consensus standard that is cited by OSHA and other regulatory programs for compliance enforcement under the general duty clause. Compliance with OSHA involves adherence to a six-point plan:

- A facility must provide, and be able to demonstrate, a safety program with defined responsibilities.
- Calculations for the degree of arc flash hazard.
- Correct personal protective equipment (PPE) for workers.
- Training for workers on the hazards of arc flash.
- Appropriate tools for safe working.
- Warning labels on equipment. Note that the labels are provided by the equipment owners, not the manufacturers. It is expected that the next revision of the National Electric Code will require that the labels contain the equipment's flash protection boundary, its incident energy level, and the required personal protective equipment (PPE).

6.6 ELECTRICAL SAFE WORK CONDITION

An electrical safe work condition is defined as a conductor or circuit part that has been isolated from energized parts, locked out in accordance with established standards, tested to ensure the absence of voltage, and, if necessary, grounded.

Do not work on or near energized electrical equipment unless it is in an electrical safe work condition. An exception to this rule is when de-energizing the equipment increases the hazard. A second exemption is when the work cannot be performed unless the circuit is energized (i.e. such as troubleshooting and voltage testing). In this case, you must be qualified and trained to understand the hazards, lockout procedures, and to select and use safe work practices and protective equipment. Treat all exposed or potentially energizable conductors, as energized until proven otherwise by testing or confirmed lockout.

6.7 SAFE APPROACH BOUNDARIES

There are three safe approach boundaries for energized electrical work to protect against electric shock.

- Limited
- Restricted
- Prohibited

Each boundary has a specific distance to be maintained to avoid these hazards as depicted in diagram 1 below.

Under normal circumstances, air separation provides insulation between phases and ground for exposed, energized electrical conductors. The voltage level is the main determinant of how large that separation must be. The Limited Approach Boundary, Prohibited Approach Boundary, and Restricted Approach Boundary are distances where different levels of precaution must be taken to avoid shock from an exposed energized conductor or one that has a potential to become energized.

Each of these boundaries is identified as levels of approach as determined by the voltage level of the conductor. Each approach level requires a different level of precaution. In addition, the Limited Approach Boundary is dependent upon whether the conductor is fixed or movable. Figure 1 illustrates the shock hazard boundaries.

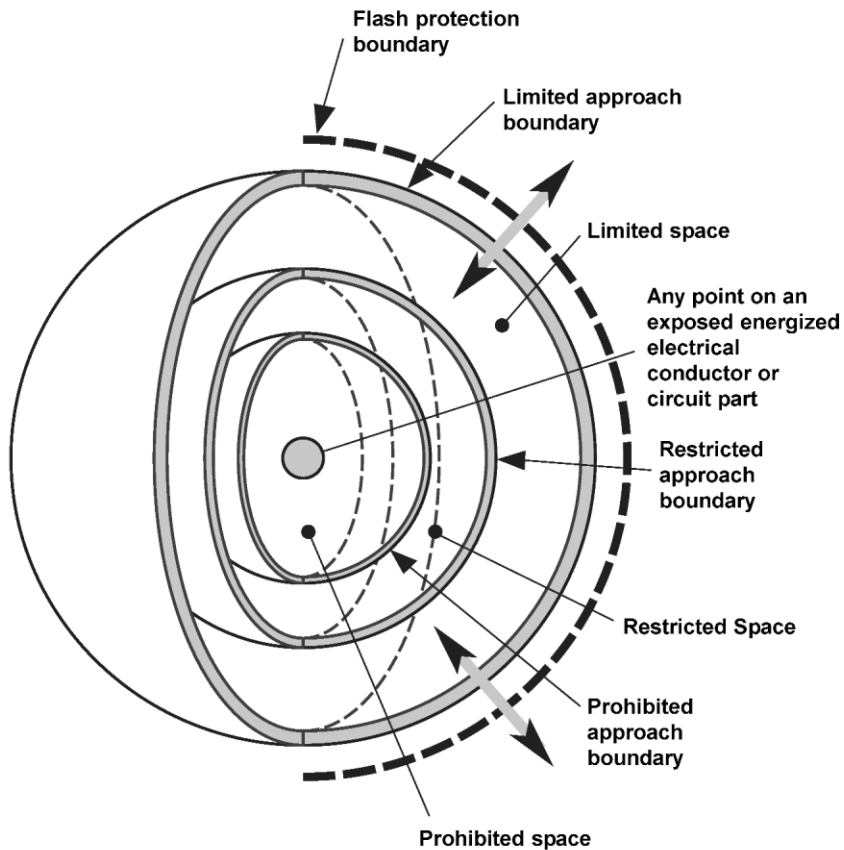


Figure 1: Safe Approach Boundaries, Annex C, Limits of Approach, NFPA 70E

6.8 LIMITED APPROACH BOUNDARY

The following are the Limited Approach Boundary values to an exposed, energized electrical conductor, which is fixed, or movable. The Limited Approach Boundary Dimensions are listed in Table 1: Limited Approach Boundary Dimensions (L).

Nominal System Voltage (Phase to Phase)		<300	300-750	750-2k	2k-15k
Limited Approach Boundary Distance (L)	From a Fixed Conductor	3' 6"	3' 6"	4' 0"	5' 0"
	From a Movable Conductor	10' 0"	10' 0"	10' 0"	10' 0"

Table 1: Limited Approach Boundary Dimensions (L)

Inside the Limited Approach Boundary (L), a qualified employee must plan necessary safe work practices. Workers must use insulated tools. If the voltage exceeds 750V, an assistant or another qualified employee must accompany a worker. Unqualified person(s) must stay outside of the Limited Approach Boundary.

6.9 RESTRICTED APPROACH BOUNDARY

Inside of the Restricted Approach Boundary, the qualified employee formulates boundary requirements after approval by his/her supervisor. If the voltage exceeds 750V, both the supervisor and a non-resident expert must approve the work plan and an assistant or another qualified employee must be present. The employee(s) must use insulated tools and voltage-rated gloves and instruments. The Restricted Approach Boundary Dimensions are listed in Table 2: Restricted Approach Boundary Dimensions (R).

Nominal System Voltage (Phase to Phase)	<300	300-750	750-2k	2k-15k
Restricted Approach Boundary Dimension (R)	Avoid Contact	1' 0"	2' 0"	2' 2"

Table 2: Restricted Approach Boundary Dimensions (R)

6.10 PROHIBITED APPROACH BOUNDARY

Crossing the Prohibited Approach Boundary is considered the same as making contact with energized conductors. To work in a Prohibited Approach Boundary follow the five steps below. Also, the qualified person must:

1. Have the training and experience to work as a "qualified person" per the definition in Chapter 3.
2. Has specialized training in this type of work.
3. Have a written plan conforming to the requirements of Chapter 6.0.
4. Determine the Prohibited Approach Boundary Dimensions per Table 4 of Annex A.
5. Use PPE and insulating equipment rated for the voltage and energy level involved.

Note: If the voltage exceeds 750V, both the supervisor and a non-resident expert must approve the work plan and an assistant or another qualified employee must be present.

The Prohibited Approach Boundary Dimensions are as follows in Table 3:

Nominal System Voltage (Phase to Phase)	<300	300-750	750-2k	2k-15k
Prohibited Approach Boundary Dimension (P)	Avoid Contact	0' 1"	0' 3"	0' 7"

Table 3: Prohibited Approach Boundary Dimensions (P)

Pursuant to the National Fire Protection Association 70e (NFPA 70e) standard and OSHA Regulation 29 CFR 1910.133 for Electrical Safe Work Practices, for electrical system designed, operated and maintained GZA personnel, arc flash survey shall be conducted for the purpose of identifying potential electrical safety hazards. NFPA 70e, Annex D shall be used as a guide and the calculation matrix software provided by the Institute for Electrical and Electronic Engineers (IEEE) 1584, *Guide for Performing Arc Flash Hazard Calculations* (or equivalent) shall be used for arc flash hazard calculations.

From the arc flash analysis, information shall be developed for use in determining safety boundary distances (prohibited, restricted and limited approach boundaries), personal protective equipment (PPE) required within each boundary, and panel labeling requirements. A subsequent hazard/risk analysis shall be completed by GZA personnel using the supplied arc flash data and matrices.

The completion of surveys and review of the operations guideline is just one aspect of a comprehensive ESWP-NFPA 70e safety program. Once the baseline material or practice is in-place, it is incumbent on the

employer to train affected employees and supervisors, validate that the guidelines are being implemented and followed in practice, and that additional safety procedures are in-place to support the guidelines. To have an effective and sustainable program, other aspects must be considered to enable the successful operational practice of the guideline. Proper training and instruction must be developed for affected employees and supervisors so that they understand the theory behind the guidelines, why precautions must be taken where perhaps none have been taken prior to the guidelines establishment, and why following the guidelines is important to everyone's safety. Training elements can be easily extracted from the guideline and developed into effective and time-efficient training modules that meet the requirements of the ESWP-NFPA 70e standard.

7.0 EMPLOYEE TRAINING AND QUALIFICATION

OSHA Regulation 29 CFR 1910.333, and the NFPA 70e Standard, both addressing Electrical Safety Work Practices, establish training requirements for individuals performing work that results in a potential electrical shock. It is important to note that while the NFPA 70e Standard is a non-regulatory industry consensus standard, it must be considered a regulatory requirement as it is considered by OSHA an enforceable standard for electrical safe work practices in conjunction with its own 1910.333 standard and its General Duty Clause, Section 5(a)1 of the Occupational Safety and Health Act of 1970. Based on these requirements, GZA has established three categories of "Electrical Worker" Levels 1, 2 and 3. These categories have been established to best represent general categories of concern related to electrical hazards to which GZA employees may be exposed. In all situations where GZA employees may be exposed to the risk of electrical shock, the worker shall receive training in electrical safety work practices pertaining to their respective job assignments. Even within each category, specific training assignments for each individual shall be determined based on the individual's specific job assignment.

7.1 UNQUALIFIED PERSON, UNQUALIFIED ELECTRICAL WORKER (LEVEL I)

Unqualified persons shall be trained in and be familiar with any of the electrical safety related practices that are germane to the worker's work task. The specific nature of the training must be based on an evaluation of the specific hazards to which an employee may be exposed. For example, an office worker who may overload a receptacle or power strip shall be trained on the associated hazards and safe work practices. By contrast, other workers who are also considered to be an unqualified person or unqualified electrical worker, may be exposed to a higher level of electrical hazard just by the nature of their job. At GZA, these workers may include equipment operators, engineers (civil, mechanical, chemical, geotechnical), geologists, environmental scientists, etc.

Such individuals may perform maintenance activities on systems requiring the use of energy isolation devices to lock out the equipment, where the employee may be exposed to mechanical hazards if accidentally energized. These individuals shall have documented training as a Lockout "Authorized" Employee. This course is required for all employees who will perform maintenance on equipment that poses a hazard if accidentally energized. At a minimum, individuals who work in proximity to electrical mechanical systems where lockout devices are used must be trained as an "affected" employee, the training addressing general awareness of lockout practices and procedures.

Level I Unqualified Electrical Worker may open electrical enclosures for electrical components operating at 50 to 600 voltages ONLY if the circuit has been de-energized AND locked out. A level I person is qualified for this work ONLY for visual observations or for access to data ports and information systems operating at less than 50 volts. If the 50-600 volt circuit is not locked out, it shall be considered energized, and only a Level II or Level II Qualified Electrical Worker is allowed to perform the work.

Training topics that may be required for Level I (Unqualified Person) may include the following, commensurate with their job assignment:

- First Aid/CPR/AED
- General Electrical Safety, Safety-Related Work Practices to Prevent Electrical Shock
- Use of GFIs
- Control of Hazardous Energy – Lockout/Tagout (Affected or Authorized)
- Hand and Power Tool and Machine Safety
- Clearance Distances, Approach Distances
- Hazards Associated with Conductive Clothing and Apparel

7.2 LIMITED QUALIFICATION ELECTRICAL WORKER (LEVEL II)

A person, designated by GZA, who by reason of experience or instruction has demonstrated familiarity with the operation to be performed and the hazards involved. An employee is considered a qualified person only after they have successfully completed Electrical Safety Awareness and Advanced Electrical Safety trainings as designated by GZA Environmental Health and Safety/Risk Management Department.

Whether a person is considered to be a “qualified” will depend upon various circumstances in the workplace. It is possible and, in fact, likely for an individual to be considered “qualified” with regard to certain equipment in the workplace, but “unqualified” as to other equipment.

An employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.

A Level II Qualified Person or Qualified Electrical worker is permitted into a limited approach boundary of exposed live parts operating in 50 volts or more, and shall at the minimum, be additionally trained in the following:

1. The skills and techniques necessary to distinguish exposed energized parts from other parts of the electrical equipment;
2. The skills and techniques necessary to determine a nominal voltage of exposed live parts;
3. The approach distance and the corresponding voltages to which the person would be exposed;
4. The decision-making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely

These individuals must receive documented electrical safety training appropriate and specific for their job assignment, including a combination of classroom and on-the-job training on the specific tasks they will perform and on the specific equipment they will work with, and they must demonstrated proficiency in the work practices involved with their work. Until these provisions are met, they are considered to be employees undergoing on-the-job training and must be under the direct supervision of a qualified person at all times. According to the definition of “qualified employee” the employee must also have demonstrated an ability to perform work safely at his or her level of training.

A Level II Qualified work is not qualified to perform diagnostic testing, fabrication, repair or modification of wiring devices or systems operating at nominal voltages of 50 to 600 volts. A level II Qualified worker may perform diagnostic testing on DC communication and control circuits operating at less than 50 volts, only with appropriate training. Personnel who work with communication circuits and DC circuits with a fault current limited to 5 milli-amp (mA) (if the energy is less than 10 joules) or less are exempt from this requirement.

A Level II Qualified Worker may be qualified to open electric enclosures of systems operating at 50 to 600 volts, for purposes of making visual observations, or for accessing components within the enclosure operating at less than 50 volts. Such work activities are allowed only if training requirements above are addressed, including documented classroom and on the job training on their specific job tasks and on the specific equipment and systems they will work on, hands on demonstrating of competency, AND if the energized components of 50 to 600 volts within the enclosure are clearly marked and shielded. Opening of electrical enclosures containing energized components is allowed only where adequate illumination is provided so that the worker can perform the work safely.

7.3 QUALIFIED ELECTRICAL WORKER (LEVEL III)

A Qualified Electrical Worker, Level III, is an individual recognized by GZA as having sufficient understanding of the equipment, device, system, or facility with which they will work to positively control any hazards it presents. Only those persons who are qualified and authorized may install, fabricate, repair, test, calibrate, or modify electrical wiring, devices, and systems, on equipment operating at nominal voltages of 50 to 600 volts. No GZA personnel are qualified to perform such work on systems with voltages greater than 600 volts. Qualification and authorization to perform electrical or electronics work is based on a combination of formal training, experience, and on-the-job training.

A qualified person who by reason of a minimum of two years of electrical training and experience with circuits and equipment he/she will encounter on the job, and who has demonstrated by performance familiarity with the work to be performed and the hazards involved. Only a Qualified Electrical Worker is allowed to work on energized conductors or equipment connected to energized high-voltage systems. With the exception of replacing fuses, operating switches, or other operations that do not require the employee to contact energized high voltage conductors or energized parts of equipment, clearing trouble or emergencies involving hazard to life or property, no such employee shall be assigned to work alone.

The Qualified individual has had sufficient, documented training and experience and can demonstrate appropriate knowledge and skills to be able to work on electrical equipment, whether energized or de-energized. A Qualified Electrical Worker shall be authorized to perform such work only upon review and approval by the EHS department, and submitting documentation of training.

If work on energized components is anticipated, the qualification of a person shall include:

- Specific operations in which energized work is anticipated
- Features of the equipment including any specialized configuration
- Location of energy-isolating devices
- Techniques, tools, and PPE used for the specific equipment
- Use of relevant documents such as wiring diagrams, schematics, service manuals, design packages, and operating, testing, and calibrating procedures
- Systems' energy control procedures, including energy-isolating devices, grounding and shorting procedures, and other energy control procedures
- Recordkeeping and logging requirements that include pre-job briefing and Electrical Hot Work Permit.

Work conducted by GZA employees on energized equipment may be performed only by individuals authorized and qualified to do such work, and only after it has been determined that this type of work must be performed with the equipment energized. Supervisors are responsible for ensuring that employees or others under their supervision are qualified to work on energized components before they are assigned to such work.

7.4 SUPERVISORS

Supervisors who assign workers to perform Level II or Level III electrical work shall receive documented training on the following **NFPA 70E Sections and OSHA Standards**:

- Article 110.3, Employee Training
- Article 110.6(C), Emergency Procedures
- Article 110.6(D)(1), Qualified Persons
- Article 110.6(D)(2), Unqualified Persons
- Articles 120.2(B)(2) and 120.2(D)(5), Annex G, Lockout / Tagout Practices
- Article 110.6(E), Documentation
- Article 310.5(C), Electrolytic Cell Line Working Zones
- Articles 110.3, 110.5(B), 110.6, 310.3, 310.4, 310.5(D)(6), and 330.3, Safety Related Working Practices
- OSHA 29 CFR 1910.147: Control of Hazardous Energy Sources
- OSHA 29 CFR 1910.269: SubPart "R" - Special Industries
- OSHA 29 CFR 1910.301: SubPart "S" - Electrical, General
- OSHA 29 CFR 1910.302-308: Design Safety Standards for Electrical Systems
- OSHA 29 CFR 1910.302-335: Safety Related Work Practices
- OSHA 29CFR-1926 – Construction Standard

8.0 INFORMATION RESOURCES, REFERENCES

Industry-wide standards applications related to this program at the time of publication are:

- NFPA 70E, Standard Electrical Safety Requirements for Employee Workplaces, (1995 and) 2000 Edition.
- IEEE 902-1998, IEEE Maintenance, Operation, and Safety of Industrial and Commercial Power Systems
- IEEE 1584a, Guide for Performing Arc Flash Hazard Calculations, Amendment 1, 2004
- OSHA 29 CFR 1910.147: Control of Hazardous Energy Sources
- OSHA 29 CFR 1910.269: SubPart "R" - Special Industries
- OSHA 29 CFR 1910.301: SubPart "S" - Electrical, General
- OSHA 29 CFR 1910.302-308: Design Safety Standards for Electrical Systems
- OSHA 29 CFR 1910.302-335: Safety Related Work Practices
- OSHA 29CFR-1926 – Construction Standard

9.0 GLOSSARY OF TERMS

Approve

Review job requirements and planning documents, and if appropriate, authorize that actual task(s) can be performed. Requires signature of approver

Barehanded Work

A technique of performing work on exposed energized conductors or circuit parts, after the worker has been raised to the potential of the energized conductor or circuit part. Barehanded work is not acceptable for employees of General Motors.

Barricade

A physical obstruction such as tapes, cones, or A-frame type wood or metal structures intended to provide warning about and to limit access to a hazardous area. Barricades are generally only installed temporarily.

Barrier

A physical obstruction, which is intended to prevent contact with, exposed energized electrical conductors or circuit parts. Barriers may be installed temporarily or permanently.

Bonding

The permanent joining of metallic parts to form an electrically conductive path that will ensure continuity and the capacity to conduct safely, any current likely to be imposed. A bond need not be a weld to be considered a permanent connection.

Buddy or Assistant

Person assigned to accompany another person on a particular job and is instructed on how to give aid in the event of an incident. For electrical work, this person must be qualified in accordance with the definition of "qualified person".

Clamp-On Ammeter

A metering device that can be utilized for measuring AC or DC current flowing in a circuit, without having to interrupt or be in series with the circuit. This is accomplished via magnetic coupling between the circuit conductor and a split/clamp-on current transformer integral to the meter.

Close out Inspection

Inspection to be performed on equipment prior to release for operation, which ensures that all tools, foreign objects, or other improper materials have been removed.

Conductive

Any material suitable for carrying electric current.

De-energized

Having been disconnected from all sources of voltage and/or electrical charge, resulting in zero volts to ground on the conductors.

Dielectric

A non-conductor of electrical energy.

Electrical Circuit Conductors

Components (including wire, bus and terminals), which are intended to be in the normal current carrying path of the electrical system.

Electrical Energy States

- De-energized - Having been disconnected from all sources of voltage and/or electrical charge, resulting in zero volts to ground on the conductors.
- Energized - Electrically connected to a source of voltage or electrical charge so as to have conductors elevated above ground potential.

- Potentially Energized Equipment - Any equipment or component that is physically connected to a power source.

Electrical Hazard

A condition where energized conductors exist above 50V AC or DC, and where inadvertent or unintentional contact or equipment failure may result in shock, arc flash burn, thermal burn, or blast.

Electrical Incident

An event resulting in equipment damage or potential of injury to employees brought about by either personnel action or electrical equipment failure. An electrical incident has the potential to result in injury from:

- Electrical flash and/or burn,
- Electrical shock (if >50 volts), or
- Reflex action to an electric shock.

Electrical Safety

Recognizing hazards associated with the use of electrical energy and taking precautions so that hazards do not cause injury or death.

Electrically Non-hazardous Task

A task, which involves equipment, energized at a voltage less than 50 volts AC or DC.

Electrical Safe Working Condition

A conductor or circuit part that has been disconnected from energized parts, locked, and tested to ensure the absence of voltage, and, if necessary, grounded.

Enclosure

The case or housing apparatus, or the fence or walls surrounding an installation to prevent personnel from accidentally contacting energized parts, or to protect the equipment from physical damage.

Energized

Electrically connected to a source of voltage or electrical charge such that conductors are elevated above ground potential.

Equipment

Individual or multiple electrical enclosures that are adjacent to each other to make a larger unit, such as several sections of MCC's or switchgear.

Exposed - Live Parts

Capable of being inadvertently touched or approached, nearer than a safe distance by a person. It is applied to parts that are not suitably grounded, isolated, or insulated.

Exposed - Wiring Methods

On or attached to the surface or behind panels designed to allow access.

Flash Hazard

A dangerous condition associated with the release of energy caused by an arc that suddenly and violently changes material(s) into a vapor.

Gloves**(Low - Medium Voltage)**

All gloves are only to be used with leather protectors and shall conform to ASTM D120 requirements. Listed below are the voltage level and glove class relationship:

50 - 500 Volts - Class 00 RMS Nominal Rating

501 - 1000 Volts - Class 0 RMS Nominal Rating

1001 - 7500 Volts - Class 1 RMS Nominal Rating

7501 - 17,000 Volts - Class 2 RMS Nominal Rating

Ground

A conducting connection, whether intentional or accidental, between an electrical circuit and the earth or some conducting body that serves in place of the earth.

Grounded

Connected to earth or some external conducting body that serves in place of the earth. This connection may be intentional or accidental.

Grounded Conductor

A system or circuit conductor that is intentionally grounded. This is usually a current carrying conductor and is also called the neutral or power return.

Grounding Conductor, Equipment or Equipment Grounding Conductor

That conductor used to connect the noncurrent-carrying metal parts of equipment, raceways, and other enclosures to the system grounded conductor and/or the grounding electrode conductor at the service equipment or at the source of a separately derived system. This conductor is also called the "green" wire and must not be used to carry load current. The color green may not be used on any other conductor.

Grounding Electrode

That conductor that specifically makes contact with the earth for grounding a power system.

Grounding Electrode Conductor

A conductor used to connect the grounding electrode to the equipment-grounding conductor and/or to the grounded conductor of the circuit at the service equipment or at the source of the separately derived system.

Grounding Jumper or Grounding Strap

A strap of wire used to connect equipment housings to the equipment-grounding conductor.

Hot Work

Coming in contact with exposed energized electrical conductors or circuit parts with the hands, feet, or other body parts, with tools, probes, or with test equipment, regardless of the personal protective equipment a person is wearing. This is the same as being inside the Prohibited Approach Boundary.

Incoming Supply

All conductors, cables, or rigid bus work that introduces power to a piece of equipment. This includes the primary or alternate supplies, temporary supply, or interlock control wiring.

Insulated

Separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current. Note: When any object is said to be insulated, it is understood to be insulated for the conditions to which it is normally subjected. Otherwise, if an object is not insulated per this definition, it should be treated as uninsulated.

Isolated

This is a much-abused word in electronics. It can mean lifted from ground or earth, separated by a transformer, use of a shielded transformer, separation by distance, separated by special circuits, and so forth. An isolated circuit may or may not have a conductive path to another circuit.

Job Plan

A description of the specific tasks, procedures, timing, and location of an electrical job that addresses all safety considerations. A job plan also includes the sequence of events needed to complete the scope of work safely and efficiently.

Limited Approach Boundary

See Annex A

Live-Line Tool Work

A technique of performing work on exposed energized conductors or circuit parts where the worker utilizes insulated live-line tools rated for the voltage rating to protect workers.

Live Parts

Energized electric conductors, buses, terminals, or components that are uninsulated or exposed where a shock hazard exists.

Main Bonding Jumper or Bonding Jumper

The connection between the grounded circuit and the equipment-grounding conductor at the service. This connection is the key to electrical safety and thus this conductor is given a special name.

Multimeter

A combination meter designed to measure voltage, amperage, and resistance.

Neutral Conductor

The grounded conductor used to bring power to a facility or to a load. This phrase is usually used to describe the grounded conductor in single-phase power.

Non-Resident Expert

A person qualified to make engineering and safety judgments regarding issues in question, and who is not in the chain of command of the organization needing assistance.

Plan

Actually write out steps for a job by filling out GZA Electrical Work Planning Sheets. Requires signature of planner(s).

Post-Job Evaluation

A review of a completed job that affords an opportunity to discuss unexpected events and/or hazards. A record of recommendations for a process or procedural change can be made.

Prohibited Approach Boundary

See Annex A.

Proximity Work (Working Near)

Working Near is any activity inside the Limited Approach Boundary of exposed energized electrical conductors or circuit parts that are not put into an electrical safe work condition.

Qualified (General Motors)

Meets the "OSHA Expanded" definition and:

- Is thoroughly familiar with the GZA Safe Electrical Work Practices, and
- Intends to implement the General Motors Safe Electrical Work Practices in the work place.

Qualified (OSHA, Expanded)

A qualified person is one trained and knowledgeable in the construction and operation of equipment or a specific work method, and is able to recognize and avoid the electrical hazards. A person may be qualified with respect to certain equipment and methods but still unqualified for others. Such persons permitted to work within the limited approach boundary of exposed energized conductors and circuit parts must also be trained in the following:

- (a) The skills and techniques necessary to distinguish exposed energized parts from other parts of electric equipment,
- (b) The skills and techniques necessary to determine the nominal voltage of exposed energized parts, and
- (c) The approach distances specified in Annex B and the corresponding voltages, to which the qualified person will be exposed,
- (d) The decision making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to safely perform the task, as defined in Chapter 6.

Rated Voltage

A meter rating which indicates the highest voltage that a meter may contact without risking insulation failure and meter failure/destruction (and potentially personal injury).

Restricted Approach Boundary

See Annex A

Review

Review job requirements and planning sheet, looking for errors in logic and procedures, and working with the planner to modify. Requires the signature of the reviewer.

Rubber Glove Work

A technique of performing work on exposed energized conductors or circuit parts where the worker utilizes rubber insulating gloves, rated for the voltage involved, to provide insulation from the energized part. The insulated gloves must be protected by outer leather gloves.

Scope of Work

A description of the work to be accomplished, including the physical boundaries of the work.

Separately derived system

A new or separate power source such as the secondary of a transformer or the output of a motor generator set.

Shock Hazard

A dangerous condition associated with the flow of current through a person's body caused by contact or approach to exposed electrical conductors or circuit parts nearer than the minimum air insulation distance.

Step Potential

A potential difference over the surface of the earth, which can cause current flow from foot-to-foot through the body. This condition is most commonly caused by a nearby lightning strike or a large local ground fault.

Tic Tracer or Induce Voltage Detectors

A device designed to indicate voltage by sensing the magnetic and/or electric field emitted by energized conductors. This device must be treated very cautiously as it can be easily "fooled" and cause the user to believe that a circuit is de-energized when it is not.

Touch Potential

A potential difference, which can cause current flow through the body.

Troubleshooting

The logical analysis of symptoms to determine the cause of a failure and return the equipment or system to service.

Voltage Testing

A task intended solely to measure voltage level.

Voltage Sensing

A task intended solely to sense for the presence or absence of voltage.

Voltmeter

An instrument utilized to determine the voltage difference between two points by contacting each of the probes on the points in question. An analog or digital display is utilized to indicate the value of the voltage.

Wiggy

A voltage tester commonly carried on electrician's tool belts and utilized as an indicator of the approximate voltage between two points of concern. There is typically a very approximate analog scale indicator, along with an indicator in the end of the device that serves as an "energized" -- "non-energized" gage. This device is useful during troubleshooting where exact voltage values aren't necessary.

10.0 PREPARED BY

This document was prepared by Mark Malchik, Corporate Environmental Health and Safety Director.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling

Analysis By: Andrew Whitsitt	Reviewed By: Guy Dalton	Approved By: Jayanti Chatterjee , CIH
Date: October 2, 2011 Revised: June 14, 2012	Date: June 14, 2012	Date: June 26, 2012

Task 4.1

DRILLING OBSERVATIONS, MONITORING WELL INSTALLATION OBSERVATIONS, SOIL SAMPLING

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
<p>Review Related THA's – 21.1 – General Outdoor Field Work</p>		
<p>Observation of Deploying of Traffic Protection Equipment by Drilling Contractor (e.g., cones, signs, etc.)</p>	<p>Personal injury due to vehicle traffic, Collisions, injuries</p>	Wear high visibility vest at all times when out of vehicle.
		Park in designated parking locations or select off-road areas that are firm and free of hazards. Directly inspect parking location on foot if necessary.
		Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions when parking personal or GZA vehicle and/or equipment.
		If parking outside of a designated parking area, demarcate vehicle with traffic cones or equivalent.
		Use emergency flashers or other appropriate vehicle warning system when placing equipment.
		Observe if police detail or other required traffic control system (if necessary) is in place.
		Stay within the confines of the work area and do not venture outside of the demarcated work area into traffic.
		If you observe that contractor may back into structures, vehicles, fences, etc., notify contractor immediately with pre-determined signals. Do not cross the path of the heavy equipment.
<p>Observation of Mobilizing Drill Rig To Job Site and positioning at borehole by Drilling Contractor</p>	<p>Struck by drill rig</p>	Stand clear of moving Drill Rig.
		Before drilling begins, confirm that drill rig has been parked properly and securely by the drilling contractor.
		Wear high visibility vests. Make sure that the driver can see you and is aware of your location at all times.
		Inform the driller if it is observed that the rig is being moved with the mast raised and/or tools and other equipment on the rig are not secured and can fall over and potentially hurt personnel.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: Drilling Observations, Monitoring Well Installation Observation and Soil Sampling

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GZA Job Tasks	Potential Hazards	Controls
	Overhead utility	Look overhead to assess if any utilities are present and confirm with driller that they are aware of the overhead utility location and to take appropriate actions to prevent contact with the overhead utilities and to minimize any arc flash hazards. Review GZA's Electrical Safe Work Practices Program 03-3003.
Observation of drilling operations and monitoring well installations	Underground utilities	Confirm that underground utility clearance procedures have been completed in accordance with GZA Policy # 04-0301 <i>Responsibility for Utility Clearance of Exploration Locations</i> for clearing utility locations prior
	Moving machinery, rotating parts, cables, ropes, etc.	Do not wear loose fitting clothing.
		All GZA personnel working in proximity to a drill rig will be familiarized with the location and operation of emergency kill switches prior to equipment start-up. Maintain safe distance from rotating auger, drill casing, rods and cathead at all times. Observe operations from a safe distance. Persons shall not pass under or over a moving stem or auger Check that "kill" switches are present and working. Confirm with driller that daily inspection of rig has been performed prior to commencing work and no conditions were noted with the rig that would affect its proper operation.
		Do not touch or operate or assist with any rig operations and maintenance work.
		Make eye contact with operator before approaching equipment.
		Be alert and take proper precautions regarding slippery ground surfaces and similar hazards near rotating auger.
		Do not engage the driller or helper when drill is in operation. Work out prearranged signals to get their attention before approaching them.
		Confirm prior to drilling operations that driller and helper communicate and coordinate their actions and movements.
GZA personnel are not allowed to be on the drill rig or operate a rig.		



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HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls	
		Wear steel toed boots, hardhat and side-shielding safety glasses/goggles.	
	Falling objects, debris	Stand clear of stacked drill rods. If stack appears unstable inform driller.	
	Noise	Wear appropriate hearing protection.	
	Roadway/traffic hazards		Be alert at all times; never step outside traffic cones.
			Wear high visibility vests at all times.
			Be familiar with escape routes at each location.
			Follow project Traffic Control Plan. Be alert at all times and never step outside the traffic cones. Use a Police detail when necessary.
	Slips, trips and falls		Maintain clean and sanitary work area free of tripping/slipping hazards.
			All borings, excavations, or partially completed groundwater monitoring wells will be adequately covered and/or barricaded if left unattended for any period of time to prevent injury.
			Store any hand tools used for sampling in their proper storage location when not in use.
			Provide adequate space for each employee to work safely with sound footing.
			Do not perform work if adequate lighting is not available.
		Maintain an exit pathway away from the rig at all times.	
Cuts, bruises, shocks, lacerations, sprains and strains during tool use		When working with a driller, do not assist the drilling crew with their work.	
		Use properly maintained tools; do not use damaged tools.	
		Wear the proper Personal Protective Equipment based on the task being performed.	
		Store and carry tools correctly.	
		Use the correct tool for the job.	
		Do not use electrical tools with damaged cords or other electrical components. Observe proper electrical safety practices. Do not use electrical tools in wet areas.	



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HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Coordinate activities with driller. Allow driller to open sampling equipment (i.e., split spoons, Geoprobe sleeves, etc.)
	Fire hazards	Be familiar with emergency procedures and where fire extinguishers are present on site.
		Inform GZA subcontractor if you observe improper storage of used rags and unsafe storage of flammable/combustible liquids brought on site.
		GZA and its subcontractors, suppliers and vendors shall not smoke in the work area in GZA project sites.
		Smoking can only be in designated smoking areas away from work areas and potential fire hazard locations.
		Confirm with driller that a fire extinguisher present with rig and will be available at all times and that inspection tag is not expired.
		If driller is welding or cutting on site confirm there are no flammables or combustible materials near the vicinity of welding machines or torches (such as debris, fuels, grass/weeds, etc.). Review Site requirements for obtaining "Hot Work Permit".
		Stand well clear of welding/cutting/burning areas.
		When drilling activities encounter the presence of gas or electric, the drill crew shall immediately curtail drilling activity, shut down the drill rig and contact the Project Manager.
	Exposure to Hazardous Substances/Chemicals	<p>Become familiar with hazards associated with hazardous commercial products used in drilling (fuels, silica sand, grout, cement, bentonite, etc.). Review Safety Data Sheets (SDSs) for such products and participate in daily safety tailgate meetings.</p> <p>Do not handle drilling chemicals.</p> <p>Wear appropriate personal protective equipment.</p> <p>Review hazards of chemicals that may have been used or currently are being used on site.</p> <p>Refer to the site specific HASP for chemical hazards and the necessary precautions required for sampling.</p>



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HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Be alert for hazardous site contaminants (as indicated by odor, visual characteristics, location, and site history). Assess whether procedures and contingencies are in place for characterizing hazards and protecting workers by use of appropriate air monitoring, personal protective clothing and respiratory protection, as needed. If contamination is identified at the Site only personnel trained and medically qualified to work on hazardous sites will be permitted to proceed with the work.
Sampling Soil	Exposure to chemicals	<p>Refer to the site specific HASP for chemical hazards and the necessary precautions required for sampling.</p> <p>Understand potential hazards associated with handling sample collection preservatives.</p> <p>Review and have SDS available for chemicals being brought on site, including that of sample preservatives.</p> <p>Wear appropriate PPE identified in the HASP</p> <p>Wash hands before eating and drinking. Eating and drinking are prohibited in areas of soil contamination/work area.</p>



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

Job: General Outdoor Field Work

Analysis By: Anthony Zemba, CHMM	Reviewed By: Guy Dalton	Approved By: Jayanti Chatterjee , CIH
Date: June 25, 2012	Date: June 25, 2012	Date: July 12, 2012

Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Pre-work preparation	Overlooking of potential hazards	<p>Become familiar with project area and job site by reviewing available on-line mapping (USGS Topographic, NWI Wetland, NRCS Soil, etc.; and aerial photographs before visiting site. Understand related hazards through review of this and other Task Hazard Analyses and participate in daily safety tailgate meetings (where applicable).</p> <p>Communicate Task Hazard Analysis and Lessons Learned information to operator(s) prior to initiating work and throughout the project as needed.</p>
Driving to site	<p>Vehicle accidents/collisions/injuries</p> <p>Backing collisions</p>	<p>Perform pre-operation check of vehicle, verifying service brakes, parking brake, steering, lights, tires, horn, wipers mirrors and glass are in good condition. verify that the rig is roadworthy.</p> <p>Wear seat belts always when driving even on site.</p> <p>Secure loose materials in cab or bed of vehicle.</p> <p>Keep windshields, windows and lights cleans.</p> <p>Abide by safe driving procedures.</p> <p>If possible avoid backing by using a route that allows you to pull through.</p> <p>If backing up from a parked area do a quality 360 walker.</p>
Working within transportation corridors or active construction sites	Collisions injuries	<p>Wear high visibility safety vest on site when out of personal or GZA vehicle.</p> <p>Park vehicle in designated parking locations, or select off-road area that is firm, and without hazards. Directly inspect parking location on foot if necessary.</p> <p>Use emergency flashers or other appropriate vehicle warning system as appropriate to local conditions when parking vehicle.</p> <p>Use emergency flashers or other appropriate vehicle warning system when parking outside of standard parking spaces, or to stop in right-of-</p> <p>Be alert at all times; never step outside traffic cones.</p>



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Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Stand clear of moving heavy equipment and away from any overhead utility lines until equipment is safely in position and parked properly and securely by the contractor.
		Do not wear headphones or earbuds, or listen to music or talk on the phone, which may distract from work hazards.
	Crossing Automobile traffic lanes	Wear high visibility safety vests at all times when out of vehicle and working within or adjacent to the roadway.
	Crossing Airport Movement Areas (e.g., Runways, taxiways, approaches)	Learn, know, and conform to project site Airport's, Airfield's, or Airbase's protocol for crossing movement areas (whether on foot or in vehicle).
		Work within airport movement areas or safety zones must be coordinated with the Air Traffic Control Tower.
		Vehicles to have blinking or flashing lights or beacons; pedestrians to wear high visibility safety vests.
		Using protocol, maintain communication with airport security and air traffic controllers.
	Crossing Railways	Work within active railroad ROWs requires railroad safety training. No work can be done within the railroad traffic envelope without the permission of a railroad flagman.
		No equipment or vehicles can cross without the permission of a railroad flagman.
		Expect any train on any track coming from either direction at any time.
Working in Natural or Remote Areas	Slips, trips, fall	Be aware of loose ground materials such as talus, unconsolidated rock, soil, sediment, ice and other media that could cause slips, trips or falls.
		Be careful when walking in heavily vegetated areas. Mind tangles of vines, thorny branches, and slippery logs and rock surfaces. Dense vegetation and especially entangled vines present trip hazards, or can mask voids, sharp objects, or other hazards beneath.



GZA GEOENVIRONMENTAL, INC. JOB HAZARD ANALYSIS WORKSHEET

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CHMM

Reviewed By: Guy Dalton

Approved By: Jayanti Chatterjee , CIH

Date: June 25, 2012

Date: June 25, 2012

Date: July 12, 2012

Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Be vigilant for signs of cracking, shifting, fracturing, and evidence of past movement.
		Use wood mats or other stabilizing materials for equipment if soft ground conditions are present.
		Use walking stick, auger, or ski poles to steady yourself when traversing loose material or slopes.



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Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls	
		Wear proper footwear for conditions.	
		Store tools in their proper storage location when not in use.	
		Provide adequate lighting when necessary.	
	Falls into excavations/ voids	Stand away from edges of excavations and voids. Do not attempt access without proper equipment / training. Remember that some excavations or voids may constitute a confined space and may present structural stability issues.	
		Cave-ins and engulfment	DO NOT enter caves, sinkholes, excavations, and other voids or concavities that are not sloped or shored properly and have not been evaluated by a competent person to be safe.
			Stand away from edges of excavations, cliffs, dug wells, and other voids.
Watch for cracks/fissures in the ground surface in the immediate vicinity of a pit or void, which indicate imminent sidewall failure/cave-in.			
Assess if confined space entry procedures need to be implemented.			
Working among hazardous biota	Plant toxins Incidental contact	Know the appearance of poison ivy and poison sumac in all seasons, and if sensitive to these toxins, carry and use special cleaning soaps/solutions when thought to be exposed. Stock first aid kit with poison ivy/sumac cleaning soaps/solutions.	
		Ticks	
	Ticks	Ticks carry risk of Lyme's and other Diseases. Tick season is basically any field day above 40 degrees F.	
		Tuck pants into long socks.	
		The application of DEET (or permethrin pre-treatment) to clothing in season to control exposure to ticks is recommended.	
		Check clothing for ticks frequently.	



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Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Check whole body immediately upon returning from field and shower.
	Mosquitoes	Be aware of intermittent seasonal reports of mosquito borne diseases, such as West Nile disease and Eastern Equine Encephalitis (EEE), and their locations relative to your field site. Use of DEET or other mosquito repellent is recommended.
	Stinging bees and wasps	<p>Be aware of potential cavity, suspended or ground nesting bee/wasp/hornet nests. Avoid undue disturbance or approach with appropriate safety clothing, protection and netting.</p> <p>Take appropriate precautions if allergic to bees. Carry at least two epi-pens in first aid kit as well as anti-histamines (oral and inhalers).</p> <p>Avoid areas of heavy bee activity if allergic. Avoid perfumed soaps, shampoos, deodorants, colognes, etc. that may attract bees.</p>
	Poisonous Snakes	<p>Be aware of terrain likelihood of harboring poisonous snakes in your work zone. Avoid reaching or stepping into hidden areas (such as into wood pile, rock pile, debris pile, stone wall, etc.) without pre-inspection.</p> <p>Coordinate with local hospitals to verify they have proper anti-venom in stock.</p> <p>Learn first aid procedures in case of poisonous snake bite.</p> <p>Devise an action plan and include in the site-specific HASP.</p>
	Wild Animals	<p>Do NOT handle wildlife unless properly trained to do so.</p> <p>Beware of any wild animal that shows no sign of wariness of humans.</p> <p>Do NOT attempt to feed wild animals or to help apparently injured wild animals.</p> <p>Be aware of domestic animals that may also pose a threat such as dogs off leash, bulls out to pasture, etc.</p>



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Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
Working in Adverse Weather Conditions	Heat / cold stress and other weather related hazards	<p>Assess weather conditions prior to on-site work and examine forecast for anticipated period of work.</p> <p>Dress appropriately for weather conditions (e.g., precipitation, temperature ranges over anticipated duration of field work). Include clothing and the presence / absence of shade when calculating a heat index.</p> <p>Schedule work day to avoid working during hottest or coldest parts of the day, to the extent practicable.</p> <p>Keep exposed skin covered in extremely cold weather.</p> <p>Recognize signs of frostbite; use warming packs and layer clothing to maintain warmth.</p> <p>Use a wicking layer of clothing against your body to keep moisture away from skin.</p> <p>Wool clothing will continue to keep you warm after it becomes wet; cotton will not.</p> <p>Use protective ointments such as sunscreen and chap stick, as appropriate to the field conditions.</p> <p>Stay hydrated in hot weather; drink fluids regularly throughout the day, even if not thirsty.</p> <p>Recognize signs of heat stress; take frequent breaks in shade when working in direct sunlight for prolonged periods.</p> <p>Be familiar with Heat index chart - add 20 degrees to chart if fully clothed and if working in direct sunlight.</p> <p>NOTE: Unacceptable field work conditions are not precise, but may include site specific conditions, general location, extreme weather conditions (e.g., icing, lightning, excessive cold or wind), travel conditions, and other factors. Professional judgment is required, and personal assessment of safety must always be individually assessed.</p>
	Working on Ice	Assess relative load bearing capacity of ice on lakes, ponds and other waterways. If unsure do not venture onto the ice.



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Task 21.1 General Outdoor Field Work

HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		Wear proper footwear modified for traction on ice.
	Electrical storms	<p>If lightning is observed during drilling activities, work shall be suspended immediately and employees shall find suitable shelter (building or vehicle at minimum). Work will commence no sooner than 30 minutes after the last indications of lightning have been observed</p> <p>Seek shelter inside a walled building or your vehicle.</p> <p>Open picnic pavilions and under trees are not adequate shelters.</p> <p>Assess vulnerability to lightning strikes as soon as thunder is heard on the horizon. Open areas and higher elevations are more susceptible to strikes.</p> <p>Tall objects such as metal towers and flag poles may attract lightning.</p> <p>Consult internet weather radar tracking devices to learn of impending storm patterns proximal to your work area.</p>
	High Winds	<p>Avoid working at high elevations, elevated platforms, and other exposed areas during high wind conditions.</p> <p>Assess work area for equipment that may be blown down, over, or carried aloft by high winds.</p>
Working in areas without sanitary facilities	Hygiene related hazards	<p>Provide hand washing kits (e.g., baby wipes, hand sanitizers, paper towels, bottled water, etc.) to be used prior to eating and drinking.</p> <p>Have garbage bags handy to collect trash.</p>
Working in remote areas	Emergency Conditions	<p>Be familiar with onsite emergency procedures and route to nearest hospital.</p> <p>Have a first aid kit available; know its contents and how to use them.</p> <p>Carry a cell phone during all field work for emergency purposes, and confirm the nearest location of cell phone signal on site prior to start of worksite.</p>
	Disorientation	Plan your route and anticipated progress prior to field work.



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HAZARD CONTROLS

GZA Job Tasks	Potential Hazards	Controls
		<p>Have multiple navigation aids (e.g., USGS Map, compass, GPS, etc.) and know how to use them before entering field. Remember to have charged batteries and battery back-ups for electronic devices.</p> <p>Share your progress plan with office staff prior to entering the field.</p> <p>Check in with office personnel periodically to update progress.</p> <p>Review and comply with GZA's Working Alone Policy 03-1009 in advance of working alone on a project site.</p>
	Hunting	<p>Be familiar with the various game hunting seasons. Follow rules and guidelines for remaining visible to hunters.</p> <p>Try to plan work around active hunting seasons or daily peak hunting hours as warranted.</p>



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MANUAL LIFTING SAFETY

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1.0 INTRODUCTION

It is recognized that improper lifting, either lifting too much weight, or lifting with improper procedures, can be a significant risk factor contributing to back injury and other musculoskeletal injuries. This policy is intended to outline health and safety program procedures intended to minimize the risk of manual lifting to GZA employees.

2.0 HAZARD ASSESSMENT OF LIFTING OPERATIONS

In accordance with GZA Policy 03-1003 entitled “Hazard Assessment, Health and Safety Plans,” a Health and Safety Plan shall be prepared for each field project. This plan shall be site specific in nature, and shall include a hazard assessment of hazards known or likely to be encountered by employees. As part of this hazard assessment, the prospect that employees may be assigned to perform various material handling tasks including manual lifting shall be considered. In appropriate circumstances where the scope of a project is anticipated to include manual lifting and related tasks, the hazard assessment performed as part of the health and safety plan process shall address the specific hazards associated with manual lifting, as well as the control measures to be implemented to minimize the risk of manual lifting. Manual lifting by GZA employees may also occur in GZA facilities not directly related to field work activities. The types of work activities which may involve hazardous manual lifting tasks include:

- Projects where loading and unloading of vehicles will occur;
- Projects involving the use of heavy equipment (portable generators, nuclear density gauges, etc.);
- Lifting environmental, geological samples (coolers, cores, core boxes, etc.);
- Organization, cleaning, maintenance activities at GZA-operated facilities (moving equipment, etc.)

Before manual lifting is to be performed, the employee shall conduct a hazard assessment. This assessment shall include the following:

- Consider size, bulk, and weight of the object(s) to be lifted;
- Evaluate if mechanical lifting equipment is available and/or necessary for the task at hand;
- Consider if help from a second person is necessary and available;
- Consider if your vision will be obscured while carrying the object;
- Evaluate the safety of the walking surface and path where the object is to be carried.

Where lifting equipment (hoists, hydraulic tailgates, fork lift, etc.) is impractical or unavailable, and where lifting would pose a recognized risk to a single individual, a two-person lift shall be performed. Furthermore, manual lifting equipment and other engineering controls shall be provided to employees where appropriate and feasible, such as dollies, hand trucks, lift-assist devices, jacks, carts, hoists must be provided for employees.

Given that GZA performs work on temporary field work jobsites often, engineering controls such as conveyors, lift tables, and work station design may be infeasible, but should be considered. Such engineering controls may be more appropriate in permanent facilities operated by GZA. Where manual lifting equipment or engineering controls are provided, the use of this equipment shall be enforced by supervisory personnel.

As is applicable to all GZA work operations, supervisory personnel shall periodically evaluate current work station configurations and employees' work techniques to assess the potential for elimination of hazards and prevention of injuries. New operations should be evaluated to engineer out hazards before work processes are implemented.

3.0 EMPLOYEE TRAINING

GZA shall provide employees at risk from manual lifting injuries training on proper lifting techniques and avoidance of musculoskeletal injuries. Training shall include general principles of ergonomics, recognition of hazards and injuries, safe lifting and work practices, hazards, and controls. Training shall also include GZA procedures for reporting hazardous conditions, and injuries.

4.0 INCIDENT REPORTING AND ANALYSIS

In accordance with GZA Policy 03-1005, "Incident Reporting and Analysis," all incidents and injuries shall be reported internally per specified requirements, and analyzed for root causes, and results of the analysis must be communicated within GZA and incorporated into similar work practices in order to avoid future injuries. Injuries resulting from manual lifting shall be reported and recorded in OSHA 300 Log of Injuries and Illnesses in accordance with corresponding requirements.

5.0 PREPARED BY

Prepared by Mark P. Malchik, Environmental Health and Safety Director. Please refer questions, comments or recommendations for changes to the Risk Management Department.



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LYME DISEASE PREVENTION

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1.0 INTRODUCTION

Over 25,000 cases of Lyme disease among Americans will be reported this year, and the risk is greatest among those living in or visiting New England, the mid-Atlantic states, and the upper Midwest. GZA office locations and project work is largely concentrated in these areas. To ensure our employees are aware of the dangers of Lyme disease and are provided with practices to prevent Lyme disease, GZA has developed this document. Lyme disease is carried by black-legged ticks, commonly known as deer ticks.

2.0 PREVENTING TICK BITES

Black-legged ticks may be present at all times of the year, but after a significant thawing of snow in spring, they emerge ready to feed on animals and humans. This generally occurs when the temperatures are 40 degrees F or higher.

For all work outside the office, GZA requires that a Health and Safety Plan shall be prepared. This plan is site specific in nature, and especially during spring and summer it should include specific actions GZA will take to avoid tick bites. These actions could include any of the following:

1. **Know where to expect ticks.** They live in moist and humid environments, particularly in or near wooded or grassy areas. You may come into contact with ticks during outdoor activities, when walking through vegetation, or when around leaf litter or shrubs.

2. **Arrange for grassy areas to be mowed or treated when possible.** Walking through tall grass or working in areas with tall grass will likely expose you to ticks. At specific areas at fixed facilities or project sites, clients may be able to mow areas of tall grass prior to GZA's arrival at the project site. Clients may also be willing to treat areas, if asked. A single springtime application of acaricide can reduce the population of ticks that cause Lyme disease by 68-100%.
3. **Dress correctly for spotting ticks.** Long pants and a long-sleeved shirt should be worn, and pants should be tucked inside white socks. Wearing white socks will allow you to better see ticks if they are on you.
4. **Use a repellent with DEET (on skin or clothing) or permethrin (on clothing and gear).** Repellents containing 20% or more DEET (N, N-diethyl-m-toluamide) can be applied to the skin and protect you for several hours. DEET should be re-applied regularly, especially if you're sweating. Always read and follow product instructions. Products containing permethrin can be used to treat boots, clothes, and camping gear. Permethrin-treated products remain protective through several washings.
5. **Take a hot shower immediately after being outdoors.** Taking a shower within two hours of coming indoors has been shown to reduce your risk of getting Lyme disease. Showering may help wash off unattached ticks and is a good opportunity to do a thorough tick check.
6. **Perform daily tick checks.** Check your body thoroughly for ticks after being outdoors. Black-legged ticks are very small, so a hand-held or full-body mirror should be used to view all parts of your body. Take special care to check the following parts of your body:
 - a. Under the arms
 - b. In and around the ears
 - c. Inside the bellybutton
 - d. Back of the knees
 - e. In and around all head and body hair
 - f. Between your legs
 - g. Around your waist
7. **Place clothes in a dryer.** Placing clothes into a dryer on high heat for at least an hour effectively kills ticks.

3.0 WHAT TO DO IF YOU FIND AN ATTACHED TICK

Even if you take all the precautions listed in section 2 of this document, you may find a tick attached to your body. Taking certain actions can keep your chances of developing Lyme disease very small. These actions include:

1. **Remove the tick as soon as you find it.** Remove an attached tick with the tick removal tool supplied by GZA or with fine-tipped tweezers, as close to the skin as possible, and pulling it straight out. If you remove an attached tick within 24 hours, it is very unlikely that Lyme disease will be transferred to you from the tick.
2. **Save the tick.** If you are sure a tick has been attached for more than 24 hours, and are sure the tick is a black-legged tick, save the tick for potential testing.

3. **Call WorkCare's Incident Intervention service.** If a tick has been attached to your body for more than 24 hours, call WorkCare immediately after removing it. WorkCare has a specific medical protocol used for tick bites, and can advise you of first aid measures to take that are specific to ticks and Lyme disease. They will also be able to advise you if you need to save the tick.
4. **Be alert for fever or a rash.** Fever and a rash may be the first signs of a tickborne illness. If you have been in areas where ticks are likely to be present, even if you do not find a tick attached to your body, call WorkCare to get additional medical advice.

4.0 DOCUMENT VERSION

Date	Status	Author
3.20.2015	Issued for use	Richard Ecord
10/15/2015	Revised document number	Richard Ecord



Job Hazard Analysis

Job Task Name: COVID-19 on Field Projects	Analysis Date: 4/7/2020 (initial review 3/19/2020)
Work Area(s): ALL	Analysis Type: Revision 1
Company Location: Field Projects	Hazard Risk Rating: 3 - High
JHA Performed by: GZA Core Safety Team	Next Review Date: 4/30/2020

Task Description: This JHA details protective measures GZA fieldworkers should take to protect against being exposed to the SARS-CoV-2 virus or become ill with COVID-19. Provisions of this document shall be integrated into all field tasks on GZA project sites. This document should be sent to GZA subcontractors prior to onsite work starting to establish the minimum requirements for COVID-19 protection on the project site.

Required PPE: Nitrile gloves, Disinfectant Wipes (Lysol), Safety glasses, Hand sanitizer, Soap and Water, Nitrile Gloves, Respirator or face covering (if required to be within 6 feet of others for limited times doing limited tasks)

Task Step	Step Description	Hazard Classification	Hazard Description	Safety Procedures
1	Commuting with others to project sites	Illness due to viral exposure	Illness due to SARS-CoV-2 exposure Symptoms include: <ul style="list-style-type: none"> • Dry cough • Fever above 100°F • Shortness of breath Symptoms typically do not include: <ul style="list-style-type: none"> • Sneezing • Runny nose • Diarrhea 	<ol style="list-style-type: none"> 1. Designate the GZA Field Safety Officer as the onsite GZA COVID-19 Safety Officer in the HASP 2. Ensure the GZA Fieldworker Guide to COVID-19 is included in the HASP and available onsite (access the document here). 3. Spend necessary time to think through tasks and develop ways to allow social distancing (staying 6 feet away from others) 4. For any tasks where you are unable to maintain social distancing, pause work and discuss with others how to do the task outside and in as short an amount of time as possible (under 10 minutes) 5. If a task will require working within 6 feet of others for more than 10 minutes or in an enclosed space, STOP work, determine how to do the work safely, and ensure all have the required PPE (gloves and respirator or face covering) 6. Limit travel on public transit, when possible, and avoid crowds of more than 5 people. 7. Take separate vehicles if at all possible. 8. Ask colleagues in personal / work vehicles “Are you feeling well today?” 9. Don’t ride in the same vehicle as someone who is displaying symptoms of COVID-19. 10. Bring soap, water, hand sanitizer, disinfectant wipes, and nitrile gloves with you. 11. Wash your hands before entering a vehicle and after exiting the vehicle. 12. Before entering a vehicle, make sure it is clean and sanitized <p>To clean and sanitize a vehicle:</p> <ol style="list-style-type: none"> 1. Wash your hands before entering and exiting the vehicle 2. Sars-CoV-2 is not likely to be present on hard surfaces if the vehicle has been unoccupied for 3 days or more 3. Don nitrile gloves and safety glasses to clean the vehicle 4. Use disinfectant wipes or soapy rags to wipe all accessible surfaces (don’t forget exterior door handles, cell phones, and keys) 5. If available, spray seats, carpets, and interior spaces with disinfectant (Lysol)



Job Hazard Analysis

Job Task Name: COVID-19 on Field Projects		Analysis Date: 4/7/2020 (initial review 3/19/2020)		
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<p>Task Description: This JHA details protective measures GZA fieldworkers should take to protect against being exposed to the SARS-CoV-2 virus or become ill with COVID-19. Provisions of this document shall be integrated into all field tasks on GZA project sites. This document should be sent to GZA subcontractors prior to onsite work starting to establish the minimum requirements for COVID-19 protection on the project site.</p> <p>Required PPE: Nitrile gloves, Disinfectant Wipes (Lysol), Safety glasses, Hand sanitizer, Soap and Water, Nitrile Gloves, Respirator or face covering (if required to be within 6 feet of others for limited times doing limited tasks)</p>				
Task Step	Step Description	Hazard Classification	Hazard Description	Safety Procedures
2	Preparing to start fieldwork	Different understanding level of work crews	Illness due to SARS-CoV-2 exposure	<ol style="list-style-type: none"> 1. Begin each day by gathering everyone under GZA control together for a safety meeting, led by the GZA COVID-19 Safety Officer 2. Ask the following questions, and send any workers answering yes to any question below home: <ol style="list-style-type: none"> a. Have you traveled outside the US recently? b. Have you been in close contact with someone who has traveled outside the US recently? c. Have you been in close contact in the last 14 days with someone who has any of the symptoms of COVID-19? (persistent dry cough, fever, shortness of breath) d. Have you had symptoms of COVID-19 in the past 14 days? e. Do you well and fit to work today? 3. Establish the following good ground rules with everyone under GZA control during the meeting at a minimum: <ol style="list-style-type: none"> a. No one should work if they don't feel well b. If you start to feel unwell during the day, let someone know via phone and leave the site c. If you are unwell and can't leave the site immediately isolate yourself from all others until your transportation arrives d. We are not going to share pens or other equipment onsite as much as possible, and any shared equipment will be cleaned thoroughly before sharing e. We are going to stay at least 6 feet away from all others onsite and not go into enclosed spaces with others f. That means we will not be shaking hands, doing elbow bumps, knocking feet together, etc. g. We are going to wash our hands for at least 20 seconds with soap and water many times during the day, and at a minimum every time we remove our gloves h. If anyone becomes anxious or believes someone is onsite that is showing symptoms of COVID-19 you will let me know



Job Hazard Analysis

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<p>Task Description: This JHA details protective measures GZA fieldworkers should take to protect against being exposed to the SARS-CoV-2 virus or become ill with COVID-19. Provisions of this document shall be integrated into all field tasks on GZA project sites. This document should be sent to GZA subcontractors prior to onsite work starting to establish the minimum requirements for COVID-19 protection on the project site.</p> <p>Required PPE: Nitrile gloves, Disinfectant Wipes (Lysol), Safety glasses, Hand sanitizer, Soap and Water, Nitrile Gloves, Respirator or face covering (if required to be within 6 feet of others for limited times doing limited tasks)</p>				
Task Step	Step Description	Hazard Classification	Hazard Description	Safety Procedures
3	Working in proximity to others	Illness due to viral exposure	Working within 6 feet of others, and touching others, items others have handled, or surfaces others may have coughed or sneezed around may expose you to the virus.	<ol style="list-style-type: none"> 4. Stay 6 feet from other people, or if that is not possible for certain tasks wear respiratory protection and gloves, and wash hands immediately before and after 5. If you must be closer than 6 feet to another person, pause work and don gloves and a respirator or face covering, and limit the task time period to less than 10 minutes and only do so outside 6. Hold meetings outside and over the phone 7. Wash your hands frequently for 20 seconds with warm water and soap, getting in between fingers and including fingertips 8. Alcohol-containing hand sanitizer (Purell, for example) can be used if soap is not available but wash with soap and water once available 9. Resist touching your face 10. Clean surfaces with soap and water, Lysol wipes, or dilute bleach solution including equipment (cells phones, pens, keys, etc.) work surfaces and bathrooms
4	Fieldwork	Illness due to viral exposure	Working with 6 feet of others, and touching others, items others have handled, or surfaces others may have coughed or sneezed around may expose you to the virus.	<ol style="list-style-type: none"> 1. If you have symptoms of COVID-19, do not go to the site. Stay home and call your doctor. 2. Stay 6 feet away from other site workers 3. No handshakes, elbow bumps, or other personal contact 4. Hold frequent safety meetings 5. Don't share pens for sign-in sheets 6. Verbally verify from each site worker that they feel well, have not traveled out of the country, and have not been in contact with people with confirmed COVID-19 infection 7. If you start feeling unwell, leave the site. Isolate anyone who cannot immediately leave or is too ill to drive themselves and is waiting for a ride. 8. Avoid sharing equipment, as possible, and wipe down these items with disinfectant between use 9. Enforce frequent hand washing and other good personal hygiene protocols 10. Pause work and reassess if someone is feeling overwhelmed



Job Hazard Analysis

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<p>Task Description: This JHA details protective measures GZA fieldworkers should take to protect against being exposed to the SARS-CoV-2 virus or become ill with COVID-19. Provisions of this document shall be integrated into all field tasks on GZA project sites. This document should be sent to GZA subcontractors prior to onsite work starting to establish the minimum requirements for COVID-19 protection on the project site.</p> <p>Required PPE: Nitrile gloves, Disinfectant Wipes (Lysol), Safety glasses, Hand sanitizer, Soap and Water, Nitrile Gloves, Respirator or face covering (if required to be within 6 feet of others for limited times doing limited tasks)</p>				
Task Step	Step Description	Hazard Classification	Hazard Description	Safety Procedures
5	Unique Situations	Illness due to viral exposure	Potential exposure to the virus.	<p><u>If someone onsite is Diagnosed with Covid-19:</u></p> <ol style="list-style-type: none"> Do not share the name or any personal details - OK to talk about otherwise Self-assess whether you've been in close contact with the person Close Contact means - within 6 ft of another person for more than 10 minutes Self-quarantine and consult your personal doctor if in close contact with infected person Call Rick Ecord to discuss (781-278-3809 or 404-234-2834) <p><u>If someone onsite reports secondary contact (close contact with someone who has had contact with someone confirmed with Covid-19):</u></p> <ol style="list-style-type: none"> Do not share the name or any personal details - OK to talk about otherwise Self-assess whether you've been in close contact with secondary contact Close Contact means being within 6 ft of another person for more than 10 minutes Self-quarantine and consult your personal doctor if in close contact with infected person Call Rick Ecord to discuss <p><u>If someone at the site develops symptoms of COVID-19:</u></p> <ol style="list-style-type: none"> The individual at my work site should arrange to leave immediately Isolate the person until they can leave the site Self-assess whether you've been in close contact with the person Call Rick Ecord to discuss

DRILL RIG EQUIPMENT SAFETY CHECKLIST

1. **Drilling Controls**
 - All controls, linkages, warning & operation lights & lenses are free of oil, grease and/or ice
 - All controls, feed levers & gearboxes are in neutral prior to starting
2. **Emergency Shut-Off**
 - Check that trip wires, shut-offs & guards are in place & working correctly
3. **Cathead & Ropes**
 - Free from rust, oil & grease
 - No unusual wear or damage
 - No excessive rust
 - Rope is in good condition
 - Rope is proper length
4. **Hoists, Cables & Rope**
 - Check sheaves, bearings & guides, hooks, shackles & rings for wear
 - Check rope for ice
 - Check all connections & fittings
 - Cable fasteners checked & U-bolts tightened
5. **Hammers & Ropes**
 - Check wire ropes for broken wires, abrasion, heat damage, reduction in diameter, corrosion, kinking, bird caging, improper reeving, jamming, core protrusion, wire protrusion, fatigue or damage
 - Check that buckeyes & chains are secure
 - Lubricate swivel bearings as needed
6. **Hydraulic Lines & Connections**
 - Check for leaks
 - Check that connections are secure
 - Check for excessive wear
7. **Chains and Belt Guards**
 - Check for excessive wear
 - Check that guards are in place & working correctly
8. **Personal Protective Equipment**
 - Hard Hat
 - Safety Glasses
 - Ear Plugs
 - Steel Toed Shoes
 - Gloves
 - Life Jacket
 - Safety belt/lifeline, when working on elevated platforms
9. **General**
 - Suitable storage locations for all tools, materials or supplies within or on the mast (derrick) of the drill rig
 - Pipes, drill rods, casing, augers, etc. are stacked in an orderly fashion on racks or sills to prevent spreading, rolling or sliding
 - Driving hammers are placed securely to prevent movement when not in use.
 - Work areas, platforms, walkways, scaffolding & other access ways are kept free of debris, obstruction & substances such as ice, oil or grease that could cause a surface to become slick or otherwise hazardous.
 - All hand tools are clean & in good repair
10. **Water Work**
 - Ring buoys & line are in place
 - At least one lifesaving skiff is immediately available
11. **Other**
 - Check fluid levels in radiator, gearbox, hydraulics & engine

Signed: _____

Date: _____

Driller

TAILGATE SAFETY MEETING

CHECK ONE: _____ **Initial H&S Orientation** _____ **Periodic “Toolbox” Safety Meeting**

Project Site/Location _____

Date _____ **Time** _____ **Job No.** _____

PM _____ **PIC** _____

The undersigned have attended a Health and Safety briefing, consisting of a review of the provisions of the Site Specific H&S Plan, and/or appropriate prior H&S events or concerns, and/or review of anticipated H&S concerns and safety measures for the project.

SUMMARY OF HEALTH AND SAFETY TOPICS COVERED (required topics are listed below to be covered in addition to regular site-specific topics)

- 1. Pausing and Stopping Work**
- 2. Preparation for Natural Hazards (insects and ticks, poisonous plants)**
- 3. Uneven and/or Unstable Terrain in Work Area(s)**
- 4. How GZA People-Based Safety will be implemented on the site**

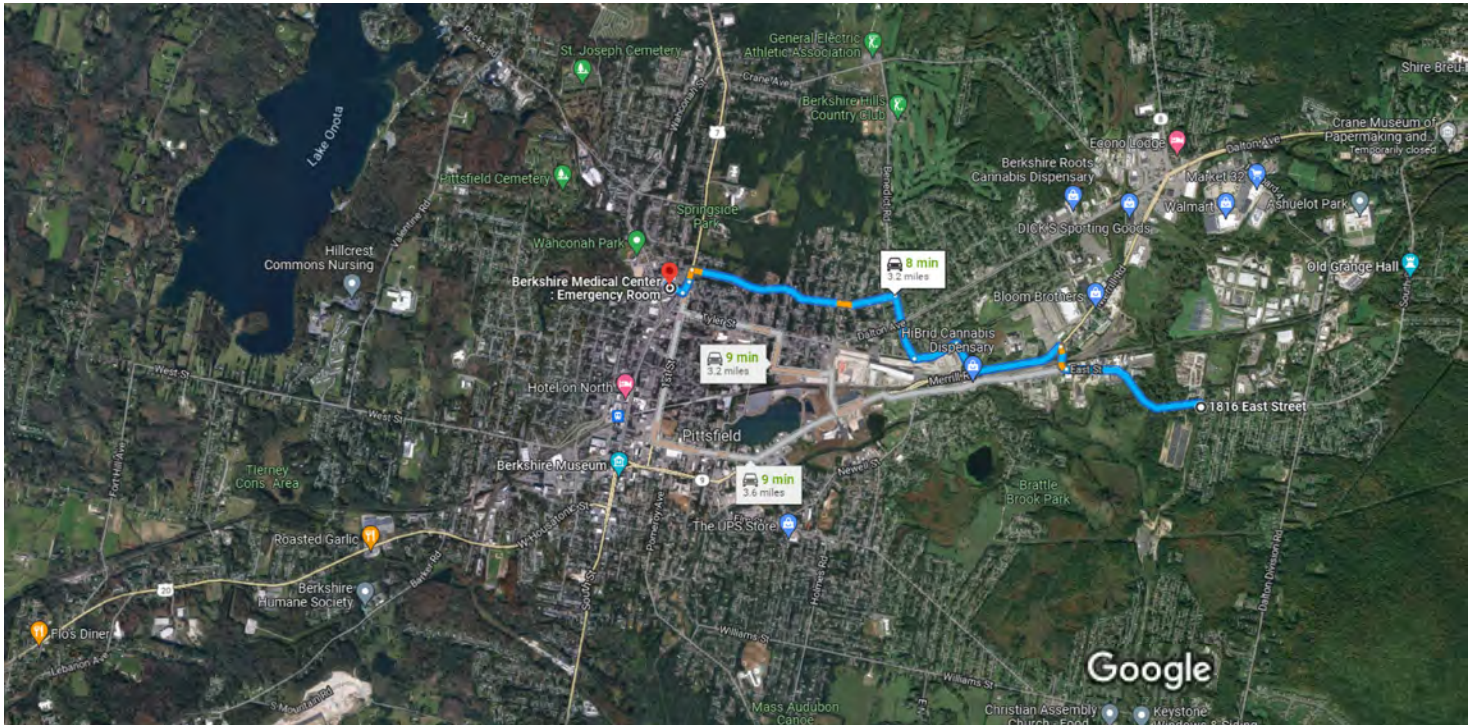
NAME (printed)	SIGNATURE	COMPANY

Conducted by: _____ Date: _____



1816 East St, Pittsfield, MA 01201 to Berkshire Medical Center : Emergency Room, 725 North St, Pittsfield, MA 01201

STRUCTURES 5000A THROUGH 5006



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1816 East St
Pittsfield, MA 01201

Follow East St and Merrill Rd to New York Ave

- 3 min (1.3 mi)
- ↑ 1. Head west on East St toward Junction Rd
0.7 mi
- ↘ 2. Turn right onto Junction Rd
0.1 mi
- ↙ 3. Turn left onto Merrill Rd
0.4 mi

Take Springside Ave to North St

- 4 min (1.7 mi)
- ↘ 4. Turn right onto New York Ave
0.2 mi
- ↙ 5. Turn left onto Tyler St
0.2 mi
- ↘ 6. Turn right onto Benedict Rd
0.3 mi

↶ 7. Turn left onto Springside Ave
1.0 mi

Follow North St

36 s (0.1 mi)


↶ 8. Turn left onto North St
295 ft

↗ 9. Slight right to stay on North St
318 ft

Drive to your destination

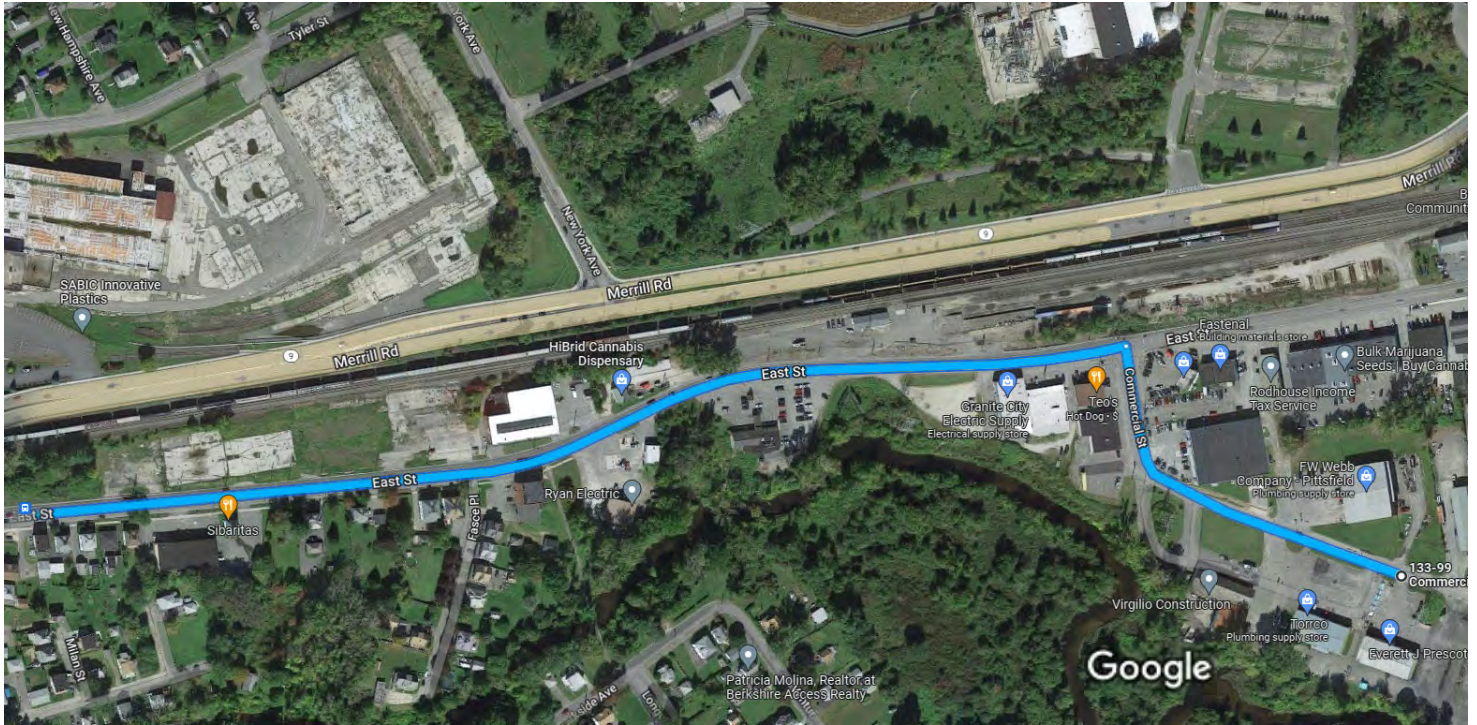
1 min (0.1 mi)

↘ 10. Turn right
374 ft

↶ 11. Turn left
 Destination will be on the right
167 ft

Berkshire Medical Center : Emergency Room
725 North St, Pittsfield, MA 01201

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



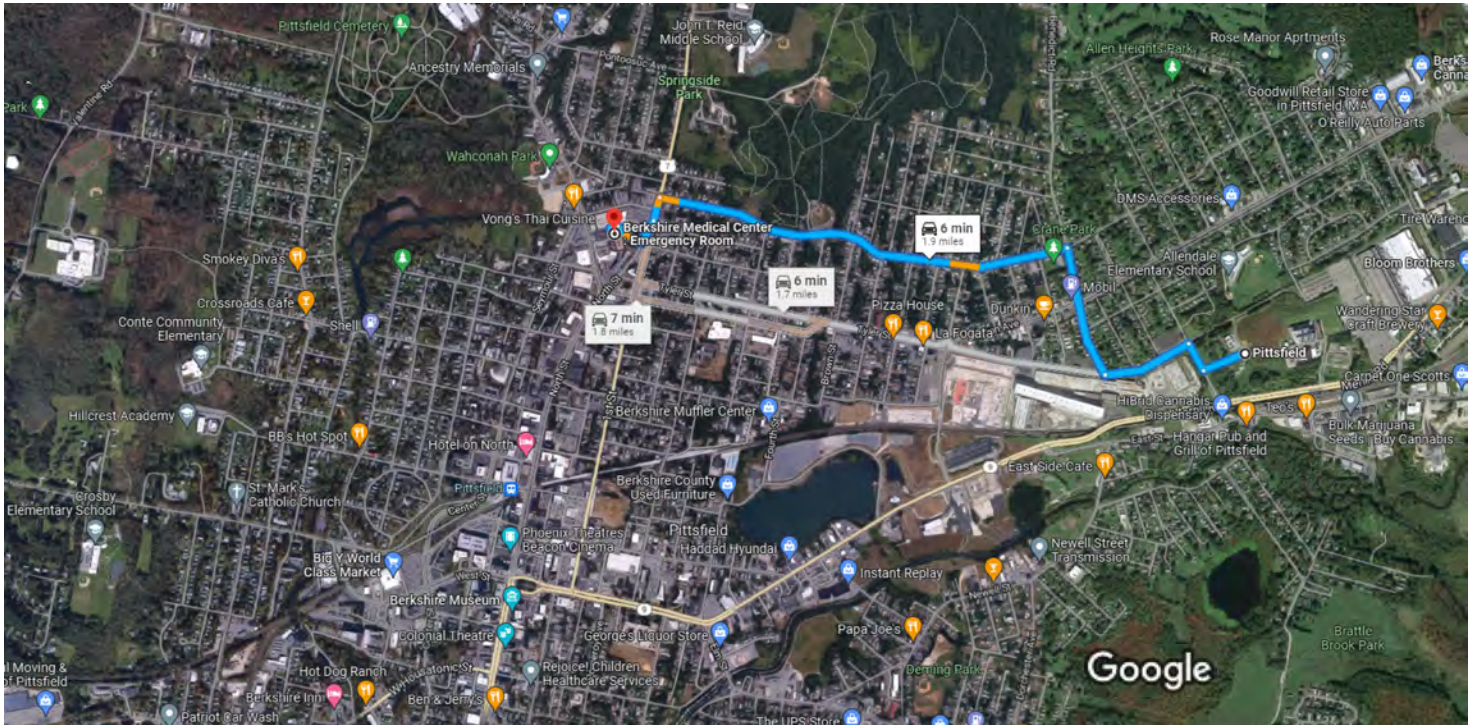
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133-99 Commercial St
Pittsfield, MA 01201

- ↑ 1. Head west on Commercial St toward East St
_____ 0.2 mi
- ↶ 2. Turn left onto East St
_____ 0.6 mi
- ↶ 3. Turn left to stay on East St
_____ 0.7 mi
- ↷ 4. Turn right onto Fenn St
_____ 0.5 mi
- ↷ 5. Turn right onto 1st St
_____ 0.7 mi
- ↶ 6. Turn left at Stoddard Ave
_____ 453 ft
- ↶ 7. Turn left
 - 📍 Destination will be on the right
 - _____ 167 ft

Berkshire Medical Center : Emergency Room
725 North St, Pittsfield, MA 01201

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Pittsfield
Massachusetts 01201

Take Springside Ave to North St


- _____ 5 min (1.7 mi)
- ↑ 1. Head southwest toward New York Ave
⚠ Restricted usage road
- _____ 0.1 mi
- ↪ 2. Turn right onto New York Ave
- _____ 381 ft
- ↶ 3. Turn left onto Tyler St
- _____ 0.2 mi
- ↪ 4. Turn right onto Benedict Rd
- _____ 0.3 mi
- ↶ 5. Turn left onto Springside Ave
- _____ 1.0 mi

Follow North St

_____ 36 s (0.1 mi)

- ↶ 6. Turn left onto North St
_____ 295 ft
- ↷ 7. Slight right to stay on North St
_____ 318 ft

Drive to your destination

- _____ 1 min (0.1 mi)
- ↷ 8. Turn right
_____ 374 ft
- ↶ 9. Turn left
 Destination will be on the right
_____ 167 ft

Berkshire Medical Center : Emergency Room
725 North St, Pittsfield, MA 01201

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Background Information:

GZA will conduct a geotechnical investigation in the electrical transmission right-of-way (ROW) on a portion of the Pittsfield General Electric (GE) property (the “Site”) to support Eversource’s design of select replacement structures on the 1715/1816 Line. The proposed replacement structure foundations will be supported on reinforced drilled shaft foundations. Based on the results of the geotechnical investigation, GZA will provide Eversource recommendations for soil parameters to design the new foundations.

Five of the test borings included in GZA’s Scope of Work dated June 1, 2022 will be located on the area known as “Hill 78 Remainder” (Site) within the MassDEP Disposal Site Boundary for Release Tracking Number (RTN) 1-00714 and are located on Pittsfield Assessor’s Parcel K11-7-2. This area is subject to the *Grant of Environmental Restriction and Easement* (the “Grant”), executed on June 8, 2011. The area of the test borings is part of the “Open Soil/Vegetated Area” and the test borings are associated with proposed “Utility Work” as defined in the Grant.

The “excavation, digging, drilling, or other intrusive activity into or disturbance of the surface of the ground and/or the underlying soil” is a Restricted Activity and Use (Subparagraph 3.G. of the Grant). However, Surface and/or Subsurface Excavation for Utility Work (Subparagraph 4.D) as allowed by Paragraph 4 of the Grant (“Permitted Activities and Uses”), shall be conducted in accordance with the Soil Management Protocol (SMP) and the Health and Safety Protocol (HSP).

Description of Work:

- One test boring will be performed near each of the following five existing structures within the transmission line ROW (Line 1715/1816) in the area of the “Hill 78 Remainder” Site:
 - 5011
 - 5011.5
 - 5011.5A
 - 5017A/B

The replacement structures are generally planned to be located in close proximity to the existing structures. Eversource personnel will stake the proposed replacement structure locations. The test borings will be performed as close to the staked locations as possible while maintaining the required Minimum Approach Distance (MAD) from energized conductors. A Plan showing the existing structure locations is attached.

- Prior to drilling the test borings, the boring locations will be staked and marked for utility clearance. Dig Safe® and the Pittsfield Department of Public Works will be contacted for utility clearance by the drilling subcontractor. Eversource will provide GZA with utility plans, if available, for review.
- The test borings will be drilled to evaluate the soil types and determine depth to the groundwater table and refusal (if encountered). GZA’s drilling subcontractor is New England Boring Contractors, Inc. (NEBC) of Derry, New Hampshire.



- The test borings will be drilled in accordance with the procedures outlined in Northeast Utilities Procurement Standard OTRM 152 – Soil Boring and Testing Requirements. Standard Penetration Tests (SPT) will be obtained at 5-foot intervals. The borings will be advanced to a maximum depth of 30 feet below ground surface (bgs). If bedrock is encountered prior to the maximum depth of 30 feet bgs, GZA will obtain 5 feet of rock core to confirm the presence of bedrock and to evaluate rock quality. No soil samples will be collected for laboratory analysis.
- A rubber track-mounted drill rig will be used by NEBC to complete the test borings.
- The test borings will be completed using either hollow stem augers or drive and wash methods using 3- or 4-inch-diameter steel casing.
- Each test boring will be completed in one day or less.
- A GZA Licensed Site Professional (LSP) will oversee drilling and ground disturbance within the Hill 78 Remainder site.

HEALTH AND SAFETY PROTOCOL

The Health and Safety Protocol (HSP) was developed following the information provided in Exhibit B of the Grant and supplemented with GZA and Eversource safety guidance, protocols, and documentation. A copy of the Eversource Contractor Work Rules is included as an attachment.

a. General information on the nature, extent, and concentrations of hazardous substances (as defined by CERCLA) and hazardous materials and oil (as defined by Chapter 21E) anticipated in the media to be impacted the permitted activity and use, based upon existing information.

Based on the information available on the MassDEP Waste Site & Reportable Release/Spills Look Up (<https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>) for RTN 1-00714, concentrations of PCBs have been found in shallow soils throughout the Site. The PCB data below is from the *Phase I Limited Site Investigation, Current Assessment Summary Report, Hill 78 Area, Pittsfield, Massachusetts*, by Geraghty & Miller, Inc., dated September 1991:

The following samples were collected in November 1989 in the approximate vicinity of Structures 5011.5 and 5011.5A:

Sample ID	Depth (feet bgs)	PCB concentration (ppm)
STR-4S2	0-2	5.1
	2-6	<1.0
	6-10	<1.0
STR-4S	0-2	21
	2-6	<1.0
	6-10	<1.0
STR-4S1	0-4	<1.0



Sample ID	Depth (feet bgs)	PCB concentration (ppm)
STR-4N2	0-2	1.8
	2-6	<1.0
	6-10	<1.0
STR-4N	0-2	12
	2-6	<1.0
	6-10	<1.0

ppm = parts per million

The following samples were collected in October 1989 in the approximate vicinity of Structures 5017A and 5017B:

Sample ID	Depth (feet bgs)	PCB concentration (ppm)
PS-W-11	0-4	2.4
	4-8	0.35
PS-W-9	0-4	0.65
	4-8	0.20
PS-W-7	0-2	1.6
	2-6	0.08
	6-10	<0.05

Based on this information, the concentrations of PCBs anticipated to be encountered range from non-detect to approximately 21 ppm. Because the area of proposed work is not within the limits of the Hill 78 Fill Area where PCB-materials were historically dumped, the concentrations of PCBs in soil is expected to be lower in this area than other areas of the Site.

b. Description of tasks which may involve exposure to hazardous substances, hazardous materials, or oil.

GZA field personnel and drilling contractors will wear modified Level D Personal Protection Equipment (PPE), which includes hard hat, safety glasses, steel toe boots, and proper gloves (depending on the task, as described in the HASP). Nitrile gloves will be worn when soils at the Site require manual handling. Tasks which may involve potential contact with soils include handling drilling augers, handling soil for field characterization, and moving drilling spoils with hand shovels. Personnel are not anticipated to be exposed to hazardous substances, hazardous materials, or oil when using the proper PPE. No soil samples will be collected for environmental or geotechnical laboratory analysis. Food, beverages, and tobacco products shall not be used in the work area. Cosmetics are not to be applied in the work area. See HASP Section 6 Contaminants in Soil for hazard mitigation details.



f. All persons engaged in the work received appropriate training in matters of health and safety in accordance with 29 Code of Federal Regulations Section 1910.120, as amended, and any other applicable federal, state, or local law.

See attached training documentation.

SOIL MANAGEMENT PROTOCOL

The Soil Management Protocol (SMP) was developed following the information provided in Exhibit E of the Grant.

The subsurface investigations to be performed in the area of the “Hill 78 Remainder” Site will be conducted with the oversight of an LSP. Each test boring is expected to be completed in one day.

As previously described in the HSP, the proposed test borings will be performed within the Open Soil/Vegetated Area of the Site. The following will be performed in accordance with the Grant:

- The top one foot of the soil at each boring will be placed on poly sheeting and segregated from other drilling spoils.
- Once a test boring is complete, drill cuttings from deeper than one foot bgs will be returned to the borehole, with no sampling required, to within one foot of the ground surface.
- The remaining top one foot of the borehole will be backfilled with soil segregated from the top one foot, as required in the Grant, and compacted by hand.
- The exposed ground surface at each borehole will be restored by seeding with a grass mix and mulching. Ground disturbance from the drilling equipment, if present, will be restored to the extent practicable.

Excavated soil will not be stored on-site and will be returned to the borehole upon completion of the test boring.

Based on information reviewed for the HSP, depth to bedrock is anticipated to be greater than 30 feet bgs. However, if bedrock coring is needed, then water used during bedrock coring will be allowed to discharge to and infiltrate through the ground surface in the direct vicinity of the test boring. During coring, water will be located within the casing and will come into contact with materials (soil and rock) at depth, not at the shallow depths where PCBs have been identified in soils. Groundwater is not anticipated to be collected during the test borings.

In accordance with 40 CFR 761.79(g)(6), PPE, poly sheeting, and any other disposable material that comes in contact with soil during the test borings for Structures 5011, 5011.5, 5011.5A, and 5017A/B can be disposed of as solid waste.



SITE PLAN



EVERSOURCE CONTRACTOR WORK RULES

Eversource Contractor Safety and Health Work Rules

Appendix H

I. Introduction

1. These Work Rules govern the safety and health aspects of the way that Contractors and their subcontractors and agents perform work at Eversource facilities, properties or work sites.

These Work Rules convey Eversource's minimum expectations regarding safety and health practices and may exceed the requirements of federal, state and local regulatory agencies.

These Work Rules are in addition to any safety and health procedures, policies, guidance, and/or work instructions of the Contractor. Failure to comply with any portion of these Work Rules is a breach of contract, and is just cause for placement in a probationary program and/or expulsion from Eversource properties and/or termination of the contract.

2. Contractors are required to inform their employees, subcontractors, and agents of these Work Rules prior to the start of work and to ensure compliance with the Work Rules.

3. All Contractors and their employees are responsible for ensuring safety and health compliance. This includes adherence to the following:

- a) State, federal, and local safety and health requirements that are in effect or that may take effect during the work;
- b) Guidance and work instructions;
- c) Site-specific rules and/or addenda.

It is the responsibility of the Contractor to enforce these safety requirements with her/his own personnel as well as with personnel of sub-contractors who he/she engages for performing the requested work action. Compliance with these safety requirements does not (1) relieve or diminish the responsibility of the Contractor to perform the work in a manner that complies with applicable Federal, State and local laws, rules, regulations and/or requirements and with all applicable provisions of the Contractor's contract with Eversource regarding the work (the "Contract"), nor (2) relieve the Contractor from liability to Eversource or others for negligent or improper performance of the work, as provided in the Contract.

4. Each Contractor is and shall remain an independent Contractor as to all work performed under the contract. Nothing herein shall relieve Contractors of their sole responsibility for the safety of their employees and their work performance. As such, Eversource expects them to take appropriate action to ensure that safety and health requirements are adhered to.

5. Neither compliance with these Work Rules nor Eversource's approval of any actions or procedures of the Contractor shall relieve the Contractor of its obligation to always use due care in performing work and to take any additional precautions necessary to prevent injury, adverse effects to the public, and/or property damage. The Contractor shall ensure safe work practices, protect their employees and monitor the project's safety and health effects during the work.

**Eversource Contractor Safety and Health Work Rules
Appendix H**

7. Safety Statistics - Contractors, subcontractors, and other Contractor representatives must maintain work site records of man-hours worked and of all injuries and illnesses occurring and reported at the work site, specifically identifying those that meet the Occupational Safety and Health Administration (OSHA) definition of "recordable." Particularly for large or long-duration projects, Eversource shall be provided with copies of such work site injury and work-hour records at the completion of the job.

Eversource's focus on evaluating Contractor safety performance, as demonstrated by work site injury and illness statistics, indicates to Contractors that satisfactory performance extends far beyond pre-bid and pre-job submittals and discussions. Such statistics can also be used to measure the effectiveness of Contractor safety programs and the Contractor's performance of the work.

8. The Contractor shall assign or designate a competent person as required in 29 CFR 1926.20(b)(2) and defined in 29 CFR 1926.32(f) to each construction site. The competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. Contractors will document such designation and shall maintain such documentation upon the work site and make it available to Eversource representatives at their request.

Safety-related communication between the Contractor and Eversource should be made through Contractor's competent person and Eversource's designated representative.

Contractor's competent person shall take appropriate corrective actions for safety violations committed by personnel of Contractor or its sub-contractors. However, if the Eversource designated representative notes safety violations either as to personnel or equipment, the Eversource designated representative will be empowered to halt work progress at the Contractor's expense until such time that the unsafe condition has been corrected.

Penalty for Non-Conformance

Any Contractor or sub-contractor who fails to take the necessary safety corrective measures to conform to these safety requirements shall be brought to the attention of the Director of Procurement, Director of Eversource Safety and the Executive Health & Safety Committee with a recommendation for one or more of the following remedies with regard to the contractor:

1. Suspension of work in progress.
2. Termination of any and all active contracts.
3. Removal of the contractor from Eversource's approved contractor list.

II. General Safety and Health Rules

1. Planning and Forethought – The Contractor shall exercise planning and forethought regarding all work. As a minimum, this requires the Contractor to apply the same planning and management skills to the safety aspects of the job as to the bid preparation, work assignment, job scheduling, and other productivity and quality aspects.

To facilitate this planning process, Contractors are required to complete a Safe Work Plan for each phase of the job which they have bid. A sample Safe Work Plan must be submitted for evaluation as a part of the bid and prior to work commencing. Safe Work Plans for each phase of the work must be submitted to Eversource.

These plans will include: project specific work rules which will be followed, a list of JHA's which identify the hazards that could be expected, actions to be taken to eliminate or control exposures to these

Eversource Contractor Safety and Health Work Rules Appendix H

hazards, emergency contacts, and employee signatures to ensure the plan has been properly communicated to all employees on the project.

In some cases, this may also require that a Contractor develop a site specific safety plan for the work and/or assign a person with full-time or collateral safety oversight responsibilities.

2. Emergency Response/Medical – Prior to the start of work, Contractors must coordinate their emergency response/E-911 protocol plans with Eversource. This may include preferred means of reporting and responding to medical, security emergencies, evacuation alarms and routes, available medical treatment facilities, etc. Periodic drills should be conducted to practice and improve the plans. Contractors shall be equipped with their own first aid kits Contractors and are responsible for arranging for transportation for their employees to receive medical attention for minor injuries.

3. Pre-job Safety Briefings – High risk Contractors (Civil, Line, Electrical, Test, Vegetation Management, General Construction, etc.) must conduct documented pre-job safety discussions (commonly known as toolbox discussions, tailboard discussions, etc.) with all workers that will be involved in the job at the start of each shift, when the scope of work changes, and/or before new work assignments. These discussions must cover the actual and potential hazards of the job, safety considerations, the specific PPE requirements, Eversource site specific safety requirements, and all other precautions required to prevent injury or damage and to protect the environment.

All other contractors (Low risk) shall perform a similar Pre-job safety briefing, but it need not be documented.

Contractors shall maintain such documentation upon the work site and make it available to Eversource representatives at their request.

4. Training – Contractors shall have training and certification records, licenses, and other such documentation for their employees that are pertinent to the work to be performed either on site or available within twenty-four hours and subject to review by Eversource, upon formal request. *Failure to produce training records within such time may be considered breach of the contract and shall entitle Eversource, at its option, to terminate such contract without further liability on its part.*

A. Eversource Safety Orientation Review

Contractors shall provide a review of the Eversource Contractor Safety and Health Work Rules (and applicable addendums) to all personnel and all subcontractors prior to commencing work activities. The review shall be documented (Appendix E Eversource Contractor Safety Awareness of the pre-qualification questionnaire).

B. OSHA 10 Hour Training (effective 3/31/11)

All Vegetation Management, General Construction, Civil, Line, Electrical and Test contractor Supervisors with greater than 6 employees under their routine direct supervision shall have at a minimum a 10-hour OSHA training certificate (General Industry, Construction or Transmission & Distribution [T&D]). Contractors under other contract types may be required to have training at the discretion of Eversource.

5. Inspection and Maintenance Records – Inspection, maintenance, repair, and certification records of cranes, hoists, personnel lifts, scaffolds, excavations, etc., are subject to Eversource review and must be readily available, upon formal request.

Eversource Contractor Safety and Health Work Rules Appendix H

6. Alcohol, Controlled Substances, and Weapons – No alcoholic beverages, beverages labeled as non-alcoholic, controlled substances (other than prescribed drugs), or weapons are allowed on Eversource facilities, properties or work sites, including parking lots, nor shall any worker under the influence of alcohol and/or drugs be allowed on Eversource facilities, properties, or work sites. The sale or use of alcohol and/or controlled substances on Eversource facilities, properties, or work sites is strictly prohibited. All Contractor and sub-contractor personnel reporting for work in an unfit condition to safely perform assigned work functions shall be immediately dismissed from the work site.

7. Regulatory Inspections – Contractors shall promptly inform the Eversource liaison of any and all inspections, visits, observations, audits, or inquiries of any kind (telephone, electronic, in-person, etc.) (collectively “Inspections”) affecting or pertaining in any way to the Contractors’ work under the contract by any federal, state or local agency, and the reasons therefore. Contractors shall keep the Eversource liaison updated on the status of any regulatory matters arising out of such Inspections, including but not limited to safety, health citations and/or violations.

III. Specific Safety and Health Rules

1. Trenching and Excavating – No trenching or excavation work may begin until the Contractor has designated a competent person to oversee the work and has informed Eversource of the name(s) of the competent person(s) and the basis for such determination. Contractors are to assume the soil is Type C unless they prove otherwise with appropriate engineering tests. Contractor is responsible for contacting the appropriate “Call Before You Dig” or “Dig Safe” agency the requisite number of days (typically 2 to 3 business days) prior to the planned start of any excavation. An active “Call Before You Dig” or “Dig Safe” clearance is required before any mechanical excavation work. All unattended trenches and excavations shall be guarded to prevent inadvertent falls.

Work areas shall be cleaned up at the end of each day or more often if conditions warrant. Excess backfill material shall be removed promptly and transported to designated facilities in accordance with Eversource Environmental Materials Handling Guidelines. All street surfaces and sidewalks swept clean at the end of each day.

2. Scaffolding – No scaffolding work may begin until the Contractor has designated a competent person to oversee the work and has informed Eversource of the name(s) of the competent person(s) and the basis for such determination. 100% fall protection or restraint is required at all times during erection, maintenance, use and dismantling of the scaffold whenever the fall hazard is six (6) feet or greater unless the competent person possesses documentation clearly describing why using 100% fall protection or restraint is not feasible or creates greater hazards. The documentation shall also describe the methods that will be implemented to achieve as close to 100% fall protection or restraint as possible. Scaffold components may not be used for fall protection or restraint anchorage unless Contractor similarly possesses documentation by a “qualified person” as defined by OSHA 29CFR 1926.450 validating the suitability of the components for such use. All documentation must be readily available for review by Eversource. In addition, from the time scaffold erection is begun until scaffold dismantling is completed, the competent person shall inspect all scaffolding and associated components at least once each work shift prior to their use and shall affix signs, tags, or equivalent means to conspicuously mark whether the scaffolding is or is not safe to use. Transfer of responsibility for the maintenance and inspection of the scaffolding must be coordinated and clearly noted among Eversource and other parties involved.

3. Fall Protection – Eversource Transmission (includes MA Transmission) - 100% fall protection is required for all workers exposed to fall hazards of four (4) feet or greater from structures that support overhead electrical lines (e.g., poles, towers, structures), six (6) feet or greater, in other construction activities, and lesser heights with the potential for serious injury, unless the competent person possesses documentation clearly describing why using 100% fall protection or restraint is not feasible or creates

Eversource Contractor Safety and Health Work Rules Appendix H

greater hazards. The documentation shall also describe the methods that will be implemented to achieve as close to 100% fall protection or restraint as possible.

Eversource Electric Distribution Operating Companies do not require 100% fall protection for workers exposed to fall hazards of four (4) feet or greater from structures that support overhead electrical lines (e.g., poles, towers, structures). The Eversource Electric Distribution Companies require employees who climb structures and who are exposed to fall hazards of four (4) feet or greater from structures that support overhead electrical lines (e.g., poles, towers, structures) to be Qualified Climbers. An employee who is a qualified climber must be trained as required by paragraph OSHA 29 CFR 1910.269(a)(2)(i) and (a)(2)(ii) before the employee can be allowed to climb.

4. Housekeeping – Contractors shall keep the job site neat, clean, and free of debris, trash, and hazards. Contractor shall store all materials in a neat and orderly fashion. At a minimum, the Contractor shall police the work area at the end of each shift.

5. Hot Work – Hot work is any work that involves the use of burning or welding equipment, brazing equipment, explosives, open flames, grinders, and any other activity that produces a flame, spark, or excessive heat. Hot work shall be coordinated with the Eversource liaison in advance. Hot work requires the Contractor to conduct a hazard assessment and take appropriate actions to prevent the ignition of combustible and flammable materials, including but not limited to the use of welding tarps, fire watches, and the ready availability of fire extinguishers rated for the specific nature of the anticipated fire hazard(s).

6. Smoking – Smoking is prohibited in and within 25 feet of all Eversource facilities, within 25 feet of flammable materials, and in other areas designated as such.

7. Lifting and Hoisting – Contractors must certify that all operators of mobile equipment such as cranes, derricks, boom lifts, etc., have been trained and certified on the proper operation of the equipment. Non-operators, such as Signal Persons, shall also be trained and have proper certifications. Copies of this training and certification shall be maintained on the project by the Contractor and provided to Eversource upon request. Mobile crane operators must be qualified on each specific crane (type & rating) they are assigned to operate through a testing and qualification procedure.

The Contractor shall not move loads suspended from mobile equipment without the load being secured to prevent swinging. Tag lines shall be used on all loads except when there is a danger of the equipment, load, or tag line making contact with energized parts. Swing load radius must be kept clear during moving of suspended loads. Lifting devices and hardware (slings, chain, shackles, etc.) shall be rated and properly connected for the application. Load charts shall be available and no load may be lifted until its weight has been determined.

8. Guarding of Holes and Openings – The Contractor shall guard or place appropriate barricades around temporary openings in floors, walls, excavations, etc., to prevent inadvertent entry. Covers over excavations or floor holes shall be of sufficient strength, conspicuously marked to indicate the hazard and the danger of removal, and secured to prevent inadvertent movement or removal whenever feasible.

9. Ladders – Only ladders constructed of fiberglass may be used in and around electrical equipment, including substations. Ladders are to be properly positioned. Straight and extension ladders are to be tied off at the top and bottom or footed by another person. Step ladders may be used only in the fully open position with the spreader brackets locked in place. No person may stand or sit on the steps or platforms on which standing or sitting is prohibited.

10. Tools and Equipment – Contractors are responsible for providing proper tools and equipment. Except in rare or emergency situations, Eversource will not provide or lend tools or equipment, including personal protective equipment (PPE). Tools and equipment shall be maintained in safe condition and used as designed and without removing, defeating, or otherwise compromising guards or other safety devices.

Eversource Contractor Safety and Health Work Rules Appendix H

11. Walks and Roadways – When working on Eversource facilities, properties, or work sites, Contractors shall not hinder or obstruct the normal flow of vehicular or pedestrian traffic without prior coordination with the Eversource Liaison. In such cases, appropriate actions must be taken to alert traffic of the hazard and/or control the flow of traffic to ensure safety. In such cases, Contractor shall provide approved lights, barriers, signs, warning devices, signal persons, and/or other precautions appropriate to the situation.

12. Lock out/Tag out – Work at Eversource facilities may require the use of a lock out/tag out system. The Contractor is to coordinate lock out/tag out with the Eversource liaison. In some cases, the Contractor may be required to comply with Eversource's lock out/tag out requirements.

13. Confined Space Entry (including Enclosed Space Entry) – Contractor is to consider all confined spaces as permit-required confined spaces until informed otherwise by Eversource or until Contractor conducts a written hazard assessment that documents otherwise. The Contractor is to coordinate all entries into confined spaces (whether permit-required confined spaces, non-permit confined spaces, or enclosed areas) with the Eversource liaison, the local facilities/building supervisor, and other work groups to ensure each other's activities will not affect the safety or health of any person.

14. Personal Protective Equipment (PPE) – As a minimum, most physical work requires the use of safety glasses (including side shields) meeting the ANSI Z87 standard, safety shoes meeting the ASTM F 2413-05 international standard, and head protection shall be ANSI Z89.1 Type I class E&G. Contractors shall comply with local Eversource PPE requirements for the location or the type of work. Determining any additional PPE requirements is the responsibility of the Contractor. The Contractor's PPE hazard assessment certifications are subject to review by Eversource.

15. Barriers, Warnings, Signs, and Signage Credibility – Work areas, whether indoors or outdoors, restricted to entry by authorized persons shall be clearly marked and delineated. Unless otherwise permitted, such marking shall consist of conspicuous rope or tape barrier with appropriate DANGER, CAUTION, or other appropriate signs that (1) note the nature of the hazard and (2) provide guidance to the reader. When the signs or barriers are not available or their use is not practicable, such as for a momentary hazard exposure, the Contractor shall post employees to prevent others from being exposed to the hazard(s).

All Traffic Control Plans and activities shall conform to the Occupational Safety and Health Administration (OSHA) revised construction industry safety standards (1926.200) and Part VI of either the 1988 Edition of the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), with 1993 revisions (Revision 3) or the Millennium Edition of the FHWA MUTCD (Millennium Edition), instead of the American National Standards Institute (ANSI) D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways (1971 MUTCD). The placement of orange cones or signs alone is generally not considered adequate. Detours, whether for vehicular or pedestrian traffic, shall be clearly marked along the entire route. Signs, barriers, and similar markings shall be checked and maintained throughout the work period of need and shall be removed promptly when the need has ended.

16. Communications with Eversource Personnel – Planned work activities which may affect Eversource personnel or disrupt their work shall be coordinated with the Eversource liaison and communicated to such personnel far enough in advance to allow for coordination, accommodations, or resolution of conflicts.

17. Asbestos, Lead, and Other Hazardous Substances – Asbestos, lead, and other hazardous substances may exist on or at Eversource facilities, properties and work sites. Eversource will inform the Contractor of the known presence, location, and quantity of such substances in or adjacent to areas in which the Contractor is expected to work, and the Contractor shall so inform its employees, bring to

Eversource Contractor Safety and Health Work Rules Appendix H

Eversource's attention any suspect or questionable substances that may be encountered during the course of work, and take appropriate precautions.

18. Nail Guns and Powder-Actuated Tools – Nail guns, Hilti Guns, powder activated nail gun and similar tools shall be used in such a manner to ensure the projected fastener cannot miss or penetrate the intended surface and strike an unintended person or object, including but not limited to the fastener becoming an airborne projectile. Precautions include but are not limited to directing the line of fire away from other persons, including passersby, preventing access to the opposite sides of nailing surfaces (e.g. walls) and preventing access closer than 20 feet to Hilti or powder activated nail i.e., gun use. Powder actuated tools shall require the use of a Hot Work Permit in the area of natural gas, propane or LNG facilities (see Rule #5)

19. Flame Resistant (FR) Clothing/Arc Flash Protection – The wearing of flame resistant clothing is required in certain locations (e.g., substations, energized distribution primary zone) and while performing certain electrical or natural gas activities. The Contractor is to consult with the Eversource liaison to determine the specific requirements for FR Clothing, including arc flash protection. All FR clothing shall meet ASTM F1506 or ASTM F1959 and OSHA 29 CFR 1910.269 for electrical work. All FR clothing shall meet NFPA 2112 and 2113 for affected natural gas, propane or LNG work activities.

20. Electrical Awareness – Low and high voltage electrical lines and equipment exist throughout the Eversource system. The Contractor must provide, to all persons working under a contract, or ensure they have received, electrical awareness training appropriate to the work they will be performing. The intent of the training is to ensure persons understand the hazards of electricity and the actions they must take to prevent inadvertent contact.

Persons may enter a substation or switchyard only if they have: (1) attended a pre-entry safety training class and are escorted by an approved escort; (2) received a pre-entry safety briefing appropriate to the work they will be performing and are escorted by an approved escort; or (3) completed unescorted access training and been granted unescorted access privileges by appropriate Eversource personnel.

21. Hazard Communication – All Contractor-supplied hazardous materials and chemicals must be approved by Eversource prior to entry and use on Eversource facilities, properties or work sites. All Safety Data Sheets or Material Safety Data Sheets and associated instruction/warning sheets must be provided to Eversource far enough in advance of the time of intended use to allow for Eversource review, or the materials/chemicals may not enter Eversource property. Contractor must also have a copy of its Hazard Communication program available. All containers used to handle chemicals, fluids, or hazardous material must be labeled. Minimum label requirements are product name, manufacturer or distributor, and hazard warning and shall meet OSHA and/or the United Nations Globally Harmonized System (GHS) of Classification and Labeling of Chemicals.

22. Event Reporting - Contractors shall report to the Eversource liaison all workplace hazards, unsafe conditions, and safety and environmental concerns, regardless of cause. Eversource also requires Contractor management to:

- immediately (no later than 24 hours of occurrence) inform Eversource and analyze all occupational injuries, illnesses, vehicle accidents and other safety-related or environmental incidents (e.g., near-misses, fires, spills);
- identify their causes and actions taken to prevent recurrence in a written report; and, provide copies of all injury reports and analysis to Eversource.

Contractors also must inform the Eversource liaison immediately about safety, health, or environmental inspections or other inquiries by governmental authorities, deviations from governmental or site requirements, and damage to property or equipment.

NORTHEAST UTILITIES CONTRACTOR SAFETY & ENVIRONMENTAL AWARENESS

**SAFETY & ENVIRONMENTAL AWARENESS
CONTRACTOR ROSTER**

In accordance with Appendix H of Northeast Utilities' contractor work rules, this form (or equivalent) documents that the individuals listed below have received awareness training on Northeast Utilities' contractor work rules, and any actual/potential policy, safety and environmental impacts from work they will perform.

What do I have to know?

- NU's Environmental Policy (Compliance, Leadership, Accountability, Stewardship a.k.a. CLAS)
- Procedures I have to follow (i.e., for proper disposal of wastes generated)
- How the work I perform interacts with (examples: use of chemical or fuel) and impacts the environment (examples: waste disposal or water pollution)
- All oil or chemical releases shall be reported to your Supervisor or the NU liaison
- Safety work rules
- Jobsite hazards and barriers/controls
- Electrical hazards barriers and controls
- Personal accountability and limitation

COMPANY NAME: _____ **CONTACT NAME:** _____ **PHONE NUMBER:** _____
PROJECT/JOB/PURCHASE ORDER NUMBERS _____

NAME	DATE	NAME	DATE
1.		11.	
2.		12.	
3.		13.	
4.		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	

NOTE: Ensure that this form (or equivalent) is maintained and can be produced for Northeast Utilities when required



TRAINING DOCUMENTATION



Certificate of Completion
Kyle Ashe

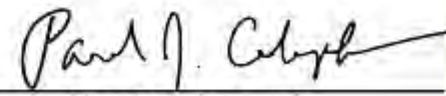
has satisfactorily passed an exam and completed a 40-hour training course entitled
40 Hour HAZWOPER Training
meeting the requirements identified in Title 29 CFR 1910.120 (OSHA HAZWOPER Regulations).

Completion Date: 02/08/2022

Certificate Number: 173253

www.natlenvtrainers.com
info@natlenvtrainers.com
750 W Lake Cook Rd, Suite 350
Buffalo Grove, IL 60089
1-888-877-7130


Amy Bonilla
Vice President


Paul Colangelo
Training Facilitator

NATIONAL ENVIRONMENTAL TRAINERS

Certificate of Completion

Dylan Shaffer

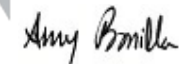
has satisfactorily passed an exam and completed a 40-hour training course entitled

40 Hour HAZWOPER 1910.120 (e)

meeting the requirements identified in Title 29 CFR 1910.120 (OSHA HAZWOPER Regulations). This course has been awarded 6.68 Industrial Hygiene CM Points by the American Board of Industrial Hygiene-Approval Number 13334. This course is also eligible for 4 Continuance of Certification (COC) points from the Board of Certified Safety Professionals.

Completion Date: 02/08/2020

Certificate Number: 195509



Amy Bonilla
Vice President



Paul J. Colangelo
Training Facilitator



www.nationaleenvironmentaltrainers.com
11635 Northpark Dr, Suite 360, Wake Forest, NC 27587

The Official Site of Environmental Health & Safety Training®

Attachment 2



SITE HEALTH AND SAFETY PLAN

1715-1816 Structure Replacement Project, Pittsfield, Massachusetts

Prepared for:

Eversource Energy
247 Station Drive, SE270
Westwood, Massachusetts 02090

Prepared by:

TRC Environmental Corporation
650 Suffolk Street – Suite 200
Lowell, MA 01854

August 2022

A handwritten signature in blue ink, appearing to read "Joel Prellwitz", is written over a horizontal line.

Prepared by:
Joel S. Prellwitz, OSC Author
Professional Geologist

A handwritten signature in blue ink, appearing to read "Emily Wassmer", is written over a horizontal line.

Reviewed and Approved by:
Emily Wassmer, PG
Reviewer

Kevin J. Mahoney Jr., CIH, CSP

Reviewed and Approved by:
Kevin Mahoney Jr.
Certified Industrial Hygienist #11839

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1. Client/Personnel Contact Information

Table 1.1 Site and Contact Information		
Site Name: 1715/1816 Structure Replacement Project		TRC Project Number: 455596.3
Eversource Client Contact/Title	Office Phone Number	Cellular Phone Number
Dean Bebis / Eversource Senior Program Administrator – Materials Management	(781) 441-3358	(508) 654-0492
David Askew / Eversource Senior Environmental Specialist – Licensing and Permitting	(860) 796-5880	--
Jared Kupiec / BHI Energy Project Manager for Eversource Energy – Project Manager & Construction (WMA)	--	(860) 933-2731
TRC Personnel and Role		
Name / Project Role	Office Phone Number	Cellular Phone Number
Matthew Oliveira / LSP and Project Manager	--	(978) 935-0276
Emily Wassmer / Task Manager	--	(207) 298-0785
Gregory Pearsall / On-Site Field Staff	--	(603) 315-2296
Ann Eckmann / TRC Certified Industrial Hygienist Team Lead	--	(781) 706-7315
Joel Prellwitz / Office Health & Safety Coordinator	(207) 274-2641	(207) 747-8641
Scott Buchanan / ECE Regional Safety Manager	(978) 656-3518	(978) 758-2808
Curtis Biondich / Environmental Sector Safety Director	--	(412) 477-4579
Mike Glenn / Health & Safety Director	(949) 727-7347	(949) 697-7418

On-site Health & Safety Officer (OHSO): The TRC on-site Health and Safety Officer (OHSO) will be Gregory Pearsall. The OHSO is 40-hour OSHA certified and is current on refresher training, has OSHA 8-hour Supervisor training, and has first aid and CPR training.

Dig Safe Utility Clearance Ticket No. and List of Utilities Contacted:

Hill 78 Area – Dig Safe Contacted on (PENDING)
Ticket No. (PENDING)

2. Generic Site Information

This Health and Safety Plan (HASP) covers the activities associated with transmission line structure replacements along the 1715/1816 Transmission Line within the Hill 78 Area at the General Electric (GE) Pittsfield/Housatonic River site located in Pittsfield, Massachusetts (Site). Certain structures (5011 through 5016A/B) are located within the Environmental Protection Agency (EPA)-regulated Hill 78 Area. This Area is subject to a Grant of Environmental Restriction and Easement (ERE), which was filed in 2011. This HASP is meant to meet the requirements for work completed within this ERE Area.

According to the EPA online database for the GE Pittsfield Site, the Hill 78 Area-Remainder RAA encompasses an approximately 30-acre area north of Merrill Road (State Route 9). The RAA is located

immediately adjacent to the Hill 78 On-Plant Consolidation Area (OPCA), which includes the former Hill 78 landfill that was used by GE to dispose soil, construction and demolition debris, and other materials. The Hill 78 OPCA was also used to consolidate materials generated during the cleanup which contain PCBs less than 50 parts per million (ppm). A Consent Decree (CD) was filed in October 2000 for the GE cleanup project.

The Hill 78 Area-Remainder RAA was found to contain elevated concentrations of PCBs and polycyclic aromatic hydrocarbons (PAHs). Remediation was conducted between October 2007 and December 2008 in accordance with the requirements of the CD. Concentrations of PCBs were not to exceed 125 ppm in the top foot. Averaging standards for PCBs were established for depth increments within the RAA, as follows: 25 ppm for 0-1 foot below ground surface (bgs), 200 ppm for 0-6 feet bgs, and 100 ppm for 0-15 feet bgs. At the completion of remedial activities, the averaging standards were met. The ERE was filed in August 2011.

Expected hazards are discussed in Section 4. Assessment of the Site-specific hazards will be on-going during Site work. As specified in Exhibit D (Health and Safety Protocol) of the ERE, this HASP includes the following:

Condition 2: This HASP has been or will be submitted to GE and EPA fifteen days or more before conducting work at the Site.

Condition 3: Not applicable.

Condition 4: This HASP has been prepared in accordance with 29 CFR 1910.120.

Condition 5, a: This HASP contains general information on the nature, extent, and concentration of hazardous substances and hazardous materials and oil anticipated in the soil to be impacted by the project work. See above and Section 5.

Condition 5, b: See Section 3.

Condition 5, c: See subsequent sections of this HASP for information on the protection of worker health and safety and the general public.

Condition 5, d: See Section 4.

Condition 5, e: The HASP will be reviewed at the start of work and periodically throughout the duration of work, as necessary, and all persons engaged in the work will be required to acknowledge the provisions of the HASP and sign indicating as such in Appendix I.

Condition 5, F: See Section 8 for training requirements.

Condition 6: This HASP has been reviewed and approved by a Certified Industrial Hygienist.

3. Generic Work Scope Summary

The Site work will consist of the replacement of 11 transmission line structures (Structures 5011, 5011.5A, 5011.5, 5013A, 5013B, 5014A, 5014B, 1015A, 5015B, 5016A, and 5016B). along the 1715/1816 Transmission Line at the Site, as shown in **Figure 1**. Structures may be added to, or removed from, this scope of work subsequent to the completion of this HASP. In that event, TRC will update this HASP, accordingly.

The structures are intended to be installed approximately 25 feet away from the existing structures. In advance of structure replacement work, two soil borings will be advanced per structure location to pre-

characterize soil for off-site disposal in accordance with the ERE. The soil borings will be advanced to the proposed depth of the foundation at each location. The pre-characterization work is scheduled to begin in early October 2022. The structure replacement work will begin thereafter.

The borings will be advanced via vacuum excavation techniques to approximately 5 feet below ground surface (bgs), then they will be advanced using GeoProbe direct push techniques to a target depth of between 7 and 30 feet bgs, the anticipated depth of the replacement structure foundations. TRC will oversee the work, collect soil samples for field screening with a photo-ionization detector (PID) and laboratory analysis, and prepare the boring logs.

TRC will submit the soil samples for analysis of Massachusetts Department of Environmental Protection (MassDEP) disposal parameters plus hazardous waste characteristics to support pre-approval at off-site soil reuse facilities, landfills, asphalt batch or thermal desorption facilities, or other appropriate locations. The analytical parameters for the soil samples will be as follows are listed in the following Section 4.1.

Five new structure foundations (Structures 5011, 5011.5A, 5011.5, 5017A, and 5017B) will be concrete caissons that are expected to range from 8-10 feet in diameter and be 30 feet deep. The remaining eight structure foundations (Structures 5013A, 5013B, 5014A, 5014B, 5015A, 5015B, 5016A, and 5016B) will be direct embed foundations that are expected to be less than 6 feet in diameter and 7 to 15.5 feet deep. Structures 5011, 5013A, 5013B, 5014A, and 5014B consist of three foundations, Structures 5011.5 and 5011.5A consist of two foundations, and Structures 5015A, 5015B, 5016A, 5016B, 5017A, and 5017B consist of one foundation.

Both the soil boring activities and the structure replacement work will be conducted in accordance with the ERE, including the Soil Management Protocol and Health and Safety Protocol, which is included as Appendix A. Additionally, excavation work at the Site will be conducted in accordance with the Utility-Related Abatement Measure (URAM) provisions of the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000). Eversource will utilize a Licensed Site Professional (LSP) to oversee excavation and soil management activities at the Site. Soil management activities will be detailed in a project-specific Soil and Groundwater Management Plan.

Additional Notification and Reporting activities associated with this project are not discussed in this HASP. Refer to the project scope of work document and/or proposal for additional information.

4. Hazard Assessment

This HASP assumes that an ongoing hazard assessment process with Project Management and TRC Office Safety Coordinators (OSCs) will take place regularly (via meetings/teleconferences), supplemented by ad hoc communication on project safety needs, to ensure project work is conducted at a high level of technical excellence both safely and efficiently. Certain tasks are not covered by this HASP, including using rotary equipment, confined space entry, respiratory protection upgrades of Level C or greater, hot work, lockout/tagout, radioactive materials, or other hazards as determined by the Project Manager and OSC. Where the hazard assessment indicates the presence of these tasks and potential impact on the work involved, supplemental planning will be conducted and documented in a revised or higher-level HASP document.

4.1 Chemical Hazards

Based on prior investigations, the potential presence of the following contaminants may be expected in soil and/or groundwater at the project sites:

- Volatile Organic Compounds (VOCs);

- Semi-volatile Organic Compounds (SVOCs);
- Polychlorinated Biphenyls (PCBs);
- Total Petroleum Hydrocarbons (TPH);
- Pesticides/Herbicides;
- Massachusetts Contingency Plan (MCP) Metals;
- Reactive Sulfide and Cyanide;
- Ignitability;
- Conductivity;
- pH; and
- Toxicity Characteristic Leaching Procedure (TCLP) metals (as applicable).

Chemical protection may be required when contaminants are present to prevent dermal exposure.

TRC also anticipates the presence of hydrochloric acid (HCl), methyl alcohol (methanol), and nitric acid (HNO₃) in laboratory bottles used as sample preservatives. TRC anticipates the use of methanol and/or Alconox during decontamination procedures. Safety Data Sheets (SDS) for preservatives and decontamination products are provided in Appendix B. Sample bottles containing hazardous preservatives will be handled with care. Sample bottles will be checked for leaks and lids tightened. Chemical resistant gloves and safety glasses will be worn at all times when handling decontamination products (see Appendix C).

4.2 COVID-19 Safety

TRC employees and our subcontractors will follow current guidelines from TRC Corporate Safety and the U.S. Center for Disease Control regarding COVID-19.

4.3 Physical Hazards

A list of physical hazards anticipated to be at the site are listed here and described below. Other hazards are possible and should be evaluated using hazards identification. When hazards are identified that are not in the HASP (or not sufficiently covered by the HASP), the Project Manager and/or OSC shall be contacted to determine if additional safety measures should be incorporated at the site.

Edges/Material Handling	Manual Lifting	Trenches/Excavations
Electrical	Pressurized Fluids/Gases	Utilities
Heavy Equipment/Drill Rigs	Slips/Trips and Falls	Weather
Lighting	Traffic Hazards	COVID-19

Edges/Material Handling – Kevlar gloves are required to be worn at all times while performing tasks that have the potential for hand injuries. A glove selection guideline is presented in Appendix C. Impact resistant gloves shall also be utilized to the extent practical as appropriate for the task, particularly when using hand tools or other equipment that are high risk for digital injuries. TRC has a policy of using guarded blades for cutting tasks, fixed blade open knives are not to be used for work under this scope of work unless a variance is approved by the ECR Safety Manager.

Electricity – Electricity is all around and needs to be treated with caution. When working with electrical equipment it should always be grounded and wires should be covered by insulation. If the electrical cording is damaged the equipment should be marked for repair or disposal. Extra caution must be used when using electricity around water and if at all possible electrical equipment should not be used in wet conditions, but if required only equipment rated for outdoor and waterproof work shall be used. Work on/at substation and power generation will be conducted under the guidance of Eversource or other

appropriately qualified lineman/electrician and equipment will be deenergized, or isolated.

Heavy Equipment/Drill Rigs – Use caution around drill rigs, construction equipment and open excavations. Ensure the equipment operator is aware of the location of on-site personnel at all times to avoid potential injuries (e.g., maintain eye contact with the equipment operator). A spotter should be used to direct the movement of heavy equipment. A swing zone should be established with cones behind any excavators to prevent injury during movement of equipment. Exercise caution and wear protective equipment as noted herein around the equipment to guard against crushing and pinching hazards. On-site personnel will maintain a distance (approximately 10 feet) from mechanical hazards associated with heavy equipment. All field team members working near/with equipment with emergency shut-off switches should be aware of the locations and situations when these switches should be used.

Lighting – There may be areas/time within the work area(s) at the site which have no to poor lighting. Lighting shall be utilized to make the work area and nearby hazards illuminated.

Manual Lifting – Improper lifting can lead to a variety of injuries including back strains, muscle pulls and joint damage. It is important for all personnel to understand proper lifting techniques and to utilize safe lifting procedures when handling materials. Generally, no one should lift more than 50 lbs. without assistance and mechanical means should be used whenever possible.

Pressurized Fluids/Gases – All compressed gases are hazardous because of the high pressures inside the cylinders. Even at a relatively low pressure, gas can flow rapidly from an open or leaking cylinder. Damaged cylinders can become rockets/missiles or pinwheels resulting in severe injury and property damage. An unsecured or uncapped cylinder can become a cause of a major accident. Cylinders shall be secured when not in use and in transport, and as much as possible when in use. Eversource will confirm that high pressure electrical oil filled transmission lines and related system are depressurized and safe to access before allowing TRC to access piping, vents/pothead and other related appurtenances.

Slips/Trips and Falls – Be aware of uneven ground, and buried debris (metal, plastic, etc.), to avoid potential slip/trip/fall hazards, and use caution near open excavations. Maintain good housekeeping practices to minimize physical hazards. Any equipment utilized for work at height will be appropriately secured and 3-point contact will be utilized at all times while working on ladders.

Traffic Hazards – Driving to and from the site is considered a physical hazard. Directions and travel time to the site should be determined in advance (a.k.a. Journey Management Planning) and adequate time should be allocated to drive safely. The use of cellular phones is prohibited, and distracted driving should be avoided. Seatbelts should be worn at all times while the vehicle is moving. Use caution around traffic flow. Ensure proper traffic controls (e.g., signs, traffic cones, jersey barriers, etc., or where jurisdictionally required, police details) are in place prior to and throughout the work day where work takes place in or near traffic. Work personnel must wear ANSI-rated class 3 reflective traffic vests at all times.

Trenches/Excavations – Working in and around trenches or other excavations is a physical hazard. Do not enter an unprotected trench! Trenches 5 feet (1.5 meters) deep or greater require a protective system unless the excavation is made entirely in stable rock. Trenches 20 feet (6.1 meters) deep or greater require that the protective system be de-signed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer. Trenches or excavations shall be:

- Sloped for stability (the slope depends on the material);
- Cut to create stepped benched grades;
- Supported by trench box, or a post, beam, shores or planking;
- Excavated materials and heavy equipment must be at least 2 feet back from the edge of an excavation; and

- Egress from trenches or excavations must be provided at depths of 4 feet or greater. Travel distance to the egress must not exceed 25 feet.

Utilities – Underground and overhead utilities are present at the site. Prior to conducting any sampling or excavation Site reconnaissance is required; the site will be visually observed for potential overhead hazards (e.g., tree branches and wires), and equipment locations will be selected that are located at safe distances from the hazard. Massachusetts DigSafe® must be notified at least 72 hours prior to commencing excavation activities unless an emergency DigSafe authorization is obtained (which is typical during emergency spill response work). Use caution when heavy equipment may come in contact with utilities. Maintain a minimum distance of 10 feet from high voltage overhead utilities at all times. Proceed cautiously and with due diligence to minimize the possibility of contacting underground utilities. Work/ sampling directly on electrical lines/utilities will be conducted with the direct approval, oversight and clearance of appropriate stakeholders to ensure safety and comprehensive coordination of all concerns.

Weather – Heat and cold stress are a potential concern for on-site workers. As needed, breaks will be permitted to cool down, replenish fluids and/or warm up. Please refer to Appendix D for the signs, symptoms and precautions for cold and heat stress. Work may also occur during a time of year when thunderstorms are possible/likely. If thunder or lightning is noted by onsite personnel, work will cease until the storm passes (thunder and/or lightning ceases and is not observed over at least a 15-minute period). Personnel will seek shelter in buildings or vehicles.

COVID-19 – Workers must always be on alert when working around others given the circumstances of recent times. Being around other workers puts everyone at high risk for exposure to the COVID-19 virus. It is important that workers practice social distancing, wear the proper PPE and wash their hands as much as possible.

4.4 Biological Hazards

Blood-Borne Pathogens - Injuries received in the field may require assistance from a field team member with appropriate first aid/first responder training to perform first aid. Contact with blood and certain body fluids can contain pathogens that may be transmitted by contact with an open wound by the caregiver. The following precautions should be used when giving first aid:

- Use nitrile gloves to avoid contact with blood/fluids. Spent bandages and gloves used to perform first aid should be placed in a plastic bag and properly disposed.
- Blood/fluid should be cleaned from surfaces that may be contacted by other individuals.
- Use an appropriate barrier if required to perform rescue breathing.

Spiders – Spiders typically seek cover in dark protected areas. Common areas where spiders may be encountered are heavy vegetation and trees. Spiders also are found in basements and enclosed spaces where sampling drinking water supplies may be performed. Spider bites may cause swelling, pain and respiratory problems. Avoid dense vegetation and use caution when sampling water supplies from taps in dark poorly illuminated locations. If bitten, wash the area and use ice on the bite area to reduce swelling. If respiratory stress, significant pain or swelling is noted, or discoloration around the bite area occurs, seek immediate medical attention.

Stinging Insects – Like spiders, wasps and yellow jackets often nest in dense vegetation and in the ground, or in long-standing protective casings on monitoring wells and shielded gate locks. A sting from these insects can cause pain, swelling, and respiratory problems that may be life-threatening to certain individuals. If stung, remove stinger if present using tweezers or similar, and wash the area and use ice on the sting area to reduce swelling. If respiratory stress, significant pain or swelling is noted, or discoloration around the sting area

occurs, seek immediate medical attention.

Dogs and Wild Animals – Dogs often are not leashed and may be unfriendly. Bites from dogs and wild animals can cause infections or transmit disease. In general, it is best to not approach dogs even if they appear to be friendly, and wild animals should never be approached. If bitten, the area should be washed with soap and water. If the bite resulted in puncturing or tearing of the skin, the wound should be covered with a sterile dressing and medical attention should be sought immediately. A description of the dog should be noted and if possible, the dog’s owner.

Plants – There many types of plant which can cause irritation or allergic type reactions some of those encountered on TRC sites include the following:

Poison Ivy - the trademarks of this plant are its solid green, pointed leaves that hang from the stem in groups of three. It grows as both a vine and a shrub. The look of poison ivy can change with the seasons.

It produces yellow-green flowers in the spring and its green leaves can change to yellow and red in autumn.



Wild Parsnip/Giant Hogweed – Both plants are part of the carrot family and can grow to 15 feet tall. They look similar to giant Queen Anne’s lace with bristly stalks. Contact with the sap from the plant can cause phytophotodermatitis or irritation (sometimes severe) when skin is exposed to sunlight.

4.5 Radiological Hazards

None anticipated.

5. Personal Protection Monitoring

Personal Protection Monitoring Equipment and Use Recommendations: The following table outlines monitoring equipment needs and rationale. Note that an upgrade to a higher level of respiratory protection (C or higher) will warrant revision or addendum to this HASP and consultation with a TRC Certified Industrial Hygienist (CIH) before work recommences.

Table 5.1 Monitoring Equipment Use Recommendations			
Instrument	Use Code	Action Levels	Notes/Rationale
PID	O/C	5 ppmv	Recommended for VOC screening to monitor airborne VOC concentrations in breathing zone levels. If PID readings are sustained above 5 ppmv in the breathing zone for at least 5 minutes, move to an upwind location for

Table 5.1 Monitoring Equipment Use Recommendations			
Instrument	Use Code	Action Levels	Notes/Rationale
			15 minutes. After 15 minutes, measure again. If PID readings are still above 5 ppmv in the breathing zone, contact the OSC or TRC Safety Director to evaluate suitable response actions. Any upgrade in respiratory protection will be coordinated with the corporate health and safety director and/or the OSC. Withdraw from area if PID readings exceed 50 ppmv.

Notes:

Use code: R – Required, C – Condition specific, O – Optional, N/A – Not applicable
PID – Photoionization detector

Personal Protection Monitoring Procedures: The OHSO will measure organic vapor concentrations in the breathing zone using the PID during investigative activities. Fugitive dust emissions are not anticipated to be a concern. When required, air monitoring for dust will be performed using a combination of real-time dust monitoring upwind and downwind of the work area, and at a point near the closest receptor.

Personal Protection Exposure Limits: The following table summarizes anticipated concentrations and accepted exposure limits of chemicals potentially present within the Project Corridor, based on TRC’s review of regulated Disposal sites along the pipeline route.

Table 5.2 Known or Suspected Site Impacts		
Chemical of Concern	Detected Concentration	OSHA PEL/ACGIH TLV
PCBs	Less than 50 mg/kg	1,000 µg/m ³ (OSHA PEL for PCBs containing 42% chlorine) 500 µg/m ³ (OSHA PEL for PCBs containing 54% chlorine)

Table 5.3 Preservatives and Decontamination Products		
Chemical of Concern	On-site Usage and Potential Exposures	Control Method
Methyl Alcohol (methanol; MeOH)	Less than 20 ml quantities used for sample preservation. Air phase exposure is expected to be minimal and incidental to sample containerization.	200 ppm (OSHA PEL)
Hydrochloric Acid (HCl)	Less than 20 ml quantities used for sample preservation. Air phase exposure is expected to be minimal and incidental to sample containerization.	5 ppm (OSHA PEL)

Table 5.3 Preservatives and Decontamination Products		
Chemical of Concern	On-site Usage and Potential Exposures	Control Method
Nitric Acid (HNO ₃)	Less than 20 ml quantities used for sample preservation. Air phase exposure is expected to be minimal and incidental to sample containerization.	5 mg/m ³ (OSHA PEL)
Alconox	Small quantities used for decontamination. Air phase exposure is expected to be minimal and incidental to decontamination procedures.	5 mg/m ³ (OSHA 8-hour TWA for tetrasodium pyrophosphate)
Isobutylene	100 ppm gas for use during calibration of PID instruments	<p>No specific exposure limits for isobutylene (simple asphyxiant). Maintain oxygen levels above 19.5%.</p> <p>Before attaching regulator to cylinder, verify that the regulator is off.</p> <p>Before opening regulator, make sure that tubing connecting regulator to monitoring device/tedlar bag is secure.</p> <p>To use a tedlar bag, put bag control valve in an open position and close after filling.</p> <p>Before disconnecting gas from the instrument and/or tedlar bag, verify the regulator is closed.</p> <p>Empty bag of contents after calibration in a downwind position and/or to avoid inadvertent inhalation.</p>
<p>Table Notes: Exposure and hazard data obtained from the NIOSH Pocket Guide to Chemical Hazards</p> <p>ppm – parts per million OSHA – Occupational Safety and Health Administration ACGIH – American Conference of Industrial Hygienists TWA – Time Weighted Average</p> <p>TLV – Threshold Limit Value PEL – Permissible Exposure Limit REL – Recommended Exposure Limit UST – Underground Storage Tank</p>		

6. Personal Protective Equipment

TRC personnel will use Level D PPE as noted/modified below:

Table 6.1 Level D Personal Protective Equipment	
Item	Rationale/Notes
Hardhat	ANSI/ISEA Z89.1-2009 rated hard hats will be worn by personnel for protection against overhead hazards, including electrical.

Table 6.1 Level D Personal Protective Equipment	
Item	Rationale/Notes
Face Mask/Covering	Per TRC COVID-19 Guidelines for Field Activities (CP052.1), staff are recommended to wear face masks/coverings while in proximity of other workers or while indoors in common areas to mitigate potential COVID-19 exposure.
Hearing protection	Hearing protection will be worn by all personnel exposed to at least 85 dB of sound during the workday. A good rule of thumb to use in determining whether background noise is 85 dB or higher is if you must shout to be understood by somebody about one arm-length away, that background noise is hazardous.
Safety boots (steel toe/steel shank)	Safety-toe boots will be worn by all personnel during project work described in this HASP and at all times on site.
Eye protection (safety glasses)	ANSI rated eye protection (Z87) will be worn when personnel are exposed to flying debris, chemical vapors or particulates. Chemical splash goggles will be worn for protection against chemical gases, vapors or particulates. Safety glasses will be worn for protection against flying objects.
Safety vest	Utilize in areas in or near vehicular traffic of any kind on or off property.
Chemical Protective Clothing (CPC) and Gloves	CPC and gloves will be inspected according to TRC's Personal Protective Equipment Program. CPC will be chosen with assistance from the OSC according to the chemical hazards present. Gloves are to be changed between samples to avoid cross-contamination.
Kevlar work gloves	As indicated herein, use Cut and Abrasion Resistance Level 2 gloves when necessary for hand protection during field tasks. See Appendix C for a Glove Selection Guide. Leather work gloves are expressly prohibited.
Electrical Safety	8 cal/cm ² Flame Resistant (FR) clothing

A basic first aid kit will be readily available on-site in the event of an emergency.

Fire extinguisher should be present with the rig or excavation equipment. All personnel working on or around heavy equipment should know the location of and how to operate the fire extinguisher.

7. Personnel and Equipment Decontamination Plan

For the work within the US2 property, decontamination will occur in accordance with the Risk-Based Cleanup Plan for the site. At minimum, personnel and equipment decontamination will include the following:

- Equipment Decontamination

There is a possibility that site soils contacted during excavation activities contain EPH, VOCs, PCBs and/or metals. All equipment that comes in contact with contaminated soil or groundwater needs to be decontaminated before it is removed from the site. To properly decontaminate equipment that comes in contact with contaminated soils the following procedure should be followed:

1. Brush soil off equipment that has come in contact with soil. The soil shall be returned to the location (excavation) from which it came;
2. Wipe parts of the equipment that came in contact with the soil down with cloth, rags or heavy-duty paper towel damp with nonphosphate concentrated laboratory-grade soap (i.e. Alconox© or Liquinox©);
3. Then follow up with a wipe from a separate cloth, rags or heavy-duty paper towel damp with

- potable water; and
- 4. PPE and cloth, rags or heavy-duty paper towels can be disposed of in the regular waste stream.

- Personnel Decontamination

In general, contamination of personnel shall be prevented through the use of PPE. At minimum, nitrile gloves shall be worn during contact with impacted soils or chemical in addition to other Level D PPE.

8. Required Personnel Training

TRC field personnel will have the training outlined in the table below before on-site work activities begin:

Table 8.1 Project Training Requirements.				
(* required for all sites; but minimum recommended)				
Check "A" if training required for everyone, and check "T" if training required for specific task or per notations.				
A	T	SUBJECT	REFERENCE	
			29 CFR 1910	29 CFR 1926 or Other
<input checked="" type="checkbox"/>	<input type="checkbox"/>	HAZWOPER 40 hour*	1910.120	1926.65
<input type="checkbox"/>	<input type="checkbox"/>	3-Day HAZWOPER Supervised On-site*	1910.120	1926.65
<input checked="" type="checkbox"/>	<input type="checkbox"/>	8-Hour HAZWOPER Refresher*	1910.120	1926.65
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8-Hour Supervisor HAZWOPER*	1910.120	1926.65
<input type="checkbox"/>	<input checked="" type="checkbox"/>	First Aid, CPR* ¹	1910.151	1926.23,,50
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hazard Communication (HAZCOM)	1910.1200	1926.59
<input type="checkbox"/>	<input type="checkbox"/>	Asbestos Awareness Training	29 CFR 1926.1101	1926.59
Client-specific training: <u> CIP </u>		<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Specify	
Client-specific training: _____		<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Specify	
Client-specific training: _____		<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Specify	

Note:

¹ Per the TRC Health and Safety Policy and Procedure Manual, each TRC project will have at least one certified CPR/first aid trained person on site at all times. All Project Managers and anyone acting as the on-site Health and Safety Officer must be current in First Aid/CPR.

Project training requirements beyond those provided in the above table will require a HASP revision/upgrade or concurrence of the TRC Safety Director or ECE Safety Manager.

9. Medical Monitoring

Medical monitoring will apply routinely to all employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year (40 CFR 1910.120[f][2][i]). Said TRC field personnel will have the medical surveillance outlined in the table below prior to commencing on-site work activities.

Table 9.1 Medical Surveillance Required			
*Baseline is minimum recommended.			
	29 CFR 1910	29 CFR 1926 or Other	Notes
<input checked="" type="checkbox"/> HAZWOPER Physical - Baseline*	1910.120	1926.65	
<input checked="" type="checkbox"/> HAZWOPER Physical – Annual	1910.120	1926.65	
<input type="checkbox"/> HAZWOPER Physical - Biennial*	1910.120	1926.65	

Client-specific drug testing ¹	<input type="checkbox"/> Not Applicable <input type="checkbox"/> Specify
Client-specific medical monitoring ¹	<input type="checkbox"/> Not Applicable <input type="checkbox"/> Specify
site-specific medical monitoring:	<input type="checkbox"/> Not Applicable <input type="checkbox"/> Specify

Note:

¹ Client required drug testing or medical monitoring should be coordinated through the Project Manager.

TRC has a Drug and Alcohol-Free Workplace Policy (TRC Academy Course #900013753). TRC may require employees or subcontractors to be tested upon reasonable suspicion, following accidents or incidents during work activities, or during travel to or from a project site. Client policies may be stricter in regard to procedures following an accident. Project Managers must be aware of these and inform employees and subcontractors of any additional requirements.

10. General Safety Requirements

The general safety rules listed below apply to all TRC personnel present at the site.

- A tailgate health and safety meeting will be held with all field team members each day prior to the start of work.
- Adhere to all requirements of this HASP.
- Wear protective clothing appropriate for the designated level of protection and decontaminate before entering clean areas when applicable.
- Use safety equipment in accordance with OSHA guidance and labeling instructions.
- Maintain safety equipment in good condition and proper working order and make sure that the equipment is calibrated prior to use.
- Immediately report unsafe acts or conditions to the Project Manager and OSC.
- Eating, drinking, and smoking are prohibited on site, except in designated areas.
- Employees shall utilize good hygiene practices by washing hands before eating, drinking, or smoking in designated areas.
- Maintaining a position upwind from intrusive activities is encouraged.
- The emergency shutoff switch should be demonstrated to be working prior to initiating drilling.
- An adequately stocked first-aid kit will be maintained at the work site.

11. Tailgate Safety Meetings

- A tailgate safety meeting will be conducted daily prior to commencement of the work day (see checklist provided in Appendix E).
- Topics covered by the tailgate safety meeting will include, but not be limited to, potential hazards, weather forecast, PPE, emergency procedures and the route to the medical facility.
- Safety meetings must also be held to address modifications to this HASP and any addenda prepared to supplement the HASP.
- Subcontractors and personnel present at the tailgate safety meeting shall be required to sign an acknowledgement form after each meeting.

12. Emergency/Contingency Plan

Before commencing any on-site operations, the TRC OHSO will advise all personnel of potential emergencies. Personnel will be advised on their roles in the event of an emergency, and the steps to take for a timely and controlled response.

Communication networks/chain of command - All on-site personnel will communicate any accident, injury or near miss to the TRC OHSO who will provide instruction on how to proceed further.

First Aid / Safety Equipment - First aid equipment should be readily available in the event of an emergency. First aid equipment should include a well-stocked first aid kit, fire extinguisher and emergency eye wash.

Evacuation Plans and Refuge Area - All personnel should safely remove themselves from danger in the event of an emergency and safely access the refuge area. The refuge area should be in an upwind location a safe distance from the work zone. The refuge area will be determined during the daily safety briefing.

Notifications of Fire, Police and Emergency Facilities - In the event of an emergency that cannot be controlled by on-site personnel, the appropriate emergency contact shall be notified. All personnel shall remove themselves from the area of danger and wait for the arrival of help in the predetermined refuge area.

Non-Emergency Medical Assistance: If an injury does occur and it is not life threatening, then the employee or employee's supervisor/project manager should contact WorkCare as soon as possible, but within the first hour after an injury. WorkCare information is provided in Appendix F. This information will help assist the injured employee by connecting them with instant access to a medically qualified professional in order to provide guidance on appropriate first aid measures and medications.

Table 12.1 Non-Emergency Telephone Number		
Service	Telephone Numbers	Notes
TRC Work Care Service	888-449-7787	See Appendix F

Table 12.2 Emergency Telephone Number		
Service	Emergency Telephone Numbers	Direct Telephone Numbers
Police: Pittsfield Police Department	Emergency: 911	(413) 448-9700
Fire: Pittsfield Fire Department		(413) 448-9764
Ambulance: County Ambulance Services		(413) 499-2527
Poison Control: Poison Control Center	(800) 222-1222	
CHEMTREC:	800-424-9300 (Customer No. CCN 671126)	

Nearest Hospital:

Berkshire Medical Center
 725 North St. Pittsfield, MA 01201
 (413) 447-2000

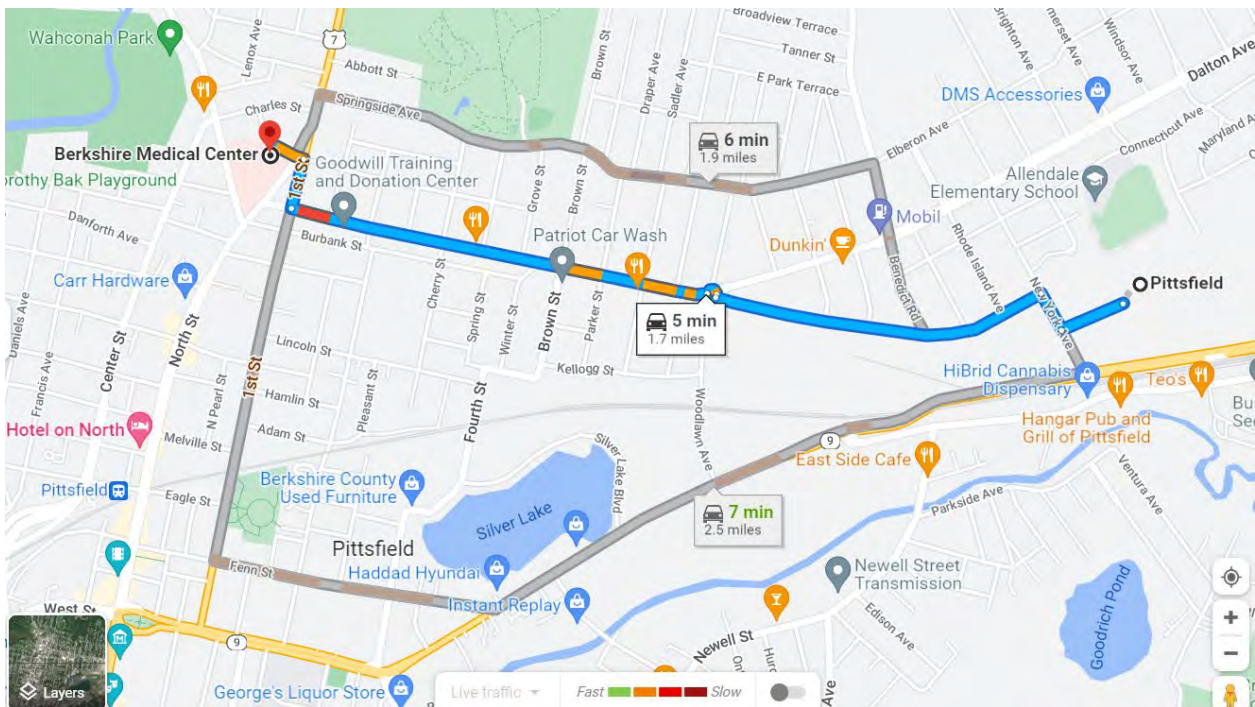
Directions to Hospital:

Berkshire Medical Center
725 North St. Pittsfield, MA 01201
(413) 447-2000

Drive along Tyler St
2 min (0.8 mi)

Drive along Tyler St
3 min (0.8 mi)

Turn left at Stoddard Ave



13. Stop Work

TRC personnel are all empowered, responsible, authorized and obliged to stop work at any time we feel that our safety or the safety of others is, or could be, compromised. When a stop work occurs the PM and/or OSC should be contacted to discuss the reason for the stop work and the corrective action(s) needed to move resume work safely. Work on an activity shall not continue until the unsafe condition has been corrected.

The Stop Work Authority (SWA) process involves a stop, notify, correct and resume approach for the resolution of a perceived unsafe condition, act, error, omission or lack of understanding that could result in an undesirable event. All TRC employees have the authority to stop work when the control of the HSE risk is not clearly established or understood. All TRC employees have the authority and obligation to stop any task or operation where concerns or questions regarding the control of HSE risk exist.

14. Safe Catches

A “Safe Catch” is a potential hazard or incident that has not resulted in any personal injury. Unsafe working conditions, unsafe employee behaviors, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone’s responsibility to report and/or correct these potential incidents immediately. Please complete the form provided in Appendix G as a means to report these “Good Catch” situations and submit to your local OSC Representative and Mike Glenn, National Safety Director.

15. Observations

Note that the Project Manager and/or OSC may notify field staff that their site activities may be the subject of Safety Observation, an integral part of the continuous improvement safety culture promoted at TRC. If subject to an observation, please note the following:

- The Observation will tend to focus on the highest risk activity (as a general example, drilling in a public right-of-way).
- Follow-up observations may need to occur on previous observes, depending on prior data collected.
- The observer’s preparation before visiting the site will be a review of the HASP, JSAs, client-specific requirements, etc., and a review of the work scope with the Project Manager to ensure the context of the work is well understood in advance.
- Review items may include PPE, body use and positioning, work environment, operating procedures, and tools and equipment.
- The observation should last between 30 and 60 minutes.

Both positive and negative observations are candidates for documentation and later discussion. The overarching goals are to identify and correct questionable practices, and to identify and promote good, safe and efficient practices. It is a data gathering process that will allow TRC safety specialists to identify root causes for safety issues in both categories to better inform policy decisions.

16. Incident Reporting

In case of an accident, TRC personnel must report the incident immediately to their project manager/supervisor and/or OSC, and client’s representative, and follow the TRC Incident Response and Reporting Process (see Appendix H In Case of Emergency). Required forms must be completed within 24 hours following the incident. If neither is available, the incident shall be reported to the TRC Safety Director

(Mike Glenn). Accident/injury/exposure information must be recorded per TRC policy and will be the basis of any accident/incident investigations.

17. Acknowledgement

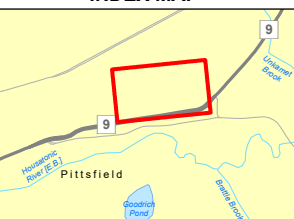
All TRC personnel operating under this HASP must read the HASP and sign the acknowledgment page in Appendix I.

Figure 1
Site Plan



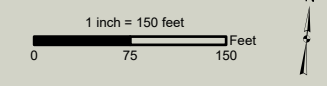
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INDEX MAP



- Existing Structure to be Removed
- Proposed Structure
- Overhead Eversource Line
- Railroad
- ▭ Existing Right-of-Way
- ▭ Parcel Boundary
- - - 2' Contour
- 10' Contour
- ▭ Hill 78 Area

Map Notes:
 Data valid as of February 2022.
 Basemap: 2021 Orthophotographs, MassGIS
 Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs.
 ROW, Structure, and Overhead Line data provided by Eversource.
 This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.



NO.	DATE	REVISIONS

EVERSOURCE ENERGY

1715/1816 Line - Structure Replacement Project

PITTSFIELD, MA MAP SHEET 1

Date: June, 2022

TRC

Appendix A
Grant of Environmental Restriction and Easement – Hill 78
Area-Remainder



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GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT

42 U.S.C. § 9601 *et seq.*, and M.G.L. c. 21E, § 6.

[Note: This instrument is established as an institutional control for a federal Superfund Removal Site, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604.]

EPA Site Name: GE-Pittsfield/Housatonic River Site
DEP Site Name: GE Pittsfield Disposal Sites
DEP Disposal Site No. GECD160

This GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT (the "Grant") is made as of this 8th day of June, 2011, by the General Electric Company ("Grantor"), a corporation organized and existing under the laws of the State of New York, duly authorized to do business in Massachusetts, with a principal office in Pittsfield, Berkshire County, Massachusetts.

W I T N E S S E T H :

WHEREAS, Grantor is the owner in fee simple of certain parcels of land located in Pittsfield, Berkshire County, Massachusetts, between the Allendale School property and various other properties on the north, New York Avenue on the west, old Merrill Road on the south, and Plastics Avenue on the east, which parcels consist of the following:

- (a) A parcel of land with the buildings and improvements thereon, numbered as Tax Parcel No. K11-7-2, pursuant to: (i) a deed of Pittsfield Industrial Development Corporation ("PIDC") to the General Electric Company ("GE"), dated December 30, 1927, recorded in the Berkshire Middle District Registry of Deeds on December 31, 1927, in Book 434, Page 573; (ii) a deed of Charles J. Germano, trustee under the will of Ernesta Germano, to GE, dated February 28, 1969, recorded in said Registry of Deeds on February 28, 1969, in Book 871, Page 202; (iii) a deed of Charles J. Germano et al. to GE, dated October 31, 1969, recorded in said Registry of Deeds on October 31, 1969, in Book 883, Page 11; (iv) a deed of Viola M. Scarafoni et al. to GE, dated March 11, 1968, recorded in said Registry of Deeds on March 13, 1968, in Book 853, Page 133; (v) a deed of Floyd W. Stewart to GE, dated March 28, 1942, recorded in said Registry of Deeds on March 30, 1942 in Book 505, Page 181; (vi) a deed of PIDC to GE dated December 10, 1927, recorded in said Registry of Deeds on December 30, 1927, in Book 433, Page 587; and (vii) a deed of PIDC to GE dated September 23, 1954, recorded in said Registry of Deeds on October 21, 1954, in Book 617, Page 577;

- (b) A parcel of land with the buildings and improvements thereon, numbered as Tax Parcel No. K11-7-201, pursuant to a deed of PIDC to GE, dated December 30, 1927, recorded in said Registry of Deeds on December 31, 1927, in Book 434, Page 573; and
- (c) A parcel of vacant land, numbered as Tax Parcel No. K11-7-1, pursuant to a deed of Pittsfield Generating Company, L.P., to GE, dated March 21, 2008, recorded in said Registry of Deeds on March 31, 2008, in Book 4019, Page 167;

WHEREAS, the above-referenced parcels numbered as Tax Parcels Nos. K11-7-201 and K11-7-1 and a portion of the above-referenced parcel numbered as Tax Parcel K11-7-2, which jointly are more particularly bounded and described in Exhibit A attached hereto and made a part hereof (the "Property"), are subject to this Grant. The Property is shown a plan entitled "Plan of Property, Hill 78 Area-Remainder," consisting of two sheets, prepared by Hill Engineers, Architects, Planners, Dalton, Massachusetts, dated February 11, 2011, and recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Plat J, No. 59;

WHEREAS, the Property and certain restricted areas of the Property referred to as the Open Soil/Vegetated Area, the Other Ground-Covering Feature Area, and the Groundwater Response Action Component Area (if any), all as defined below (collectively, all of the foregoing restricted areas comprising the "Restricted Area"), are subject to covenants, restrictions, easements and other rights and obligations under this Grant; the Restricted Area being shown on a plan entitled "Plan of Restricted Area, Hill 78 Area-Remainder," consisting of two sheets, prepared by Hill Engineers, Architects, Planners, Dalton, Massachusetts, dated February 11, 2011, and recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Plat J, No. 60, and a copy of which is attached hereto as Exhibit B and made a part hereof; as such plan may be revised by Grantor (or by GE if GE is no longer the Grantor, with notice to Grantor), with the approval of Grantee and in accordance with the Consent Decree and the Statement of Work attached thereto (as defined below), to show the location of any Groundwater Response Action Component Area (to the extent that any such response action to address groundwater contamination at the Site has not been completed as of the date of this instrument); said plan, with any such revision, being collectively referred to herein as the "Plan of Restricted Area";

WHEREAS, the UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, a duly constituted agency organized under the laws of the United States of America and having a regional office at Five Post Office Square, Suite 100, Boston, Massachusetts 02109-3912 ("EPA"), has identified a site, comprising the GE facility in Pittsfield, Massachusetts, the Housatonic River adjacent to and downstream of the GE facility, and other areas, all as more particularly described in the Consent Decree (defined below), known as the "GE-Pittsfield/Housatonic River Site" (the "Site"), as a result of the release of hazardous substances at or from the GE facility, as such terms are defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. 9601 *et seq.*;

WHEREAS, the MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, a duly constituted agency organized under the laws of the Commonwealth of Massachusetts and having an office at One Winter Street, Boston, MA 02108 (“DEP”), as a result of the release of oil and/or hazardous materials at the Site, as those terms are defined in the Massachusetts Oil and Hazardous Materials Release, Prevention and Response Act, M.G.L. c. 21E (“Chapter 21E”), has placed the Site and/or portions of the Site on the Massachusetts List of Confirmed Disposal Sites and Locations To Be Investigated, pursuant to Chapter 21E, and has assigned to the portion of the Site containing the Property DEP Disposal Site Number GECD160, pursuant thereto;

WHEREAS, EPA regulates activities at hazardous substance disposal sites pursuant to CERCLA and the National Contingency Plan, 40 C.F.R. 300.400 *et seq.*, as amended (the “NCP”), and DEP regulates activities at disposal sites pursuant to Chapter 21E and the Massachusetts Contingency Plan, 310 C.M.R. 40.0000, as amended (the “MCP”), respectively;

WHEREAS, the Property is situated within the Site and specifically within an area of the Site known as Hill 78 Area-Remainder;

WHEREAS, GE has entered into a Consent Decree in connection with the Site with the United States, the State of Connecticut, and the Commonwealth of Massachusetts (the “Commonwealth”) in *United States of America, State of Connecticut, and Commonwealth of Massachusetts v. General Electric Company*, Civil Action No. 99-30225-MAP *et seq.*, entered by the United States District Court for the District of Massachusetts on October 27, 2000 (the “Consent Decree”);

WHEREAS, the Consent Decree and an accompanying Statement of Work (“SOW”) require the performance of certain Response Actions (as defined below) at the Site or portions thereof;

WHEREAS, the Response Actions are ongoing at the Site and include Response Actions at the Property;

WHEREAS, EPA has determined and the Consent Decree requires that certain easements, rights, obligations, covenants, and restrictions, as more particularly set forth below, are necessary at the Property to conduct and ensure the protectiveness and integrity of the Response Actions;

WHEREAS, DEP has provided EPA with review and comment on the Response Actions, and agrees with the need for easements, rights, obligations, covenants, and restrictions, as aforesaid;

WHEREAS, because the Response Actions, as they affect the Property, are a Removal Action under CERCLA, EPA has requested that DEP accept a grant of such easements, rights, obligations, covenants, and restrictions, as aforesaid, pursuant to its authority under M.G.L. c. 21E, § 6;

WHEREAS, Grantor has agreed to grant the aforesaid easements, rights, obligations, covenants and restrictions, as more particularly set forth below, to DEP and its assigns pursuant to the Consent Decree;

NOW, THEREFORE, pursuant to the terms of the Consent Decree and in consideration of EPA's and the Commonwealth's agreement on behalf of DEP to settle certain of their claims against Grantor pursuant thereto, the receipt and sufficiency of which consideration is hereby acknowledged, GRANTOR does hereby COVENANT AND DECLARE that the Property shall be subject to the restrictions on activity and use set forth below, and does GIVE, GRANT AND CONVEY to DEP ("Grantee"), with QUITCLAIM COVENANTS, (1) the perpetual right to enforce said activity and use restrictions, and (2) an environmental protection and access easement of the nature and character, and for the purposes hereinafter set forth, with respect to the Property (collectively, the "Environmental Restriction and Easement").

Said Environmental Restriction and Easement is subject to the following terms and conditions:

1. Purpose. It is the purpose of this instrument to establish covenants, restrictions and easements, all of which shall run with the land, to facilitate the cleanup of environmental contamination and to protect human health and the environment by reducing the risk of exposure to contaminants.

2. Definitions. For purposes of this instrument, the following terms shall have the following meanings:

A. "Grantor" includes the Grantor or any successor of Grantor in title to the Property.

B. "Groundwater Response Action Component Area" shall mean those areas of the Property (if any) designated as such on the Plan of Restricted Area; generally such areas contain components of the response action for groundwater and/or non-aqueous-phase liquid ("NAPL") at the Property, if any.

C. "Health and Safety Protocol" shall mean the Health and Safety Protocol attached hereto as Exhibit D and incorporated herein by reference.

D. "Licensed Site Professional" or "LSP" each shall mean a hazardous waste site cleanup professional, as defined in M.G.L. c. 21A, § 19, holding a valid license issued by the Board of Registration of Hazardous Waste Site Cleanup Professionals, pursuant to M.G.L. c. 21A, §§ 19 through 19J.

E. "Open Soil/Vegetated Area" shall mean, collectively, those areas of the Property designated as such on the Plan of Restricted Area, as more particularly bounded and described in Exhibit C attached hereto and made a part hereof; such areas consist of any and all areas of the Property other than the Other Ground-Covering Feature Area.

F. "Other Ground-Covering Feature Area" shall mean, collectively, those areas of the Property designated as such on the Plan of Restricted Area, as more particularly bounded and described in Exhibit C attached hereto and made a part hereof; such areas consist of certain building and tank foundations and certain portions of paved road that will be maintained as paved.

G. "Recorded and/or Registered" and its various conjugations shall mean, as to unregistered land, recorded with the Berkshire Middle District Registry of Deeds, and as to registered land, filed with the Berkshire County Land Registration Office; each conjugated as appropriate.

H. "Response Actions" shall mean the environmental response actions required to be undertaken at the Site or portions thereof pursuant to the Consent Decree and SOW (designated as Removal Actions under CERCLA), including (but not limited to) source control measures, soil removal, capping of contaminated soil, groundwater monitoring and (if necessary) response actions to address groundwater contamination, other actions to address existing contamination, institutional controls in the nature of restrictive covenants to prevent certain activities and uses at various properties, and certain operation and maintenance activities necessary to maintain the effectiveness of the response actions.

I. "Soil Management Protocol" shall mean the Soil Management Protocol attached hereto as Exhibit E and incorporated herein by reference.

J. "Statement of Work" or "SOW" shall mean the Statement of Work for Removal Actions Outside the River, which is Appendix E of the Consent Decree.

K. "Utility Work" shall mean the maintenance and repair of pipes, lines and other such conveyances for water, sewer, storm-water, steam, gas, fuel oil, electricity, and communications, but not the installation of new pipes, lines, or other such conveyances.

3. Restricted Activities and Uses. Except as provided in Paragraph 4 ("Permitted Activities and Uses"), Paragraph 6 ("Conditional Exceptions From Restricted Activities and Uses"), Paragraph 7 ("Applicability"), and/or Paragraph 8 ("Emergency Excavation"), Grantor shall not perform, suffer, allow or cause any person to perform any of the following activities or uses in, on, upon, through, over or under the Property or portions thereof:

- A. residential activity or use;
- B. day care and educational (for children under eighteen (18) years of age) activity or use;
- C. community center (for children under eighteen (18) years of age) activity or use;
- D. recreational activity or use;

E. agricultural activity or use;

F. extraction, consumption, or utilization of groundwater underlying the Property, including without limitation, extraction for potable, industrial, irrigation, or agricultural use;

G. excavation, digging, drilling, or other intrusive activity into or disturbance of the surface of the ground and/or the underlying soil; and

H. any activity or use that would interfere with, or would be reasonably likely to interfere with, the implementation, operation, or maintenance of any aspect or component of the Response Actions already constructed or under construction, or of which Grantor has notice, including, without limitation, interference with any groundwater contaminant containment measures or barriers situated within the Groundwater Response Action Component Area (if any), or any groundwater monitoring wells or wells utilized for the recovery of groundwater or NAPL from the subsurface.

4. Permitted Activities and Uses. Grantor reserves the right to perform, suffer, allow or to cause any person to perform any activity in, on, upon, through, over or under the Property, or make any use of the Property, that is not restricted by the provisions of this Environmental Restriction and Easement. In addition, Grantor may perform, suffer, allow or cause any person to perform the uses and activities set forth below in, on, upon, through, over or under the Property and the Restricted Area or portions of either. Except for the permitted activities and uses allowed pursuant to subparagraphs 4.A and 4.B below, and except as otherwise provided in subparagraph 4.E below, all such activities and uses shall only be conducted in accordance with the Soil Management Protocol and the Health and Safety Protocol, as applicable, as set forth below. Grantor shall restore the Property, or any portion thereof, affected by any activity or use permitted under subparagraphs 4.A through 4.E to its prior condition immediately upon completion of such activity or use, also in accordance with the Soil Management Protocol and the Health and Safety Protocol (except for permitted activities and uses allowed pursuant to subparagraph 4.A and 4.B and except as otherwise provided in subparagraph 4.E below).

A. Surface Excavation of Ten (10) Cubic Yards or Less. Notwithstanding the restrictions set forth in subparagraph 3.G, excavation, digging, drilling, or other intrusive activity into or disturbance of the surface of the ground and/or the underlying soil in the Open Soil/Vegetated Area, solely within the top one (1) foot of the surface of the ground, of no more than ten (10) cubic yards of such materials, in the aggregate, on a per project basis, shall be permitted. Grantor shall not segment a project to avoid the ten (10) cubic yard limitation established by this subparagraph 4.A. In conducting activities and uses pursuant to this subparagraph, Grantor shall comply with the following requirements:

i. Such surface excavation shall be conducted in a timely fashion so as to minimize the time when excavated areas are open and/or excavated materials are stored in the Open Soil/Vegetated Area to the minimum time practicable for such activity or use;

provided, however, that the duration of such excavation or storage shall not exceed fourteen (14) days.

ii. Grantor shall take appropriate measures to secure stored soil and to control erosion, dust, and runoff.

iii. Grantor shall (a) backfill excavations to the original surface grade with clean soil or soil excavated from the Open Soil/Vegetated Area solely from the top one (1) foot of the surface of the ground; and (b) reestablish any disturbed vegetation.

iv. Grantor shall provide Grantee with written notice of each such surface excavation project no later than thirty (30) days after completion, and shall use the form attached hereto as Exhibit F for such notice, as such form may be modified in writing from time to time by Grantee; provided, however, that any such project where the total amount of soil that has been or will be excavated is less than five (5) cubic feet shall not be subject to the foregoing notification requirement.

v. Grantor shall not store or dispose of any excavated material outside of the Open Soil/Vegetated Area.

B. Surface Excavation of any Volume. Notwithstanding the restrictions set forth in subparagraph 3.G, excavation, digging, drilling, or other intrusive activity into or disturbance of the surface of the ground and/or the underlying soil in the Open Soil/Vegetated Area, solely within the top one (1) foot of the surface of the ground, of any volume of such materials shall be permitted. In conducting work pursuant to this subparagraph, Grantor shall comply with the requirements listed above in subparagraphs 4.A.i through 4.A.iv, and the following additional requirements:

i. Grantor shall utilize an LSP to oversee the surface excavation permitted pursuant to this subparagraph.

ii. Disposal of excavated materials off of the Property shall be permitted provided that an LSP oversees such disposal and that the Grantor complies with the provisions of Paragraph 9 of the Soil Management Protocol regarding off-Property disposal of soil and other materials.

C. Surface and/or Subsurface Excavation of Ten (10) Cubic Yards or Less. Notwithstanding the restrictions set forth in subparagraph 3.G, excavation, digging, drilling, or other intrusive activity into or disturbance of the surface of the ground and/or the underlying soil in the Open Soil/Vegetated Area and the Other Ground-Covering Feature Area, at any depth, of no more than ten (10) cubic yards of such materials, in the aggregate, on a per project basis, shall be permitted. Grantor shall not segment a project to avoid the ten (10) cubic yard limitation established by this subparagraph 4.C. In conducting work pursuant to this subparagraph, Grantor shall comply with the following requirements:

i. Grantor shall utilize an LSP to oversee the excavation permitted pursuant to this subparagraph, including without limitation, the disposal of soil and other material. All activities and uses permitted pursuant to this subparagraph shall be conducted in accordance with the Soil Management Protocol and the Health and Safety Protocol.

ii. Such excavation shall be conducted in a timely fashion so as to minimize the time when excavated areas are open and/or excavated materials are stored on the Property to the minimum time practicable for such activity or use; provided, however, that the duration of such excavation shall not exceed fourteen (14) days. Any materials (e.g., soils, sediments, and personal protective equipment) excavated, collected, placed, used and/or stored on the Property or elsewhere, in connection with such excavation, shall be properly disposed of, or shipped or removed from the Property for proper disposal, within ninety (90) days from the date of such initial storage or within such longer time as is permitted under any applicable state or federal law or regulation.

iii. Grantor shall provide Grantee with written notice of each such project no later than thirty (30) days after completion. Grantor shall use the form attached hereto as Exhibit F for such notice, as such form may be modified in writing from time to time by Grantee.

D. Surface and/or Subsurface Excavation for Utility Work. Notwithstanding the restrictions set forth in subparagraph 3.G, excavation, digging, drilling, or other intrusive activity into or disturbance of surface of the ground and/or the underlying soil in the Open Soil/Vegetated Area and the Other Ground-Covering Feature Area, at any depth, for the purpose of Utility Work, shall be permitted. In conducting Utility Work pursuant to this subparagraph, Grantor shall comply with the following requirements:

i. All such Utility Work shall be conducted in accordance with the Soil Management Protocol and the Health and Safety Protocol (except as provided in Paragraph 3 of the latter Protocol). Grantor shall utilize an LSP to oversee all such activities and uses, including without limitation, the disposal of soil and other materials.

ii. Such Utility Work shall be conducted in a timely fashion so as to minimize the time when excavated areas are open and/or excavated materials are stored on the Property to the minimum time practicable for such activity or use; provided, however, that the duration of such excavation shall not exceed fourteen (14) days. Any materials (e.g., soils, sediments, and personal protective equipment) excavated, collected, placed, used and/or stored on the Property or elsewhere, in connection with such excavation, shall be properly disposed of, or shipped or removed from the Property for proper disposal, within ninety (90) days from the date of such initial storage or within such longer time as is permitted under any applicable state or federal law or regulation.

iii. Grantor shall give Grantee fifteen (15) days' advance written notice prior to conducting any activities and uses pursuant to this subparagraph 4.D.

iv. Grantor shall provide Grantee with written notice of each such project no later than thirty (30) days after completion. Grantor shall use the form attached hereto as Exhibit F for such notice, as such form may be modified in writing from time to time by Grantee.

E. Sampling and Groundwater/NAPL Recovery. Notwithstanding the restrictions set forth in subparagraphs 3.F and 3.G, soil and groundwater sampling and groundwater/NAPL recovery activities shall be permitted in the Open Soil/Vegetated Area and the Other Ground-Covering Feature Area; provided that Grantor shall utilize an LSP to oversee such sampling or recovery; and further provided that all such activities and uses shall be conducted in accordance with the Soil Management Protocol and the Health and Safety Protocol. While GE continues to own and control the Property, the foregoing requirements to utilize an LSP and to comply with the Soil Management Protocol shall not apply to soil or groundwater sampling or groundwater/NAPL recovery activities conducted by or under the oversight of GE personnel or contractors familiar with the terms of this Grant and pursuant to a plan for sampling/recovery that takes into account contaminated media at the Property and has been approved by EPA or DEP, with notice to Grantee. The foregoing sentence shall run to the benefit of GE alone, not to any successors or assigns, and shall not run with the land.

F. Groundwater Extraction from Certain Water Supply Wells. Notwithstanding the restrictions set forth in subparagraph 3.F, extraction of groundwater from wells numbered ASW-3, ASW-4, and ASW-5, as shown on the Plan of Restricted Area, for industrial use in accordance with the provisions of a Water Withdrawal Permit (Permit Number 9P-1-02-236.01) issued pursuant to the Massachusetts Water Management Act and a copy of which is attached as Exhibit G, as such Permit may be extended, amended, renewed, and/or reissued but only for wells numbered ASW-3, ASW-4, and ASW-5, shall be permitted, so long as such extraction complies with the requirements of said Permit (as it may be extended, amended, renewed, and/or reissued) and all other applicable laws, regulations, or permits.

G. All other restrictions set forth in Paragraph 3 (“Restricted Activities and Uses”) shall apply to the activities and uses permitted to this Paragraph 4 (“Permitted Activities and Uses”).

5. Obligations and Conditions. Grantor affirmatively agrees to perform the following activities at the Property:

A. Any utility repair, maintenance or installation conducted in confined spaces shall comply with the Health and Safety Protocol.

B. Grantor shall maintain the pavement and building and tank foundations in the Other Ground-Covering Feature Area, including performance of any necessary repair activities to ensure that the pavement and building/tank foundations in that area remain intact.

6. Conditional Exceptions from Restricted Activities and Uses. Grantor may request from Grantee a conditional exception from one or more of the restricted activities or uses set

forth in Paragraph 3 (“Restricted Activities and Uses”) for a particular proposed activity or use and any related work, which would otherwise temporarily violate such restriction(s). Such request shall be submitted to Grantee in accordance with and shall be subject to all of the following:

A. Submittal Requirements. All requests for conditional exceptions shall, at a minimum:

- i. include a written description and/or plans of the proposed activity or use and other relevant information;
- ii. identify the Restricted Area or types of restricted areas for which the conditional exception is requested;
- iii. identify the specific restriction(s) from which the conditional exception is requested, and explain the need for the exception;
- iv. state the duration of the activity or use and any related work for which the conditional exception is requested, including a proposed termination date for the conditional exception; and
- v. if required pursuant to subparagraph 6.B. below, include (a) a determination by an appropriately trained and licensed professional, such as an LSP, that the proposed activity and use and any related work for which the conditional exception is requested would satisfy the human health and environmental risk standard set forth in subparagraph 6.C, and (b) supporting technical analysis upon which such determination is based.

B. Requirement to Use an Appropriately Trained and Licensed Professional; Request for Waiver. An appropriately trained and licensed professional, such as an LSP, shall make the risk determination required in subparagraph 6.A.v, unless waived by Grantee pursuant to this subparagraph 6.B. Grantor may request Grantee to waive such requirement, if appropriate under the circumstances, for example, if a particular proposed activity and use and any related work is *de minimis*. In the event of such a request or on its own initiative, Grantee, in its sole discretion, may waive such requirement taking into consideration the nature and scope of a particular proposed conditional exception request. Any such waiver must be in writing. A waiver for one conditional exception request shall not be deemed to be a waiver for any future conditional exception request.

C. Human Health and Environmental Risk Standard. Grantor shall demonstrate, in accordance with the procedures set forth in subparagraphs 6.A and 6.B, that the activity or use and any related work for which a particular conditional exception is requested would not result in an unacceptable risk to human health or the environment, pursuant to the criteria set forth at 40 C.F.R. § 300.430(e)(2)(i), as amended, or interfere with the integrity or effectiveness of the Response Actions. Such demonstration shall include, but not be limited to, consideration of the following factors, as applicable:

- i. potential exposure to or release of hazardous substances;
- ii. potential adverse impacts of the proposed activity or use on surface water runoff pathways;
- iii. potential creation of pathways of contaminant migration;
- iv. potential impact on groundwater and any NAPL;
- v. management plans for excavated contaminated materials, including handling and disposal;
- vi. appropriate worker health and safety plans; and
- vii. whether the proposed activity or use and any related work would interfere with the implementation, operation and/or maintenance of the Response Actions and if so, whether the proposed activity or use is necessary to reduce a threat to human health or the environment.

D. Other Relevant Considerations. In reviewing a proposed conditional exception request, Grantee may consider Grantor's financial and/or technical ability to perform the necessary response work in connection with such request. Grantee may also consider any other relevant matters related to the human health and environmental risk standard set forth in subparagraph 6.C, above.

E. Completeness Determination, Review and Response.

- i. If Grantee determines that Grantor's conditional exception request is sufficient and complete for purposes of review, Grantee shall review such request. If necessary, Grantee may notify Grantor of any deficiencies in Grantor's request, and may provide Grantor with an opportunity to submit supplemental information.
- ii. Except as provided for in subparagraph 6.G, Grantee, upon completion of its review of any conditional exception request, based upon whether the human health and environmental risk standard set forth in subparagraph 6.C would be satisfied, and upon the other relevant considerations set forth in subparagraph 6.D, shall determine whether the requested conditional exception is appropriate and, if so, shall issue the conditional exception. If Grantee determines that the requested conditional exception is not appropriate, then Grantee shall issue a written explanation. Grantee may condition its issuance of a conditional exception as appropriate, including without limitation, upon the results of future sampling and/or testing.
- iii. All conditional exceptions must be in writing and signed by Grantee.

F. Interim and Closeout Report Requirements. During and/or upon completion of the activity or use and any related work for which the conditional exception was obtained, upon request by Grantee, Grantor shall submit a written report confirming that such activity or use and related work was or is being implemented in accordance with the conditional exception, including in accordance with the representations in Grantor's conditional exception request submittal regarding the requirements set forth in subparagraphs 6.C and 6.D. Such report shall be prepared and signed by an appropriately trained and licensed professional, such as an LSP, unless pursuant to subparagraph 6.B Grantee previously waived the requirement to include a risk determination and supporting technical analysis by such professional.

G. Applicability of Amendment Provision to Conditional Exception Requests. Any conditional exception request for an activity or use and any related work which, in the judgment of Grantee, would result in a permanent modification to an activity or use restriction established in Paragraph 3 ("Restricted Activities and Uses"), including without limitation, to the boundary of the Restricted Area or any particular type of restricted area, shall require an amendment to this instrument in lieu of a conditional exception, in accordance with Paragraph 15 ("Amendment and Release").

7. Applicability. The restrictions set forth in Paragraph 3 ("Restricted Activities and Uses") shall not apply to any response action undertaken by EPA or DEP, or their respective agents, representatives, contractors, subcontractors or employees, pursuant to CERCLA or Chapter 21E, and their respective implementing regulations. In addition, the restrictions set forth in subparagraphs 3.F through 3.H shall not apply to any of the following activities conducted by GE, or its employees, contractors, or subcontractors, pursuant to the Consent Decree and/or the SOW, as approved by EPA (which approval shall be after a reasonable opportunity for review and comment by DEP), for purposes of implementing or monitoring the Response Actions, provided that such activities do not permanently modify the boundary of the Restricted Area or of any particular type of restricted areas: soil or groundwater sampling; excavation, digging, drilling, or other intrusive activity into or disturbance of the surface of the ground and/or the underlying soil; and/or groundwater/NAPL recovery.

8. Emergency Excavation. If it becomes necessary to excavate a portion of the Property, as part of a response to an emergency (e.g., repair of utility lines or responding to fire or flood), any activity and use restriction provisions of Paragraph 3 ("Restricted Activities and Uses") above, which would otherwise restrict such excavation, shall be suspended with respect to such excavation for the duration of such emergency response, provided that Grantor:

A. Limits the actual disturbance involved in such excavation to the minimum reasonably necessary to adequately respond to the emergency;

B. Implements all measures necessary to limit actual or potential risk to the public health and environment arising from the emergency and the response thereto;

C. Undertakes precautions to minimize exposure of workers and neighbors of the Property to the hazardous substance or material; and

D. Utilizes an LSP (except as provided in the last sub-paragraph of this Paragraph 8) to oversee the implementation of the terms of this Paragraph 8 (“Emergency Excavation”), and to prepare and oversee the implementation of a written plan which, in said professional’s opinion, will restore the Property to a condition consistent with its condition before the emergency excavation took place, with minimal disturbance of the contaminated soils; said plan to be subject to the Soil Management and the Health and Safety Protocols, as applicable; said plan to be promptly prepared and implemented; a copy of said plan to be submitted to EPA and DEP within ten (10) days of its performance, together with a completed Post-Work Notification Form, attached hereto as Exhibit F, with a statement from said LSP that the Property has been restored to said condition; provided, however, that in cases where only minimal excavation has occurred such that there has been no significant impact on the protectiveness of the Response Actions, Grantor may request Grantee to allow the Grantor to prepare and submit the plan and statement, without utilizing the services of the otherwise required LSP.

In addition, Grantor shall notify EPA and the DEP Western Regional Office Emergency Response Section, or such other party as EPA or DEP may identify in writing to Grantor, of such emergency as soon as possible but no more than two (2) hours after having learned of such emergency.

The following provisions shall run to the benefit of GE alone, but not to any successor or assign, and shall not run with the land:

i. While GE continues to own and control the Property, to the extent that GE is unable practicably to utilize an LSP to oversee the implementation of this Paragraph 8 (as required by subparagraph 8.D, above) due to the time-critical nature of the emergency, GE may instead utilize a similarly trained and experienced GE employee during the emergency to satisfy said requirement, provided that such employee:

(a) is experienced in overseeing excavation and management of contaminated media;

(b) is familiar with health and safety considerations, including proper use of personal protective equipment;

(c) is familiar with regulatory requirements for sampling and management of hazardous material;

(d) is familiar with the relevant requirements of this Grant, the Consent Decree and the SOW; and

(e) has appropriate environmental science or engineering training and experience and other appropriate educational background.

ii. While GE continues to own and control the Property, GE may, at its option, utilize a consultant, under the supervision of an LSP, to prepare the above-described written plan (as required by subparagraph 8.D, above).

9. Grant of Easements. In establishing this Environmental Restriction and Easement, Grantor hereby grants the following easements for the term of this Grant to Grantee, its agents, representatives, contractors, subcontractors and employees:

A. An easement to pass and repass over the Property for the purpose of inspecting the Property to ensure compliance with and fulfillment of the terms of this Environmental Restriction and Easement; and

B. An easement in, on, upon, through, over and under the Property for the following purposes:

- i. constructing, implementing, monitoring, and performing the Response Actions and operation and maintenance for the Response Actions;
- ii. assessing the need for, planning, or implementing other response actions at the Site;
- iii. verifying any data or information submitted to EPA or DEP;
- iv. surveying and obtaining samples;
- v. installing groundwater monitoring wells and extraction wells;
- vi. conducting investigations relating to contamination at or near the Site; and
- vii. determining whether additional activity or use restrictions are necessary.

10. Severability. Grantor agrees, in the event that a court or other tribunal determines that any provision of this instrument is invalid or unenforceable:

A. That any such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal; or

B. That any such provision that, by its nature, cannot be so modified, shall be deemed deleted from this instrument as though it had never been included.

Such modifications and deletions shall be deemed effective as of the date of the determination of the court or other tribunal. In either case, the remaining provisions of this instrument shall remain in full force and effect.

11. Enforcement. Grantor expressly acknowledges that a violation of the terms of this instrument could result in the following:

A. The assessment of penalties and other action by DEP to enforce the terms of this Environmental Restriction and Easement, pursuant to Chapter 21E and the MCP; and/or

B. Upon a determination by a court of competent jurisdiction, the issuance of criminal and civil penalties, and/or equitable remedies, which could include the issuance of an order to (i) modify or remove any improvements constructed in violation of the terms of this Environmental Restriction and Easement at Grantor's sole cost and expense or (ii) to reimburse the Commonwealth and the United States for any costs incurred in modifying or removing any improvement constructed in violation of the terms of this Environmental Restriction and Easement.

12. Provisions to Run With the Land. The land use restrictions, obligations, and access rights provided herein establish certain rights, liabilities, agreements and obligations upon and subject to which the Property or any portion thereof, shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. The rights, liabilities, agreements and obligations herein set forth shall run with the Property for the term of this instrument, as applicable thereto, and any portion thereof, and shall inure to the benefit of Grantee and its assigns and be binding upon Grantor and all parties claiming by, through or under Grantor. Grantor hereby covenants for itself and its successors and assigns to stand seized and hold title to the Property, or any portion thereof, subject to these land use restrictions, access rights, and other provisions of this Grant; provided, however, that a violation of these land use restrictions, access rights, and other provisions shall not result in a forfeiture or reversion of Grantor's title to the Property.

13. Concurrence Presumed. It is agreed that:

A. Grantor and all parties claiming by, through or under Grantor shall be deemed to be in accord with the provisions herein set forth; and

B. Grantor and all such parties agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, sub-contractors and employees, that the land use restrictions and access rights herein established shall be adhered to and not violated and that their respective interests in the Property shall be subject to the provisions herein set forth.

14. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this instrument, in full or by reference, into all deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Property, or any portion thereof, is conveyed; provided, however, that any failure of Grantor to do so shall not affect the validity or applicability of the provisions of Paragraph 12.

15. Amendment and Release.

A. Amendment at Grantee's Request.

i. Grantee may request Grantor to amend this instrument. Grantor hereby further agrees to execute any such amendment which Grantee reasonably deems necessary for the effective administration of this instrument; provided, however, that such amendment shall be limited to procedural matters hereunder. Accordingly, the foregoing obligation shall not obligate Grantor to impose additional substantive restrictions on the Property, beyond those listed in Paragraph 3 ("Restricted Activities and Uses"); nor to impose additional substantive limitations on the permitted activities and uses set forth in Paragraph 4 ("Permitted Activities and Uses"); nor to impose additional substantive obligations and conditions upon Grantor, beyond those set forth in Paragraph 5 ("Obligations and Conditions"). All amendments shall include Grantee's signed approval and shall become effective upon Recordation and/or Registration.

ii. Notwithstanding the foregoing, if Grantor is not GE, Grantor expressly acknowledges and agrees that the within Grant includes the right of GE, in accordance with the Consent Decree, with notice to Grantor and written approval of Grantee, to Record and/or Register a revised Plan of Restricted Area indicating the location of any Groundwater Response Action Component Area and associated notice thereof. The Recordation and/or Registration of any such revised Plan of Restricted Area and associated notice thereof shall not be deemed an amendment to this Grant, but rather the exercise of rights established by, and effective upon the Recordation and/or Registration of, this Grant.

B. Amendment at Grantor's Request. Grantor may amend this instrument only with the prior, written approval of the Grantee. Grantor may propose to Grantee an amendment of an activity or use restriction set forth in Paragraph 3 ("Restricted Activities and Uses") or of a permitted use set forth in Paragraph 4 ("Permitted Activities and Uses"), based upon changed circumstances, including, without limitation, new analytical and engineering data or a Grantor proposal to perform additional remediation at the Property. In the event that Grantor requests such an amendment, Grantor shall provide such information as Grantee may require for review of such a request, including without limitation, information that addresses the considerations set forth in Paragraph 6 ("Conditional Exceptions from Restricted Activities and Uses"), as applicable, and an explanation of the changed circumstances. If Grantee determines that any amendment to this Grant proposed by Grantor is not appropriate, then Grantee shall issue a written explanation.

C. Release. This instrument may be released, in whole or in part, by Grantee in Grantee's sole discretion, and in accordance with CERCLA, the NCP, Chapter 21E and the MCP, to the extent applicable. This instrument shall not be deemed released unless and until Grantee, its successors and assigns, and/or any other party claiming under Grantee, have released their respective interests. Said release shall become effective upon its Recordation and/or Registration.

D. Recordation and/or Registration. Grantor hereby agrees to Record and/or Register any amendment to and/or release of this instrument, and/or other document created pursuant to this instrument for which Recordation and/or Registration is required, within thirty (30) days of the date of having received from Grantee any such amendment, release, and/or other document. No more than thirty (30) days from the date of Recordation and/or Registration, Grantor shall provide to Grantee a certified Registry/Land Registration Office copy of the amendment, release, and/or other such document. At that time, or as soon thereafter as it becomes available, Grantor shall provide Grantee with the final recording and/or registration information for the amendment, release, and/or other such document, certified by said Registry/Land Registration Office. Grantor shall pay any and all recording fees, land transfer taxes, and other such transaction costs associated with any such amendment, release, and/or other document. Grantor, if no longer GE, further agrees to cooperate with GE in the Recordation and/or Registration of a revised Plan of Restricted Area, as described above, and any associated notice thereof.

E. Notice to Local Officials. Grantor further agrees to notify local officials and the public of the amendment or release in accordance with the requirements set forth in 310 C.M.R. 40.1403(7), as amended. A copy of said regulation is attached hereto as Exhibit H.

16. No Dedication Intended. Nothing herein set forth shall be construed to be a gift or dedication of the Property to Grantee, its assigns or to the general public for any purpose whatsoever.

17. Term. This instrument shall run with the land in perpetuity and is intended to conform to the exception for "other restrictions held by any governmental body" set forth in clause (c) of the first paragraph of M.G.L. c. 184, § 26, as amended.

18. Rights Reserved. It is expressly agreed that acceptance of this instrument by Grantee or its assignment shall not operate to bar, diminish, or in any way affect any legal or equitable right that Grantee or its assigns may otherwise have to issue any future order or take response action with respect to the Property or in any way affect any other claim, action, suit, cause of action, or demand which Grantee or its assigns may otherwise possess or hereafter acquire with respect thereto.

Nothing in this instrument shall limit or otherwise affect any rights that the United States or the Commonwealth may otherwise have to obtain access to, or restrict the use of, the Property pursuant to CERCLA, Chapter 21E, or any other applicable statute or regulation.

Nothing in this instrument shall waive such liability as Grantor may otherwise have for any release or any threat of a release of hazardous substances, oil or hazardous materials occurring as a result of Grantor's exercise of any of its rights hereunder, nor shall any provision of this instrument excuse compliance with CERCLA, Chapter 21E, or any other applicable federal, State or local laws, regulations or ordinances.

The rights reserved to Grantee in this Paragraph 18 ("Rights Reserved") shall be in addition to any rights reserved to Grantee elsewhere in this instrument.

19. Assignment. This instrument, including without limitation all easements, rights, covenants, obligations and restrictions inuring to the benefit of Grantee, herein contained, shall be assignable by Grantee, in whole or in part, at any time. This instrument may only be assigned to EPA, the City of Pittsfield, or any state or federal agency with at least statewide jurisdiction that has statutory authority to hold property interests and to administer or to enforce property restrictions such as this Environmental Restriction and Easement on behalf of the State or the United States, or to any other appropriate entity upon the mutual agreement of Grantee and Grantor. In the event of any assignment, Grantee shall notify Grantor by notice sent by first-class mail, postage prepaid, to Grantor's address.

20. Agency Review and Comment; Notice. Prior to responding to any request for approval or taking any other action pursuant to this instrument, Grantee shall first provide EPA with a reasonable opportunity to review and comment upon the requested approval or proposed action. Grantor shall submit duplicate copies of any submissions or notices made to Grantee pursuant to this instrument to Grantee, with a copy to EPA at the following addresses, by first class mail, postage prepaid:

A. to EPA: U.S. Environmental Protection Agency
Office of Site Remediation and Restoration
5 Post Office Square – Suite 100
Boston, MA 02109-3912
Attn: GE-Pittsfield/Housatonic River Site

B. to DEP: Department of Environmental Protection
Western Regional Office
436 Dwight Street
Springfield, MA 01103; and to

Department of Environmental Protection
Bureau of Waste Site Cleanup
One Winter Street
Boston, MA 02108

C. or as otherwise provided in writing by EPA or DEP.

If GE is no longer the Grantor, Grantor shall submit any notices to GE made pursuant to this instrument to GE at the following address or such other address as provided in writing by GE, with a copy to Grantee and EPA.

General Electric Company
Corporate Environmental Programs
159 Plastics Avenue
Pittsfield, MA 01201

21. Effective Date. This instrument shall become effective upon its Recordation and/or Registration.

No more than thirty (30) days from the date of Recordation and/or Registration, Grantor shall provide Grantee with a certified Registry/Land Registration Office copy of this instrument. At that time, or as soon thereafter as it becomes available. Grantor shall provide Grantee with the final Recording and/or Registration information for this instrument, certified by said Registry/Land Registration Office.

As this instrument is granted to an agency of the Commonwealth of Massachusetts, no Massachusetts deed excise tax stamps are affixed hereto, none being required by law (M.G.L. Chapter 64D, Section 1, as amended).

WITNESS the execution hereof under seal this 8th day of June, 2011.

GENERAL ELECTRIC COMPANY

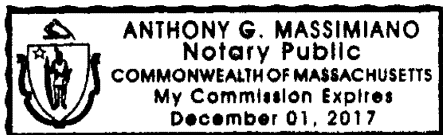
By: Michael T. Carroll

Michael T. Carroll
Manager, Pittsfield Remediation Programs,
Corporate Environmental Programs

COMMONWEALTH OF MASSACHUSETTS

County of Berkshire, ss.

On this 8th day of June, 2011, before me, the undersigned notary public, personally appeared Michael T. Carroll, as Manager, Pittsfield Remediation Programs, Corporate Environmental Programs, of the General Electric Company, a corporation, proved to me through satisfactory evidence of identification, which was NY Drivers License, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.



Anthony G. Massimiano

Anthony G. Massimiano, Notary Public
My commission expires: 12/1/2017

GENERAL ELECTRIC COMPANY

Certificate of Authorization

I, James E. Warczak, do hereby certify that I am an Attesting Secretary of General Electric Company, a New York corporation (the "Company"), and, in my capacity as such, further certify that:

1. I am duly authorized to certify resolutions of the Board of Directors of the Company.

2. The following is a true and correct excerpt of a Resolution #10855 duly adopted by the Board of Directors of the Company on April 26, 1988, as such Resolution was duly amended and restated by the Board of Directors of the Company on December 20, 1991 (as so amended and restated, the "Resolution") dealing with the execution of contracts and other instruments on behalf of the Company. The Resolution is in full force and effect as of the date hereof and has not been further amended, modified, rescinded or revoked:

"RESOLVED, that

(A) Any contract, lease license, assignment, bond or other obligation, conveyance, power of attorney, guarantee, proxy, court pleading, release, tax return and related documents, or other instruments may be executed on behalf of this Company by the Chairman of the Board, a Vice Chairman of the Board, an Executive Vice President, a Senior Vice President, a Vice President reporting directly to the Chairman or a Vice Chairman of the Board, the Comptroller, the Treasurer, the Secretary or any Vice President who is a corporate staff officer of the Company, all of the above named individuals being hereinafter called "Authorized Persons".

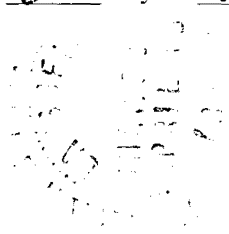
....

(C) Each Authorized Person is hereby authorized to delegate to others authority to execute on behalf of the Company the following types of contracts and other instruments which relate to the function or component for which such Authorized Person is responsible:

....

4. Contracts, leases, deeds, or other instruments relating to real property or to any improvements thereon."

IN WITNESS WHEREOF, the undersigned has executed the Certificate of Authorization as of this 8th day of JUNE 2011.



James E. Warczak

Attesting Secretary
James E. Warczak

GENERAL ELECTRIC COMPANY

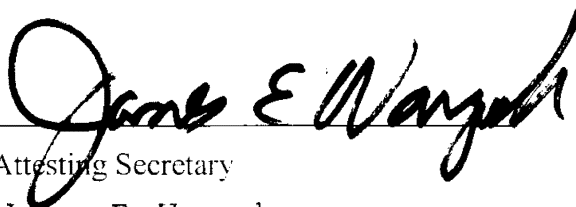
Certificate of Incumbency

I, James E. Warczak, do hereby certify that I am an Attesting Secretary of General Electric Company, a New York corporation (the "Company"), and, in my capacity as such, further certify that:

1. I am duly authorized to certify the incumbency of officers of the Company.
2. Ann R. Klee is the duly qualified and appointed Vice President, Corporate Environmental Programs, of the Company, that she held that corporate staff office on February 13, 2008, and that she is an "Authorized Person" as defined in paragraph (A) of Resolution #10855 of the General Electric Board of Directors.
3. Attached as Exhibit 1 to this Certificate is a true and correct copy of a valid written delegation of authority dated February 13, 2008 by Ann R. Klee, Vice President, Corporate Environmental Programs of the Company, to Michael T. Carroll, Manager, Pittsfield Remediation Programs, Corporate Environmental Programs, of the Company. This written delegation is in full force and effect as of the date hereof and has not been further amended, modified, rescinded or revoked.
4. Michael T. Carroll is, and was on June 8, 2011 [date of execution], the duly qualified and appointed Manager, Pittsfield Remediation Programs, Corporate Environmental Programs, of the Company.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Incumbency as of this 8th day of JUNE, 2011.





Attesting Secretary

James. E. Warczak

Exhibit 1



GE
3135 Easton Turnpike
Fairfield, CT 06828
USA

DELEGATION OF AUTHORITY

In accordance with the provisions of Paragraph (C) of the General Electric Company Board of Directors' Resolution #10855 dated April 26, 1988 relating to the Execution of Contracts and Other Instruments, I, Ann R. Klee, Vice President, Corporate Environmental Programs of the General Electric Company, hereby delegate to Michael T. Carroll, Manager, Pittsfield Remediation Programs, the authority to execute on behalf of the General Electric Company contracts, leases, deeds or other instruments relating to real property located within Berkshire County of Massachusetts, or to any improvements thereon (including, without limitation, instruments imposing environmental restrictions such as Activity and Use Limitations or Grants of Environmental Restrictions and Easements).

Dated this 13th day of FEBRUARY, 2008

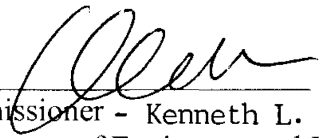
Ann R. Klee
Ann R. Klee
Vice President
Corporate Environmental Programs
General Electric Company

Attest:

Eliz W. Fran
Attesting Secretary

In accordance with M.G.L. c. 21E § 6, as amended, and the Massachusetts Contingency Plan (310 CMR 40.0000) as amended, the Commissioner of the Department of Environmental Protection hereby approves this Grant of Environmental Restriction and Easement (as to form only).

Date: 7/29/11



Commissioner - Kenneth L. Kimmell
Department of Environmental Protection

List of Exhibits

- Exhibit A:** Legal Description of Property by Metes and Bounds
- Exhibit B:** Plan of Restricted Area
- Exhibit C:** Legal Description of Restricted Areas by Metes and Bounds
- Exhibit D:** Health and Safety Protocol
- Exhibit E:** Soil Management Protocol
- Exhibit F:** Post-Work Notice of Excavation Form
- Exhibit G:** Water Withdrawal Permit
- Exhibit H:** Copy of 310 C.M.R. 40.1403(7): Notice of Amendments or Releases

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY BY METES AND BOUNDS

Land in the city of Pittsfield, Berkshire County, Massachusetts, bounded and described as follows:

Beginning at a point located at the northwesterly corner of the parcel herein described in the easterly line of the 1931 city layout of New York Avenue;

Running thence N 62°29'52" E through the land of General Electric Company a distance of 615.28 feet to a point at the southwesterly corner of land conveyed to the City of Pittsfield by deed dated February 15, 1950 and recorded in the Berkshire Middle District Registry of Deeds in Book 554, Page 59;

Running thence N 62°29'52" E along said land of the City of Pittsfield a distance of 833.87 feet to the southeasterly corner of said land of the City of Pittsfield;

Running thence S 26°50' E a distance of 294.4 feet to a point;

Running thence N 68°58' E a distance of 62.8 feet to a point;

Running thence N 65°14' E a distance of 373.6 feet to a point;

Running thence S 74°27' E a distance of 11.8 feet to a point;

Running thence S 21°53' E a distance of 200.1 feet to a point;

Running thence S 25°19' E a distance of 115.2 feet to a point;

Running thence S 64°16' W a distance of 123.0 feet to a point;

Running thence S 26°04' E a distance of 330.1 feet to a point;

Running thence N 79°53' E a distance of 125.9 feet to a point;

Running thence S 27°29' E a distance of 279.7 feet to a point;

Running thence S 32°22' E a distance of 49.2 feet to a point;

Running thence S 42°41' E a distance of 50.3 feet to a point in the northerly sideline of the 2004 state layout of Merrill Road;

Running thence S 45°07'33" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 36.22 feet to a point;

Running thence along the sideline of the said 2004 state layout of Merrill Road following a curve to the right with a radius of 434.03 feet and an arc distance of 14.87 feet to the northeasterly corner of land taken by the City of Pittsfield by instrument dated December 18, 1996 and recorded in said Registry of Deeds in Book 1542, Page 41;

Running thence N 65°54'43" W along the northerly line of said land taken by the City of Pittsfield and along the northerly line of other land taken by the City of Pittsfield by instrument dated February 4, 1998 and recorded in said Registry of Deeds in Book 1593, Page 182, a distance of 233.25 feet to the northwesterly corner thereof;

Running thence S 13°41'23" W along the westerly line of said land taken by the City of Pittsfield and along the westerly line of land conveyed to Angelo and Onorini Battaini by deed dated October 28, 1944 and recorded in said Registry of Deeds in Book 511, Page 402, a distance of 217.58 feet to the southwesterly corner thereof in the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence S 81°45'18" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 57.75 feet to a point at the intersection of the northerly sideline of the 1918 city layout of said Merrill Road and the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence N 82°15'54" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 513.77 feet to a point;

Running thence S 81°09'36" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 449.08 feet to a point;

Running thence S 67°39'39" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 115.34 feet to a point;

Running thence S 67°40'35" W along the northerly sideline of the 1807 county layout of said Merrill Road a distance of 65.49 feet to a point;

Running thence S 60°47'37" W along the northerly sideline of the said 1807 county layout of Merrill Road a distance of 244.56 feet to a point at the intersection of the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence along the sideline of the said 2004 state layout of Merrill Road following a curve to the left with a radius of 8051.53 feet and an arc distance of 163.13 to a point;

Running thence S 81°40'11" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 61.30 feet to a point at the intersection of the easterly sideline of the 1931 city layout of New York Avenue;

Running thence N 27°27'49" W along the easterly sideline of the said 1931 city layout of New York Avenue a distance of 835.05 feet to the point of beginning.

Excepting and excluding from the above-described parcel an area, described as the On-Plant Consolidation Areas, bounded as follows:

Beginning at a point located S 34°45'04" E a distance of 105.61 feet from the southwesterly corner of the said land conveyed to the City of Pittsfield by deed dated February 15, 1950 and recorded in the said Registry of Deeds in Book 554, Page 59;

Running thence N 52°20' E a distance of 36.0 feet to a point;

Running thence N 61°09' E a distance of 178.0 feet to a point;

Running thence N 62°41' E a distance of 245.0 feet to a point;

Running thence N 70°24' E a distance of 26.0 feet to a point;

Running thence N 04°13' W a distance of 23.0 feet to a point;

Running thence N 16°09' E a distance of 14.0 feet to a point;

Running thence N 51°45' E a distance of 25.0 feet to a point;

Running thence N 62°03' E a distance of 113.0 feet to a point;

Running thence N 72°19' E a distance of 33.5 feet to a point;

Running thence N 83°45' E a distance of 47.0 feet to a point;

Running thence S 85°35' E a distance of 34.5 feet to a point;

Running thence S 63°10' E a distance of 79.4 feet to a point;

Running thence S 39°01' E a distance of 62.0 feet to a point;

Running thence S 25°50' E a distance of 79.0 feet to a point;

Running thence S 85°45' E a distance of 28.0 feet to a point;

Running thence N 70°58' E a distance of 364.0 feet to a point;

Running thence N 80°30' E a distance of 34.0 feet to a point;

Running thence S 64°00' E a distance of 16.0 feet to a point;

Running thence S 31°38' E a distance of 57.0 feet to a point;
Running thence S 23°03' E a distance of 119.5 feet to a point;
Running thence S 14°38' E a distance of 42.0 feet to a point;
Running thence S 33°55' W a distance of 23.5 feet to a point;
Running thence S 58°40' W a distance of 85.5 feet to a point;
Running thence S 13°02' E a distance of 75.0 feet to a point;
Running thence S 42°26' E a distance of 20.3 feet to a point;
Running thence S 18°07' E a distance of 65.0 feet to a point;
Running thence S 37°30' W a distance of 67.3 feet to a point;
Running thence S 76°28' W a distance of 107.0 feet to a point;
Running thence N 76°49' W a distance of 20.3 feet to a point;
Running thence N 50°24' W a distance of 25.0 feet to a point;
Running thence N 23°31' W a distance of 86.0 feet to a point;
Running thence N 11°09' W a distance of 91.2 feet to a point;
Running thence N 54°25' W a distance of 29.0 feet to a point;
Running thence N 88°56' W a distance of 25.0 feet to a point;
Running thence S 78°45' W a distance of 73.8 feet to a point;
Running thence S 77°24' W a distance of 77.5 feet to a point;
Running thence S 76°12' W a distance of 114.5 feet to a point;
Running thence S 81°48' W a distance of 81.5 feet to a point;
Running thence S 73°52' W a distance of 35.5 feet to a point;
Running thence S 37°22' W a distance of 25.0 feet to a point;
Running thence S 03°02' W a distance of 25.0 feet to a point;

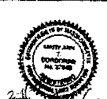
Running thence S 05°08' E a distance of 31.0 feet to a point;
Running thence S 03°51' W a distance of 41.0 feet to a point;
Running thence S 17°11' W a distance of 20.5 feet to a point;
Running thence S 50°48' W a distance of 30.0 feet to a point;
Running thence S 76°11' W a distance of 58.0 feet to a point;
Running thence S 61°58' W a distance of 23.3 feet to a point;
Running thence S 04°19' W a distance of 30.0 feet to a point;
Running thence S 07°32' E a distance of 59.0 feet to a point;
Running thence S 16°12' W a distance of 31.0 feet to a point;
Running thence S 56°21' W a distance of 36.0 feet to a point;
Running thence S 76°15' W a distance of 96.0 feet to a point;
Running thence S 85°33' W a distance of 59.0 feet to a point;
Running thence N 78°42' W a distance of 31.0 feet to a point;
Running thence N 77°00' W a distance of 50.0 feet to a point;
Running thence N 69°22' W a distance of 46.0 feet to a point;
Running thence N 64°09' W a distance of 50.0 feet to a point;
Running thence N 47°36' W a distance of 25.0 feet to a point;
Running thence N 52°13' W a distance of 39.0 feet to a point;
Running thence N 41°28' W a distance of 64.0 feet to a point;
Running thence N 33°25' W a distance of 76.2 feet to a point;
Running thence N 23°19' W a distance of 65.4 feet to a point;
Running thence N 06°33' E a distance of 137.3 feet to the point of beginning.

Further excluding any interest of the owner of the above-described property in New York Avenue and in all of the aforementioned layouts of Merrill Road.

The above-described parcel of land contains 29.989 acres of land and is more particularly shown on a plan entitled "Plan of Property, Hill 78 Area-Remainder," dated February 11, 2011, consisting of two sheets, prepared by Hill Engineers, Architects, Planners, Dalton, Massachusetts, which plan was recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Plat J, No. 59.

EXHIBIT B

50 Depot Street
Pittsfield, MA 01226
(413) 864-0920
41 Park Street
Adams, MA 01220
(413) 943-0013
www.hillarchitects.com



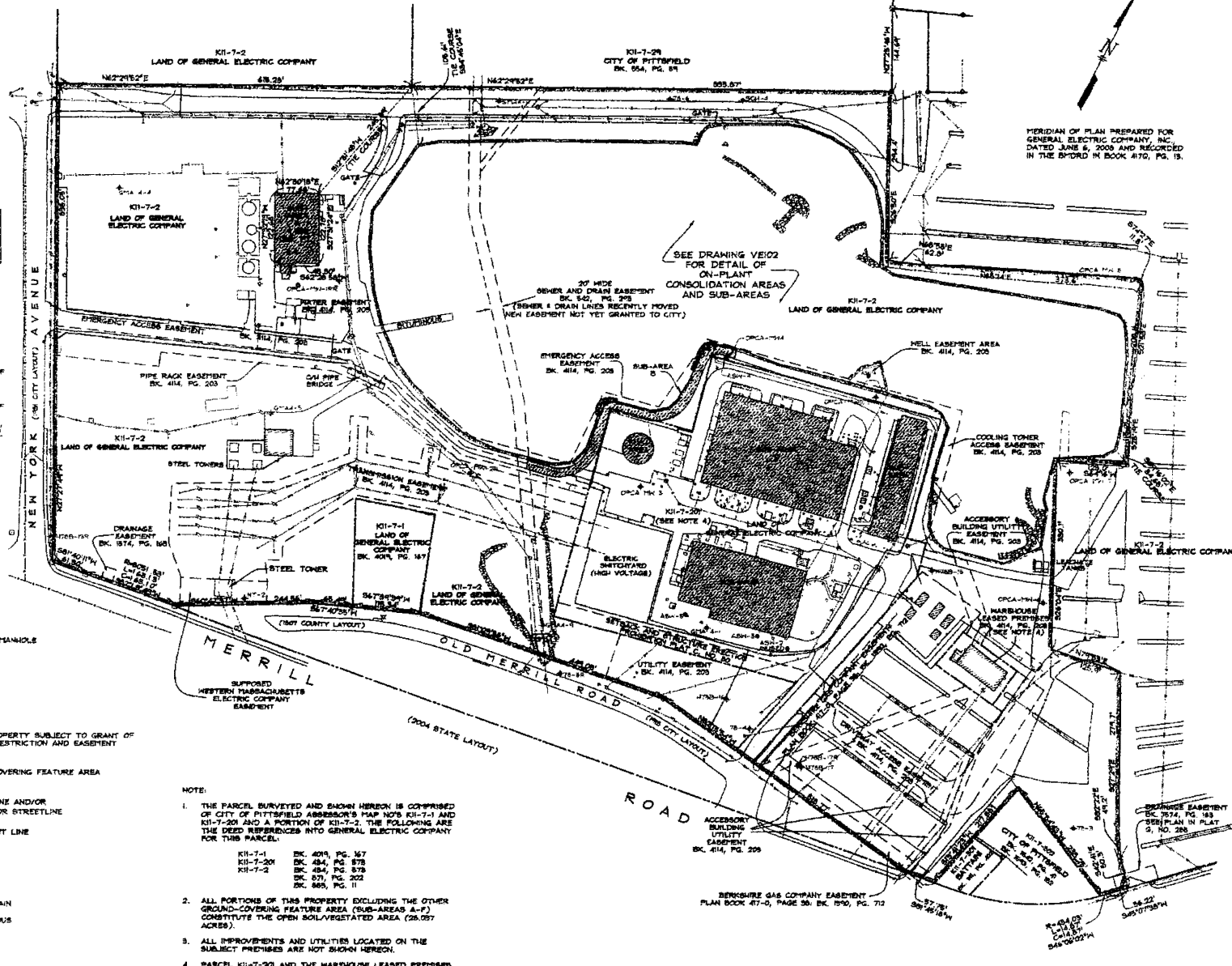
NO.	DATE	DESCRIPTION
1	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
2	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
3	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
4	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
5	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
6	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
7	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
8	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
9	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER
10	11/11/11	PLAN OF RESTRICTED AREA HILL 78 AREA-RETAINDER

GENERAL ELECTRIC COMPANY
150 PLASTICS AVENUE
PITTSFIELD, MA

PROJECT DESCRIPTION:
K11-7-1, K11-7-201 & PORTION OF K11-7-2

DRAWN BY: JAG
DATE DRAWN: 2-11-11
SCALE: 1"=80'
BY: JAG

DATE CODE:
GE-1143-001-VEIOR.dwg
GRAPHIC SCALE: 0 20 40 80 160
PROJECT NUMBER:
GE-1143-001
DATE: 2/11/11



LINE	LENGTH	BEARINGS
L1	19.00'	S72°38'27"W
L2	19.00'	R62°30'00"W
L3	19.00'	N72°30'00"W
L4	11.00'	S62°31'17"W

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERED PROFESSIONAL LAND SURVEYORS OF THE COMMONWEALTH OF MASSACHUSETTS. I CERTIFY THAT THIS PLAN SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIP, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

Thomas J. Ostrom
PROFESSIONAL LAND SURVEYOR DATE

LEGEND

- ▲ COMPUTED POINT
- IRON PIN FOUND
- RESUR FOUND
- SOUND FOUND
- UTILITY POLE & GUY WIRE
- EXISTING BUILDING
- ▨ RIPRAP SHALE
- LIGHT POLE
- CATCH BASIN
- SANITARY SEWER MANHOLE
- DRAIN MANHOLE
- MONITORING WELL
- SUPPLY WELL
- CONCRETE PADS
- HYDRANT
- ▨ BOUNDARY OF PROPERTY SUBJECT TO GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT (SEE NOTE 2).
- ▨ OTHER GROUND-COVERING FEATURE AREA
- - - - TAX ASSESSOR LINE AND/OR LEASE LINE AND/OR STREETLINE
- - - - EXISTING EASEMENT LINE
- - - - CHAIN LINK FENCE
- - - - OVERHEAD WIRES
- - - - SANITARY SEWER
- - - - UNDERGROUND DRAIN
- - - - EDGE OF BITUMINOUS
- - - - EDGE OF GRAVEL
- - - - GAS LINE

NOTE:

1. THE PARCEL SURVEYED AND SHOWN HEREON IS COMPRISED OF CITY OF PITTSFIELD ASSESSOR'S MAP NO. K11-7-1 AND K11-7-201 AND A PORTION OF K11-7-2. THE FOLLOWING ARE THE DEED REFERENCES INTO GENERAL ELECTRIC COMPANY FOR THIS PARCEL:
 K11-7-1 BK. 404, PG. 17
 K11-7-201 BK. 484, PG. 878
 K11-7-2 BK. 484, PG. 878
 BK. 871, PG. 202
 BK. 885, PG. 11
2. ALL PORTIONS OF THIS PROPERTY EXCLUDING THE OTHER GROUND-COVERING FEATURE AREA (SUB-AREAS A-F) CONSTITUTE THE OPEN SOIL/VEGETATED AREA (26.057 ACRES).
3. ALL IMPROVEMENTS AND UTILITIES LOCATED ON THE SUBJECT PREMISES ARE NOT SHOWN HEREON.
4. PARCEL K11-7-201 AND THE HOUSEHOLD LEASED PREMISES COMPRISE THE AREA LEASED TO PITTSFIELD GENERATING COMPANY, L.P.

MERIDIAN OF PLAN PREPARED FOR GENERAL ELECTRIC COMPANY, INC. DATED JUNE 6, 2008 AND REGISTERED IN THE RECORD IN BOOK 4170, PG. 19.

SEE DRAWING VEI02 FOR DETAIL OF ON-PLANT CONSOLIDATION AREAS AND SUB-AREAS

BERKSHIRE GAS COMPANY EASEMENT PLAN BOOK 47-0, PAGE 30; BK. 179, PG. 73

EXHIBIT C**LEGAL DESCRIPTION OF RESTRICTED AREAS BY METES AND BOUNDS**

This Exhibit describes, by metes and bounds, the restricted areas under the foregoing Grant of Environmental Restriction and Easement. The areas described below consist of portions of the Property subject to this Grant, which areas are identified and more particularly shown on a plan entitled "Plan of Restricted Area, Hill 78-Remainder," dated February 11, 2011, consisting of two sheets, prepared by Hill Architects, Engineers, Planners, Dalton, Massachusetts, and recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Plat J, No. 60, a copy of which plan is attached to the above-referenced Grant as Exhibit B.

OTHER GROUND-COVERING FEATURE AREA

The Other Ground-Covering Feature Area consists of six sub-areas of land in the city of Pittsfield, Berkshire County, Massachusetts, bounded and described as follows:

Other Ground-Covering Feature Sub-Area A

Beginning at a point at the northeast corner of the area herein described at the northeasterly corner of the foundation of an existing building, which point can be further described as being located S 12°31'48" W a distance of 245.89 feet from the southwesterly corner of the said land conveyed to the City of Pittsfield by deed dated February 15, 1950 and recorded in the Berkshire Middle District Registry of Deeds in Book 554, Page 59;

Running thence the following courses along the face of the foundation of said building:

S 27°31'24" E a distance of 122.70 feet to a point;

S 62°28'58" W a distance of 48.30 feet to a point;

S 27°36'12" E a distance of 18.04 feet to a point;

S 62°33'09" W a distance of 18.42 feet to a point;

N 27°24'03" W a distance of 18.00 feet to a point;

S 62°49'17" W a distance of 11.00 feet to a point;

N 27°32'13" W a distance of 122.68 feet to a point;

N 62°30'18" E a distance of 77.68 feet to the point of beginning.

The above-described sub-area of land contains 9,862 square feet and is more particularly shown as Sub-Area A on Sheet 1 of 2 on the above-referenced Plan of Restricted Area.

Other Ground-Covering Feature Sub-Area B

Beginning at a point at the northeast corner of the area herein described, running thence S 09°27' E a distance of 18.5 feet to a point;

Running thence S 80°33' W a distance of 20.4 feet to a point;

Running thence following a curve to the left with a radius of 22.0 feet and an arc distance of 33.3 feet to a point;

Running thence S 06°12' E a distance of 52.0 feet to a point;

Running thence S 00°53' W a distance of 24.0 feet to a point;

Running thence following a curve to the right with a radius of 65.0 feet and an arc distance of 84.7 to a point;

Running thence S 75°32' W a distance of 64.0 feet to a point;

Running thence S 35°41' W a distance of 4.5 feet to a point;

Running thence S 11°23' E a distance of 61.0 feet to a point;

Running thence following a curve to the right with a radius of 75.0 feet and an arc distance of 117.8 feet to a point;

Running thence S 78°37' W a distance of 37.0 feet to a point;

Running thence N 11°23' W a distance of 15.0 feet to a point;

Running thence N 78°37' E a distance of 41.0 feet to a point;

Running thence following a curve to the left with a radius of 53.0 feet and an arc distance of 83.8 feet to a point;

Running thence N 12°02' W a distance of 54.0 feet to a point;

Running thence N 04°19' E a distance of 30.0 feet to a point;

Running thence N 61°58' E a distance of 23.3 feet to a point;

Running thence N 76°11' E a distance of 58.0 feet to a point;

Running thence N 50°48' E a distance of 30.0 feet to a point;

Running thence N 17°11' E a distance of 20.5 feet to a point;

Running thence N 03°51' E a distance of 41.0 feet to a point;

Running thence N 05°08' W a distance of 31.0 feet to a point;

Running thence N 03°02' E a distance of 25.0 feet to a point;

Running thence N 37°22' E a distance of 25.0 feet to a point;

Running thence N 73°52' E a distance of 35.5 feet to the point of beginning.

The above-described sub-area of land contains 8,458 square feet and is more particularly shown as Sub-Area B on Sheet 2 of 2 on the above-referenced Plan of Restricted Area.

Other Ground-Covering Feature Sub-Area C

Beginning at a point located on the face of an existing foundation of a tank, which point can be further described as being located S 36°31'05" E a distance of 34.17 feet from an angle point in the southerly line of Sub-Area B above described;

Running thence along the face of said foundation along a curve to the right with a radius of 27.09 feet and an arc length of 170.24 feet back to the point of beginning.

The above-described sub-area of land contains 2,306 square feet and is more particularly shown as Sub-Area C on Sheet 2 of 2 on the above-referenced Plan of Restricted Area.

Other Ground-Covering Feature Sub-Area D

Beginning at a point at the northeast corner of the area herein described at the northeasterly corner of the foundation of an existing building, which point can be further described as being located S 01°02'29" W a distance of 109.58 feet from an angle point in the southerly line of the On-Plant Consolidation Areas described in Exhibit A to the foregoing Grant of Environmental Restriction and Easement;

Running thence the following courses along the face of the foundation of said building:

S 12°38'55" E a distance of 130.32 feet to a point;

S 77°20'17" W a distance of 247.69 feet to a point;

N 12°38'16" W a distance of 163.10 feet to a point;

N 77°21'31" E a distance of 189.15 feet to a point;

S 12°38'12" E a distance of 32.74 feet to a point;

N 77°18'44" E a distance of 58.51 feet to the point of beginning.

The above-described sub-area of land contains 38,471 square feet and is more particularly shown as Sub-Area D on Sheet 2 of 2 on the above-referenced Plan of Restricted Area.

Other Ground-Covering Feature Sub-Area E

Beginning at a point at the southwest corner of the area herein described at the southwesterly corner of the foundation of an existing building, which point can be further described as being located N 86°33'46" E a distance of 56.98 feet from the southeast corner of the above-described Sub-Area D;

Running thence the following courses along the face of the foundation of said building:

N 12°43'50 W a distance of 12.51 feet to a point;

N 77°30'16" E a distance of 1.03 feet to a point;

N 12°35'06" W a distance of 193.09 feet to a point;

N 76°30'33" E a distance of 1.84 feet to a point;

N 13°08'53" W a distance of 9.98 feet to a point;

N 77°26'30" E a distance of 44.45 feet to a point;

S 13°13'30" E a distance of 203.06 feet to a point;

N 75°07'14" E a distance of 0.93 feet to a point;

S 13°00'35" E a distance of 12.54 feet to a point;

S 77°22'54" W a distance of 50.48 feet to the point of beginning.

The above-described sub-area of land contains 10,225 square feet and is more particularly shown as Sub-Area E on Sheet 2 of 2 on the above-referenced Plan of Restricted Area.

Other Ground-Covering Feature Sub-Area F

Beginning at a point at the northeast corner of the area herein described at the northeasterly corner of the foundation of an existing building, which point can be further described as being located S 02°49'13" W a distance of 105.68 feet from the southeast corner of the above-described Sub-Area D;

Running thence the following courses along the face of the foundation of said building:

S 12°40'32" E a distance of 122.43 feet to a point;
S 77°27'24" W a distance of 72.14 feet to a point;
S 13°00'07" E a distance of 0.93 feet to a point;
S 77°24'47" W a distance of 71.38 feet to a point;
N 12°40'24" W a distance of 14.67 feet to a point;
S 77°28'03" W a distance of 59.69 feet to a point;
N 12°40'22" W a distance of 108.32 feet to a point;
N 77°16'03" E a distance of 59.71 feet to a point;
N 12°37'09" W a distance of 0.85 feet to a point;
N 77°22'51" E a distance of 71.31 feet to a point;
S 11°19'19" E a distance of 0.75 feet to a point;
N 77°26'16" E a distance of 72.20 feet to the point of beginning.

The above-described sub-area of land contains 24,159 square feet and is more particularly shown as Sub-Area F on Sheet 2 of 2 on the above-referenced Plan of Restricted Area.

OPEN SOIL/VEGETATED AREA

The Open Soil/Vegetated Area consists of land in the city of Pittsfield, Berkshire County, Massachusetts, bounded and described as follows:

Beginning at a point located at the northwesterly corner of the parcel herein described in the easterly line of 1931 city layout of New York Avenue;

Running thence N 62°29'52" E through the land of General Electric Company a distance of 615.28 feet to a point at the southwesterly corner of land conveyed to the City of Pittsfield by deed dated February 15, 1950 and recorded in the Berkshire Middle District Registry of Deeds in Book 554, Page 59;

Running thence N 62°29'52" E along said land of the City of Pittsfield a distance of 833.87 feet to the southeasterly corner of said land of the City of Pittsfield;

Running thence S 26°50' E a distance of 294.4 feet to a point;

Running thence N 68°58' E a distance of 62.8 feet to a point;

Running thence N 65°14' E a distance of 373.6 feet to a point;

Running thence S 74°27' E a distance of 11.8 feet to a point;

Running thence S 21°53' E a distance of 200.1 feet to a point;

Running thence S 25°19' E a distance of 115.2 feet to a point;

Running thence S 64°16' W a distance of 123.0 feet to a point;

Running thence S 26°04' E a distance of 330.1 feet to a point;

Running thence N 79°53' E a distance of 125.9 feet to a point;

Running thence S 27°29' E a distance of 279.7 feet to a point;

Running thence S 32°22' E a distance of 49.2 feet to a point;

Running thence S 42°41' E a distance of 50.3 feet to a point in the northerly sideline of the 2004 state layout of Merrill Road;

Running thence S 45°07'33" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 36.22 feet to a point;

Running thence along the sideline of the said 2004 state layout of Merrill Road following a curve to the right with a radius of 434.03 feet and an arc distance of 14.87 feet to the northeasterly corner of land taken by the City of Pittsfield by instrument dated December 18, 1996 and recorded in said Registry of Deeds in Book 1542, Page 41;

Running thence N 65°54'43" W along the northerly line of said land taken by the City of Pittsfield and along the northerly line of other land taken by the City of Pittsfield by instrument dated February 4, 1998 and recorded in said Registry of Deeds in Book 1593, Page 182, a distance of 233.25 feet to the northwesterly corner thereof;

Running thence S 13°41'23" W along the westerly line of said land taken by the City of Pittsfield and along the westerly line of land conveyed to Angelo and Onorini Battaini by deed dated October 28, 1944 and recorded in said Registry of Deeds in Book 511, Page 402, a distance of 217.58 feet to the southwesterly corner thereof in the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence S 81°45'18" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 57.75 feet to a point at the intersection of the northerly sideline of the

1918 city layout of said Merrill Road and the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence N 82°15'54" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 513.77 feet to a point;

Running thence S 81°09'36" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 449.08 feet to a point;

Running thence S 67°39'39" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 115.34 feet to a point;

Running thence S 67°40'35" W along the northerly sideline of the 1807 county layout of said Merrill Road a distance of 65.49 feet to a point;

Running thence S 60°47'37" W along the northerly sideline of the said 1807 county layout of Merrill Road a distance of 244.56 feet to a point at the intersection of the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence along the sideline of the said 2004 state layout of Merrill Road following a curve to the left with a radius of 8051.53 feet and an arc distance of 163.13 to a point;

Running thence S 81°40'11" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 61.30 feet to a point at the intersection of the easterly sideline of the 1931 city layout of New York Avenue;

Running thence N 27°27'49" W along the easterly sideline of the said 1931 city layout of New York Avenue a distance of 835.05 feet to the point of beginning.

Excepting and excluding from above-described parcel of land the above-described Other-Ground Covering Feature Sub-Areas A, C, D, E, and F and an area bounded and described as follows:

Beginning at a point located S 34°45'04" E a distance of 105.61 feet from the above-mentioned southwesterly corner of land conveyed to the City of Pittsfield by deed dated February 15, 1950 and recorded in the said Registry of Deeds in Book 554, Page 59;

Running thence N 52°20' E a distance of 36.0 feet to a point;

Running thence N 61°09' E a distance of 178.0 feet to a point;

Running thence N 62°41' E a distance of 245.0 feet to a point;

Running thence N 70°24' E a distance of 26.0 feet to a point;

Running thence N 04°13' W a distance of 23.0 feet to a point;

Running thence N 16°09' E a distance of 14.0 feet to a point;
Running thence N 51°45' E a distance of 25.0 feet to a point;
Running thence N 62°03' E a distance of 113.0 feet to a point;
Running thence N 72°19' E a distance of 33.5 feet to a point;
Running thence N 83°45' E a distance of 47.0 feet to a point;
Running thence S 85°35' E a distance of 34.5 feet to a point;
Running thence S 63°10' E a distance of 79.4 feet to a point;
Running thence S 39°01' E a distance of 62.0 feet to a point;
Running thence S 25°50' E a distance of 79.0 feet to a point;
Running thence S 85°45' E a distance of 28.0 feet to a point;
Running thence N 70°58' E a distance of 364.0 feet to a point;
Running thence N 80°30' E a distance of 34.0 feet to a point;
Running thence S 64°00' E a distance of 16.0 feet to a point;
Running thence S31°38' E a distance of 57.0 feet to a point;
Running thence S 23°03' E a distance of 119.5 feet to a point;
Running thence S 14°38' E a distance of 42.0 feet to a point;
Running thence S 33°55' W a distance of 23.5 feet to a point;
Running thence S 58°40' W a distance of 85.5 feet to a point;
Running thence S 13°02' E a distance of 75.0 feet to a point;
Running thence S 42°26' E a distance of 20.3 feet to a point;
Running thence S 18°07' E a distance of 65.0 feet to a point;
Running thence S 37°30' W a distance of 67.3 feet to a point;
Running thence S 76°28' W a distance of 107.0 feet to a point;

Running thence N 76°49' W a distance of 20.3 feet to a point;

Running thence N 50°24' W a distance of 25.0 feet to a point;

Running thence N 23°31' W a distance of 86.0 feet to a point;

Running thence N 11°09' W a distance of 91.2 feet to a point;

Running thence N 54°25' W a distance of 29.0 feet to a point;

Running thence N 88°56' W a distance of 25.0 feet to a point;

Running thence S 78°45' W a distance of 73.8 feet to a point;

Running thence S 77°24' W a distance of 77.5 feet to a point;

Running thence S 76°12' W a distance of 114.5 feet to a point;

Running thence S 81°48' W a distance of 81.5 feet to a point;

Running thence S 09°27' E a distance of 18.5 feet to a point;

Running thence S 80°33' W a distance of 20.4 feet to a point;

Running thence following a curve to the left with a radius of 22.0 and an arc distance of 33.3 feet to a point;

Running thence S 06°12' E a distance of 52.0 feet to a point;

Running thence S 00°53' W a distance of 24.0 feet to a point;

Running thence following a curve to the right with a radius of 65.0 feet and an arc distance of 84.7 to a point;

Running thence S 75°32' W a distance of 64.0 feet to a point;

Running thence S 35°41' W a distance of 4.5 feet to a point;

Running thence S 11°23' E a distance of 61.0 feet to a point;

Running thence following a curve to the right with a radius of 75.0 feet and an arc distance of 117.8 feet to a point;

Running thence S 78°37' W a distance of 37.0 feet to a point;

Running thence N 11°23' W a distance of 15.0 feet to a point;

Running thence N 78°37' E a distance of 41.0 feet to a point;

Running thence following a curve to the left with a radius of 53.0 feet and an arc distance of 83.8 feet to a point;

Running thence N 12°02' W a distance of 54.0 feet to a point;

Running thence S 07°32' E a distance of 59.0 feet to a point;

Running thence S 16°12' W a distance of 31.0 feet to a point;

Running thence S 56°21' W a distance of 36.0 feet to a point;

Running thence S 76°15' W a distance of 96.0 feet to a point;

Running thence S 85°33' W a distance of 59.0 feet to a point;

Running thence N 78°42' W a distance of 31.0 feet to a point;

Running thence N 77°00' W a distance of 50.0 feet to a point;

Running thence N 69°22' W a distance of 46.0 feet to a point;

Running thence N 64°09' W a distance of 50.0 feet to a point;

Running thence N 47°36' W a distance of 25.0 feet to a point;

Running thence N 52°13' W a distance of 39.0 feet to a point;

Running thence N 41°28' W a distance of 64.0 feet to a point;

Running thence N 33°25' W a distance of 76.2 feet to a point;

Running thence N 23°19' W a distance of 65.4 feet to a point;

Running thence N 06°33' E a distance of 137.3 feet to the point of beginning.

The above-described area of land contains 28.037 acres of land and is more particularly shown as the Open Soil/Vegetated Area on the above-referenced Plan of Restricted Area.

EXHIBIT D

HEALTH AND SAFETY PROTOCOL

1. This Health and Safety Protocol is an Exhibit to a certain Grant of Environmental Restriction and Easement (the "Grant") relating to the GE-Pittsfield/Housatonic River Site. All terms used in this Protocol shall have the same meaning as defined in the Grant.
2. Except as provided below, in Paragraph 3 of this Protocol, Grantor shall prepare and submit a Health and Safety Plan ("HSP") to Grantee and EPA pursuant to Paragraph 20 ("Agency Review and Comment; Notices") of the Grant, fifteen (15) days or more before conducting any permitted activity or use pursuant to Paragraph 4 ("Permitted Activities and Uses") of the Grant that is subject to this Health and Safety Protocol or as otherwise required by the Grant. If appropriate, Grantor may submit a pre-existing health and safety plan in lieu of preparing a new plan to address this requirement and/or incorporate by reference a previously submitted HSP. Grantor shall comply with the HSP when conducting any permitted activity or use pursuant to the Grant that is subject to this Health and Safety Protocol or as otherwise required by the Grant.
3. An HSP shall not be required for any excavation permitted pursuant to the following subparagraphs of the Grant: 4.A ("Surface Excavation of Ten (10) Cubic Yards or Less"), 4.B ("Surface Excavation of any Volume"), and/or 4.D ("Surface and/or Subsurface Excavation for Utility Work"), provided that the excavation permitted under subparagraph 4.D is conducted solely within one (1) foot of the surface of the ground in the Open Soil/Vegetated Area.
4. The HSP shall be prepared in accordance with the occupational health and safety provisions of 29 Code of Federal Regulations § 1910.120 otherwise applicable to hazardous waste operations and emergency response, as amended, and, any other applicable federal, state or local law. For any utility repair, maintenance or installation in confined spaces, the HSP shall also be prepared in accordance with the provisions of 29 Code of Federal Regulations § 1910.146, otherwise applicable to work in confined spaces, as amended.
5. In addition to the requirements of Paragraph 4 of this Protocol, the HSP shall, without limitation, include the following items:
 - a. General information on the nature, extent, and concentrations of hazardous substances (as defined by CERCLA) and hazardous materials and oil (as defined by Chapter 21E) anticipated in the media to be impacted by the permitted activity and use, based upon existing information.
 - b. Description of tasks which may involve exposure to hazardous substances, hazardous materials, or oil.
 - c. Description of anticipated actions to protect the health, safety, and welfare of workers and the general public. Actions shall include, but not be limited to, dust control, odor

control, personal protective equipment, and erosion and sedimentation control measures (as needed for the particular permitted activity and use).

- d. Discussion of relevant physical, chemical, and biological hazards. (Relevant portions of Material Safety Data Sheets may be incorporated as appropriate.)
- e. A requirement that all persons engaged in the work read and acknowledge the provisions of the HSP and document compliance with said provisions.
- f. A requirement that all persons engaged in the work receive appropriate training in matters of health and safety in accordance with 29 Code of Federal Regulations Section 1910.120, as amended, and, any other applicable federal, state or local law.

6. The HSP shall be approved by a Certified Industrial Hygienist.

7. The Grant and this Health and Safety Protocol are in addition to and do not supersede or relieve Grantor, Grantor's contractors or subcontractors, or any other person or entity performing work on the Property from complying with any applicable federal, state, or local laws, rules or regulations regarding health and safety. Notwithstanding the Grant and this Health and Safety Protocol, it remains the responsibility of such parties to comply with any applicable federal, state, or local laws, rules or regulations regarding health and safety, even if they are more stringent than the requirements of the Grant and this Health and Safety Protocol.

EXHIBIT E

SOIL MANAGEMENT PROTOCOL

1. This Soil Management Protocol is an Exhibit to a certain Grant of Environmental Restriction and Easement (the "Grant") relating to the GE-Pittsfield/Housatonic River Site. All terms used in this Protocol shall have the same meaning as defined in the Grant.
2. Soil sampling and excavation shall be conducted with the oversight of a Licensed Site Professional ("LSP"), to the extent required by Paragraph 4 ("Permitted Activities and Uses") of the Grant.
3. Soil and materials from within the Open Soil/Vegetated Area which have been excavated solely within one (1) foot of the surface of the ground may be: (i) disposed of in the Open Soil/Vegetated Area, with no sampling required; (ii) disposed of off-Property, in accordance with Paragraph 9 of this Protocol; (iii) returned to the original excavation for use as backfill, with no sampling required; or (iv) a combination of the management options listed in this Paragraph 3 of this Protocol.
4. Soil and materials from within the Open Soil/Vegetated Area, and excavated below one (1) foot of the surface of the ground, or from within the Other Ground-Covering Feature Area and excavated from any depth, may be (i) returned to the original excavation, with no sampling required, to within one (1) foot of the surface of the ground, with the remaining portion of the original excavation backfilled with clean soil or with soil excavated solely from the top one (1) foot of the original excavation; (ii) disposed of off-Property, in accordance with Paragraph 9 of this Protocol; or (iii) a combination of the management options listed in this Paragraph 4 of this Protocol.
5. As required by Paragraph 4 ("Permitted Activities and Uses") of the Grant, Grantor shall return the Property, or any portion thereof, to its prior condition immediately upon completion of such activity or use. Such restoration shall include, without limitation: (i) backfilling excavations to the original surface grade with clean soil, except for any soil that may be returned to the original excavation pursuant to this Protocol; (ii) replacing and repairing any aspects or component of the Other Ground-Covering Feature Area disturbed by the activities and uses allowed hereunder; and (iii) reestablishing any disturbed vegetation.
6. Grantor shall implement the management procedures and measures required by the provisions of 310 Code of Massachusetts Regulations (CMR) Section 40.0018 (1) and (2) otherwise applicable to response actions, as amended. Excavations permitted under subparagraphs 4.A, 4.B, 4.C, 4.D and 4.E (except as otherwise provided in subparagraph 4.E) of the Grant shall be conducted in a timely fashion so as to minimize the time when excavated areas are open and/or excavated materials are stored on the Property to the minimum time practicable for such activity; provided, however, that the duration of such excavation shall not exceed fourteen (14) days. Grantor shall, during excavation, use best management practices to control contaminant migration, exposure to contaminant material, and erosion, runoff, and dust emissions.

7. Grantor shall keep separate: (i) soil excavated from within the top one (1) foot of the ground in the Open Soil/Vegetated Area; (ii) soil excavated from below the top one (1) foot of the ground in the Open Soil/Vegetated Area or, regardless of depth, from within the Other Ground-Covering Feature Area; and (iii) clean backfill. The location of the storage of excavated soil and other materials shall be either (i) in the same Restricted Area from which they were excavated, or (ii) as otherwise authorized by applicable state or federal laws and regulations. All soil and other material shall be stored in a manner consistent with 310 CMR § 40.0036 (as amended) and in accordance with: (a) EPA approval under 40 Code of Federal Regulations § 761.61(c) (as amended); or (b) 40 Code of Federal Regulations § 761.65 (as amended); or (c) the following requirements: Such materials shall be placed on an impermeable liner to prevent contact with the underlying ground surface, and shall then be covered by a second impermeable membrane. This cover shall remain in place at all times when the storage area is not actively being used, and shall be securely anchored to the ground using weight devices. The storage area shall be located such that potential impacts due to rainfall, wind, and surface runoff are minimized.

8. Any materials (e.g., soils, sediments, and personal protective equipment) excavated, collected, placed, used and/or stored on the Property or elsewhere, in connection with such excavation, shall be properly disposed of, or shipped or removed from the Property for proper disposal, within ninety (90) days from the date of such initial storage or within such longer time as is permitted under any applicable state or federal law or regulation.

9. All off-Property disposal of soil and other materials, including without limitation, used personal protective equipment, shall be at a facility licensed to accept such materials and in compliance with all applicable laws, rules and regulations. All disposal of soil and other materials off-Property or outside the restricted area from which such soils and materials were excavated shall be conducted with the oversight of an LSP. All off-Property disposal shall comply with all applicable laws, rules, and regulations. Grantor shall conduct sampling sufficient to assure adequate characterization for off-Property disposal subject to oversight by an LSP and in accordance with state and federal laws and regulations, including, without limitation, 310 CMR § 40.0017.

EXHIBIT F

POST-WORK NOTIFICATION FORM FOR PROPERTY WITH ERE GRANT

I. General Information

Type of work: Surface (*top foot*) excavation of greater than five (5) cubic feet and less than or equal to ten (10) cubic yards (per Grant Paragraph 4.A)

(*check all that apply*) Surface (*top foot*) excavation of any volume (per Grant Paragraph 4.B)

Subsurface (*deeper than top foot*) excavation of ten (10) cubic yards or less (per Grant Paragraph 4.C)

Surface or subsurface excavation for Utility Work (per Grant Paragraph 4.D)

Emergency excavation (per Grant Paragraph 8)

Property Address: _____

Tax Parcel ID: _____

II. Description of Excavation Activities

Start date of excavation/soil disturbance: _____

End date of excavation/soil disturbance: _____

Amount of soil excavated or moved: _____

Any soil or other excavated material moved out of the Restricted Area? Yes No

Excavation dimensions (*approximate length x width x depth, in feet*): _____

Description of project (*attach extra sheets, if necessary*): _____

Final disposition of soil: (*attach bills of lading and certificates of disposals, if applicable*): _____

Attach a plan (*e.g., a copy of the Plan of Restricted Area*) showing:

- (1) location of excavation(s) within the property
- (2) direction
- (3) major site features (*e.g., roads, buildings, edges of pavement/barriers, locations of utilities if known*)

Attach photographs of work area prior to work, during work and post-restoration work, if available (*optional*).

Was soil sampling and analysis conducted? Yes No

If Yes, attach analytical results and show sampling locations (*and indicate depths*) on an attached plan.

Were the Health and Safety Protocol and/or the Soil Management Protocol (*as defined in the ERE Grant*), if applicable, followed? (*check each that applies*¹)

- Health and Safety Protocol was followed
- Soil Management Protocol was followed
- Not Applicable

¹ See note 3 in Section V ("Notes About the Use of this Form"), below.

III. Additional Information for Emergency Excavation.

If work was conducted as an Emergency Excavation (*see Paragraph 8 ("Emergency Excavation") of the ERE Grant*):

- (1) Attach an opinion and completion report prepared by an appropriately trained and licensed professional (*including copy of written plan for restoration*).
- (2) Date and time property owner first obtained knowledge of the emergency: _____
- (3) Date and time property owner provided oral notification of the emergency to DEP: _____

IV. Signature

Two signatures are required (except for excavations pursuant to Grant Paragraph 4.A or the last paragraph of Grant Paragraph 8, for which only the owner or person conducting the work must sign). The property owner, or person conducting the work if other than the property owner, and the Licensed Site Professional who has overseen the work (where required) must each complete and sign the statement, below.

Owner or person conducting the work if other than the property owner:

I, _____, to the best of my knowledge and belief, state that the material information contained in this submittal is true, accurate and complete.

By: _____

Signature: _____

Name/Title: _____

Organization: _____

Address: _____

Telephone #: _____

Relationship to site: _____

Licensed Site Professional:

I, _____, to the best of my knowledge and belief, state that the material information contained in this submittal is true, accurate and complete.

By: _____

Signature: _____

Name/Title: _____

Organization: _____

Address: _____

Telephone #: _____

Relationship to site: _____

V. Notes About the Use of this Form

(1) This form is due no later than thirty (30) days after completion of the permitted activities and uses under Paragraph 4 ("Permitted Activities and Uses") of the ERE Grant. For emergency excavations pursuant to Paragraph 8 of the ERE Grant ("Emergency Excavation"), verbal notification is required as soon as possible but no more than two hours after learning of the emergency, and this form is for the post-emergency excavation notice and is due within ten (10) days after completion of the necessary restoration in accordance with Paragraph 8 of the ERE Grant.

(2) Separate, 15 days' advance written notice is required for Utility Work excavation activity, pursuant to Paragraph 4.D ("Surface and/or Subsurface Excavation for Utility Work") of the ERE Grant.

(3) The Health and Safety Protocol and the Soil Management Protocol do not apply to the Permitted Activities and Uses set forth in Paragraph 4.A ("Surface Excavation of Ten (10) Cubic Yards or Less") of the ERE Grant. These protocols also do not apply to the Permitted Activities and Uses set forth in Paragraph 4.B ("Surface Excavation of any Volume") of the ERE Grant, except for off-Property disposal, to which Paragraph 9 of the Soil Management Protocol applies.

VI. Where to Submit this Form

Submit this completed form, via certified mail, to: MA Department of Environmental Protection
Bureau of Waste Site Cleanup, Special Projects
436 Dwight Street
Springfield, Massachusetts 01103
(Attn.: GE Housatonic Removal Action Project Manager)

Submit a copy of this form, via certified mail, to: U.S. Environmental Protection Agency
Office of Site Remediation and Restoration
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
(Attn.: GE-Pittsfield/Housatonic River Site)

EXHIBIT G

EXHIBIT G



William F. Weld
Governor
Daniel S. Greenbaum
Commissioner

Commonwealth of Massachusetts
Executive Office of Environmental Affairs
**Department of
Environmental Protection**

**WATER WITHDRAWAL PERMIT
MGL c21G**

This permit is issued pursuant to the Massachusetts Water Management Act for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This permit conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P-1-02-236.01 RIVER BASIN: Housatonic

PERMITTEE: Altresco Pittsfield L.P.
235 Merrill Road, P.O. Box 4579
Pittsfield, MA 01202

EFFECTIVE DATE: November 10, 1993

EXPIRATION DATE: May 31, 2012

NUMBER OF WITHDRAWAL POINTS: 4

Groundwater: 4
Surface Water: 0

USE: Industrial

DAYS OF OPERATION: 365

LOCATION(S): _____

<u>Source</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Location</u>
Well #3	42 27 22	73 13 03	235 Merrill Road
Well #4	42 27 24	73 13 06	235 Merrill Road
Well #5	42 27 22	73 13 06	235 Merrill Road
Well #6	42 27 25	73 13 04	235 Merrill Road

One Winter Street • Boston, Massachusetts 02108 • FAX (617) 556-1039 • Telephone (617) 292-5500

Apr 9 1999 8:25 P.M.

MADEP Special Projects FAX: 413-784-1333

SPECIAL CONDITIONS1. Authorized Withdrawal Volume

This permit authorizes the withdrawal of water, on average over a calendar year, at the rate described below.

The permitted volume is expressed in millions of gallons, both as an average daily withdrawal rate per year and as a total annual withdrawal volume for each five-year period of the twenty-year permit term.

Withdrawals are authorized as follows:

		Daily Average <u>(MGD)</u>	Total Annual <u>(MGY)</u>
Period One			
Years 2-5	11/10/1993 to 5/31/1997	1.58	576.6
Period Two			
Years 6-10	6/1/1997 to 5/31/2002	1.58	576.6
Period Three			
Years 11-15	6/1/2002 to 5/31/2007	1.58	576.6
Period Four			
Years 16-20	6/1/2007 to 5/31/2012	1.58	576.6

2. Authorized Withdrawal Points

Withdrawals from individual withdrawal points are not to exceed the approved daily volume listed below without specific advance written approval from the Department.

<u>Source</u>	Daily Rate <u>(mgd)</u>
Well #3	0.44
Well #4	0.44
Well #5	1.01
Well #6	0.29

3. Wetlands Monitoring

Monitoring of the wetlands adjacent to wells 3, 4, 5 and 6 is required on an annual basis. Your monitoring efforts should be consistent with the Department-approved monitoring plan submitted by your consultant Design Group, Inc on May 27, 1993. It should include physical inspection of the wetlands by a trained and qualified professional. Reports detailing

the results of the annual inspection, including a listing of wetland plant species distribution and relative abundance, must be maintained and submitted to the Department at the five year review of this permit.

4. Water Quality Monitoring

Semi-annual monitoring of water quality using EPA method 608 should be performed for PCB's and volatile organic compounds on water quality samples collected from production well w-5. Production well w-5 is to be monitored because of its high production rate and its use as the primary well for the facility.

5. Water Conservation Requirements

Based on the minimum water conservation requirements, the Department has accepted Altresco Pittsfield L.P.'s Water Conservation Plan as a permit condition.

i\dlevangie\00permit

GENERAL CONDITIONS (applicable to all permittees)

1. **Duty to Comply** The permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance** The permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw up to the authorized volume so as not to impair the purposes and interests of the Act.
3. **Entry and Inspections** The permittee or the permittee's agent shall allow personnel or authorized agents or employees of the Department to enter and examine any property for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.
4. **Water Emergency** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by the Department pursuant to MGL c 21G ss 15-17, MGL c 150 ss 111, or any other enabling authority.
5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
6. **Duty to Report** The permittee shall submit annually, on a form provided by the Department, a certified statement of the withdrawal, such report to be received by the Department by January 31st of each year. Such report must be mailed or hand delivered to:

Department of Environmental Protection
Division of Water Supply
Water Management Program
One Winter Street
Boston, MA 02108
7. **Duty to Maintain Records** The permittee shall be responsible for maintaining monthly withdrawal records.
8. **Metering** All withdrawal points included within the permit shall be metered within one year of the date of issuance of the permit. Meters shall be calibrated annually.

APPEAL RIGHTS AND TIME LIMITS

This permit is a decision of the Department. Any person aggrieved by this decision may request an adjudicatory hearing. Any such request must be made in writing, by certified mail and received by the Department within twenty-one (21) days of the date of receipt of this permit. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail, or delivered by hand to the local water resources management official in the city or town in which the withdrawal point is located; and for any person appealing this decision, who is not the applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

CONTENTS OF HEARING REQUEST

310 CMR 1.01(6)(b) requires the request to include a clear and concise

statement of the facts which are the grounds for the request and the relief sought. In addition, the request must include a statement of the reasons why the decision of the Department is not consistent with applicable rules and regulations, and for any person appealing this decision who is not the applicant, a clear and concise statement of how that person is aggrieved by the issuance of this permit.

FILING FEE AND ADDRESS

The hearing request, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, Ma. 02211

The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

EXEMPTIONS

The filing fee is not required if the appellant is a city or town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

WAIVER

The Department may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of the Department that the fee will create an undue financial hardship. A person, seeking a waiver must file, together with the hearing request, an affidavit setting forth the facts which support the claim of undue hardship.

NO WITHDRAWAL AUTHORIZED HEREIN SHALL EXCEED THE SAFE YIELD OF THE BASIN AS DETERMINED BY THE DEPARTMENT.

NO WITHDRAWAL IN EXCESS OF 100,000 GALLONS PER DAY OVER THE REGISTERED VOLUME (if any) SHALL BE MADE FOLLOWING THE EXPIRATION OF THIS PERMIT, UNLESS BEFORE THAT DATE THE DEPARTMENT HAS RECEIVED A RENEWAL PERMIT APPLICATION PURSUANT TO 310 CMR 36.00.

EXHIBIT H

40.1403: Minimum Public Involvement Activities in Response Actions

* * *

(7) Within thirty days after recording and/or registering any original, amended, released or terminated Activity and Use Limitation pursuant to 310 CMR 40.1070 through 40.1080, the following requirements shall be met to inform local officials and the public of the limitations which apply to activities and/or uses of the property subject to the Activity and Use Limitation:

(a) a copy of the recorded and/or registered Activity and Use Limitation shall be provided to:

1. the Chief Municipal Officer;
2. the Board of Health;
3. the Zoning Official; and
4. the Building Code Enforcement Official in the community(ies) in which the property subject to such Activity and Use Restriction is located.

(b) a legal notice which indicates the recording and/or registering of the original, amended, released or terminated Activity and Use Limitation shall be published in a newspaper which circulates in the community(ies) in which the property subject to the Activity and Use Limitation is located.

1. This notice shall be in a form established by the Department for such purpose and shall include, but not be limited to:
 - a. the name, address, and Release Tracking Number(s) of the disposal site associated with the Activity and Use Limitation;
 - b. the type of Activity and Use Limitation;
 - c. information about where the Activity and Use Limitation instrument and disposal site file can be reviewed; and
 - d. the name, address and telephone number of the person recording and/or registering the Activity and Use Limitation from whom the public can obtain additional information.
2. A copy of this legal notice shall be submitted to the Department within seven days of its publication.



Subordination Agreements –

Western Massachusetts Electric
Company (WMECO)



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SUBORDINATION AGREEMENT

EPA Site Name: GE-Pittsfield/Housatonic River Site
DEP Disposal Site Name: GE Pittsfield Disposal Sites
DEP Disposal Site Nos. GECD160

WESTERN MASSACHUSETTS ELECTRIC COMPANY (hereinafter "WMECO"), a corporation duly organized under the laws of Massachusetts and having a principal of business at One Federal Street, Building 111-4, Springfield, MA 01105, is the holder of an easement for transmission of electricity on the property designated as Tax Parcel No. K11-7-2 in Pittsfield, Massachusetts, granted by Ernesta Germano to Pittsfield Electric Company (now WMECO) by instrument dated January 29, 1940, and recorded in the Berkshire Middle District Registry of Deeds in Book 484, Page 463. In addition, WMECO may have unrecorded rights in or an easement on a nearby portion of that tax parcel as shown on a plan recorded in the same Registry of Deeds in Plat B, Number 292. The above-referenced recorded easement and other interests that WMECO may have in this property are referred to jointly herein as the "WMECO Interests."

For the WMECO Interests, WMECO hereby assents to the Grant of Environmental Restriction and Easement ("Grant") granted by the General Electric Company to the Massachusetts Department of Environmental Protection dated June 8, 2011, and recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Book 4793 Page 1, and agrees that WMECO shall be subject to said Grant and to the rights, covenants, restrictions and easements created by and under said Grant insofar as the WMECO Interests affect the property identified in the Grant and as if for all purposes the Grant had been executed, delivered and recorded prior to the execution, delivery and recordation or other obtaining of the WMECO Interests.

In witness whereof, WMECO has caused its corporate seal to be affixed hereto and this instrument to be executed, acknowledged and delivered in its name and behalf by its

Manager Customer Operations, hereto duly authorized, this 14th day of December, 2010.

WESTERN MASSACHUSETTS ELECTRIC COMPANY

By: *John S. Tulloch*

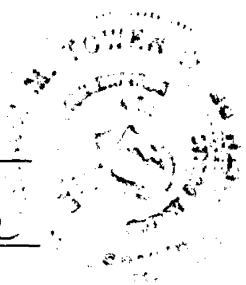
Printed Name: JOHN S. TULLOCH

Its: MANAGER, Customer Operations

State of Massachusetts)
County of Hampden) ss:

On this 14th day of December, 2010, before me, the undersigned notary public, personally appeared John S. Tulloch (name of signer), as Manager Customer Operations (title of signer) of Western Massachusetts Electric Company, a corporation, proved to me through satisfactory evidence of identification, which was Company ID Badge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

Sharon M. Tower
Notary Public
My Commission Expires: 2/23/2012



SHARON M. TOWER, Notary Public
Commonwealth of Massachusetts
My Commission Expires Feb. 23, 2012



Subordination Agreements –

City of Pittsfield



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SUBORDINATION AGREEMENT

EPA Site Name: GE-Pittsfield/Housatonic River Site
DEP Site Name: GE Pittsfield Disposal Sites
DEP Disposal Site No. GECD160

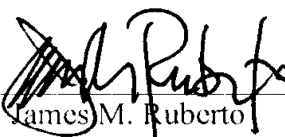
The City of Pittsfield (the "City"), Berkshire County, Massachusetts, is the holder of a sewer and drain easement granted to the City by General Electric Company by instrument dated May 12, 1950, recorded May 17, 1950, in the Berkshire Middle District Registry of Deeds in Book 542, Page 293, on the property designated as Tax Parcel K11-7-2. In addition, the City may have unrecorded rights in another recently installed sewer line and drain line on the said Tax Parcel. These unrecorded rights, if any, along with the recorded easement referenced above, are referred to collectively herein as the "City Easement Interests."

For the City Easement Interests, the City hereby assents to the Grant of Environmental Restriction and Easement ("Grant") granted by the General Electric Company to the Massachusetts Department of Environmental Protection dated June 8, 2011, and recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Book 4193, Page 1, and agrees that the City shall be subject to the Grant and to the rights, covenants, restrictions and easements created by and under the Grant insofar as the City Easement Interests affect the Property identified in the Grant and as if for all purposes the Grant had been executed, delivered and recorded prior to the execution, delivery and recordation or other obtaining of the City Easement Interests.

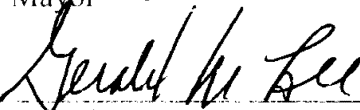
In witness whereof, the City of Pittsfield has caused this instrument to be executed, sealed with the City seal, acknowledged and delivered by James M. Ruberto, its Mayor, and Gerald M. Lee, its City Council President, this ~~20th~~ day of February, 2011.

CITY OF PITTSFIELD

By: _____


James M. Ruberto
Mayor

By: _____


Gerald M. Lee
City Council President

COMMONWEALTH OF MASSACHUSETTS

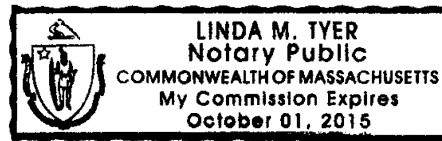
County of Berkshire, ss.

On this 28th day of February, 2011, before me, the undersigned notary public, personally appeared James M. Ruberto, Mayor of the City of Pittsfield, and Gerald M. Lee, President of the City Council of the City of Pittsfield, proved to me through satisfactory evidence of identification, which were Mass Drivers' Licenses, to be the persons whose names are signed on the preceding or attached document, and acknowledged to me that they signed it voluntarily for its stated purpose, as Mayor and President of the City Council, respectively, of the City of Pittsfield.

Linda M. Tyer

Notary Public

My Commission Expires: Oct 1, 2015





Subordination Agreements –

Berkshire Gas



2011 00807855

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SUBORDINATION AGREEMENT

EPA Site Name: GE-Pittsfield/Housatonic River Site
DEP Disposal Site Name: GE Pittsfield Disposal Sites
DEP Disposal Site No. GECD160

THE BERKSHIRE GAS COMPANY (hereinafter "Berkshire Gas"), a corporation duly organized under the laws of Massachusetts and having its principal place of business at 115 Cheshire Street, Pittsfield, Massachusetts 01202, is the holder of a gas pipeline easement ("Utility Easement") granted by the General Electric Company ("GE") to Berkshire Gas on December 11, 1989, and recorded in the Berkshire Middle District Registry of Deeds on December 20, 1989, at Book 1289, Page 1016, as amended by Amendment to Easement, dated January 29, 1993, and recorded in said Registry of Deeds on February 2, 1993, in Book 1390, Page 712.

Berkshire Gas hereby assents to the Grant of Environmental Restriction and Easement ("Grant") granted by GE to the Massachusetts Department of Environmental Protection (relating to a Property owned by GE that includes the Utility Easement) dated June 8, _____, 2011, and recorded in the Berkshire Middle District Registry of Deeds on August 11 _____, 2011, in Book 4793 Page 1, and agrees that Berkshire Gas shall be subject to said Grant and to the rights, covenants, restrictions and easements created by and under said Grant insofar as the interests created under the Utility Easement affect the Property identified in the Grant and as if for all purposes said Grant had been executed, delivered and recorded prior to the execution, delivery and recordation of the Utility Easement.

IN WITNESS WHEREOF, the said Berkshire Gas has caused its corporate seal to be hereto affixed and these presents to be signed, acknowledged and delivered in its name and

behalf by its PRES, TREAS. + COO, hereto duly authorized, this 23 day of MARCH, 2011.

THE BERKSHIRE GAS COMPANY

By: Karen Zink

Printed Name: Karen Zink

Its: President, Treasurer & COO

COMMONWEALTH OF MASSACHUSETTS

COUNTY OF BERKSHIRE) SS:

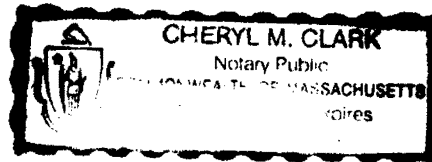
On this 23 day of MARCH, 2011, before me, the undersigned notary public, personally appeared KAREN ZINK (name of signer), as PRES, TREAS. + COO (title of signer) of THE BERKSHIRE GAS COMPANY, a corporation, proved to me through satisfactory evidence of identification, which was PERSONALLY KNOWN (type of identification), to be the person whose name is signed on the preceding or attached document, and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

Cheryl M. Clark

NOTARY PUBLIC

My Commission Expires: 1-17-2014

(seal)





Subordination Agreements –

Commonwealth of Massachusetts,
Department of Transportation



Bk: 4793 Pg: 65 Doc: SUB
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SUBORDINATION AGREEMENT

EPA Site Name: GE-Pittsfield/Housatonic River Site
DEP Disposal Site Name: GE Pittsfield Disposal Sites
DEP Disposal Site No. GECD160

The Commonwealth of Massachusetts, Department of Transportation ("Department") is the holder of drain and slope easements on property owned by the General Electric Company ("GE") and designated as Tax Parcel No. K11-7-2 in Pittsfield, Massachusetts, by virtue of an order of taking dated September 10, 1997, recorded in the Berkshire Middle District Registry of Deeds on September 25, 1997, in Book 1574, Page 163.

The Department hereby assents to the Grant of Environmental Restriction and Easement ("Grant") granted by GE to the Massachusetts Department of Environmental Protection (which Grant covers a portion of the above-referenced property) dated June 8, 2011, and recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Book 4793 Page 1, and agrees that the Department shall be subject to said Grant and to the rights, covenants, restrictions and easements created by and under said Grant insofar as the interests of the Department created under the above-referenced easements affect the property identified in the Grant and as if for all purposes said Grant had been executed, delivered and recorded prior to the execution, delivery and recordation of said easements.

WITNESS the execution hereof this 27th day of April, 2011.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TRANSPORTATION

By: Francis A. DePaola

Printed Name: Francis A. DePaola

Its: Acting Highway Administrator

Commonwealth of Massachusetts)

County of SUFFOLK)ss:

On this 27 day of APRIL, 2011, before me, the undersigned notary public, personally appeared FRANCIS A. DePAOLA (name of signer), as Acting Highway Administrator (title of signer) of the Massachusetts Department of Transportation, proved to me through satisfactory evidence of identification, which was His identity known to me, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

Lillian R. Dykes

NOTARY PUBLIC LILLIAN R. DYKES

My Commission Expires: 10/27/2017

(seal)





Subordination Agreements –
Pittsfield Generating Company, L.P.



Bk: 4793 Pg: 67 Doc: SUB
Page: 1 of 2 08/11/2011 02:55 PM

**SUBORDINATION AGREEMENT
(HILL 78 AREA-REMAINDER)**

EPA Site Name: GE-Pittsfield/Housatonic River Site
DEP Disposal Site Name: GE Pittsfield Disposal Sites
DEP Disposal Site No. GECD160

Pittsfield Generating Company, L.P. is the lessee under a Memorandum of Lease, Grant of Easements and Restrictive Covenant (“Memorandum of Lease”) executed by the General Electric Company (“GE”) and U.S. Bank National Association (as Owner Trustee under a Trust Agreement with Pittsfield Power Holding Company, LLC, dated as of September 24, 1990) as of August 6, 2008, and recorded in the Berkshire Middle District Registry of Deeds on the same date in Book 4114, Page 203, said Owner Trustee having subsequently assigned and transferred all of its right, title, and interest in, under, and with respect to the Memorandum of Lease to Pittsfield Generating Company, L.P. pursuant to a Memorandum of Assignment of Lease and Assignment of Grant of Easements and Restrictive Covenant (“Memorandum of Assignment”), dated August 6, 2008, and recorded in the Berkshire Middle District Registry of Deeds on the same date in Book 4114, Page 228. By virtue of the Memorandum of Lease and Memorandum of Assignment, Pittsfield Generating Company, L.P. (“Lessee”) has interests in properties owned by GE in Pittsfield, Massachusetts, designated as Tax Parcels Nos. K11-7-201 and K11-7-2.

Lessee hereby assents to the Grant of Environmental Restriction and Easement (“Grant”) granted by GE to the Massachusetts Department of Environmental Protection (which Grant includes Tax Parcel No. K11-7-201 and a portion of Tax Parcel K11-7-2 within the Property subject thereto) dated June 8, 2011, and recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Book 4793 Page 1, and agrees that Lessee’s interests in the Property created under the Memorandum of Lease and Memorandum of Agreement shall be subject to said Grant and to the rights, covenants, restrictions and easements created by and under said Grant insofar as Lessee’s interests created

under the Memorandum of Lease and Memorandum of Assignment affect the Property identified in the Grant and as if for all purposes said Grant had been executed, delivered and recorded prior to the execution, delivery, and recordation of said Memorandum of Lease and Memorandum of Assignment.

WITNESS the execution hereof this 7th day of February, 2011.

PITTSFIELD GENERATING COMPANY, L.P.

By: Pittsfield Power GP LLC, its general partner

By: Pittsfield Power Holding Company LLC, its sole member

By: 

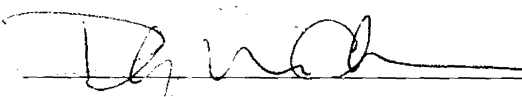
Printed Name: K. James Urcuhart

Title: President and CEO

Province of ALBERTA)

City of CALGARY) ss:

On this 7 day of FEBRUARY, 2011, before me, the undersigned Notary Public, personally appeared K. JAMES URCUHART (name of signer), as PRESIDENT & CEO (title of signer) of Pittsfield Power Holding Company LLC, proved to me through satisfactory evidence of identification, which was ALBERTA OPERATORS LICENCE, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.



PHYLLIS M. Y. CHAU, NOTARY PUBLIC
Barrister and Solicitor

My Commission Expires: AT DEATH.

(seal)



Title Insurance Policy

OWNER'S POLICY OF TITLE INSURANCE

Issued by
Commonwealth Land Title Insurance Company

Any notice of claim and any other notice or statement in writing required to be given to the Company under this Policy must be given to the Company at the address shown in Section 18 of the Conditions.

COVERED RISKS

SUBJECT TO THE EXCLUSIONS FROM COVERAGE, THE EXCEPTIONS FROM COVERAGE CONTAINED IN SCHEDULE B, AND THE CONDITIONS, COMMONWEALTH LAND TITLE INSURANCE COMPANY, a Nebraska corporation (the "Company") insures, as of Date of Policy and, to the extent stated in Covered Risks 9 and 10, after Date of Policy, against loss or damage, not exceeding the Amount of Insurance, sustained or incurred by the Insured by reason of:

1. Title being vested other than as stated in Schedule A.
2. Any defect in or lien or encumbrance on the Title. This Covered Risk includes but is not limited to insurance against loss from
 - (a) A defect in the Title caused by
 - (i) forgery, fraud, undue influence, duress, incompetency, incapacity, or impersonation;
 - (ii) failure of any person or Entity to have authorized a transfer or conveyance;
 - (iii) a document affecting Title not properly created, executed, witnessed, sealed, acknowledged, notarized, or delivered;
 - (iv) failure to perform those acts necessary to create a document by electronic means authorized by law;
 - (v) a document executed under a falsified, expired, or otherwise invalid power of attorney;
 - (vi) a document not properly filed, recorded, or indexed in the Public Records including failure to perform those acts by electronic means authorized by law; or
 - (vii) a defective judicial or administrative proceeding.
 - (b) The lien of real estate taxes or assessments imposed on the Title by a governmental authority due or payable, but unpaid.
 - (c) Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.
3. Unmarketable Title.
4. No right of access to and from the Land.
5. The violation or enforcement of any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (a) the occupancy, use, or enjoyment of the Land;
 - (b) the character, dimensions, or location of any improvement erected on the Land;
 - (c) the subdivision of land; or
 - (d) environmental protectionif a notice, describing any part of the Land, is recorded in the Public Records setting forth the violation or intention to enforce, but only to the extent of the violation or enforcement referred to in that notice.
6. An enforcement action based on the exercise of a governmental police power not covered by Covered Risk 5 if a notice of the enforcement action, describing any part of the Land, is recorded in the Public Records, but only to the extent of the enforcement referred to in that notice.
7. The exercise of the rights of eminent domain if a notice of the exercise, describing any part of the Land, is recorded in the Public Records.
8. Any taking by a governmental body that has occurred and is binding on the rights of a purchaser for value without Knowledge.
9. Title being vested other than as stated in Schedule A or being defective
 - (a) as a result of the avoidance in whole or in part, or from a court order providing an alternative remedy, of a transfer of all or any part of the title to or any interest in the Land occurring prior to the transaction vesting Title as shown in Schedule A because that prior transfer constituted a fraudulent or preferential transfer under

federal bankruptcy, state insolvency, or similar creditors' rights laws; or

(b) because the instrument of transfer vesting Title as shown in Schedule A constitutes a preferential transfer under federal bankruptcy, state insolvency, or similar creditors' rights laws by reason of the failure of its recording in the Public Records

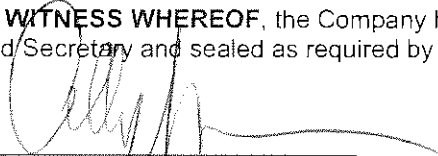
(i) to be timely, or

(ii) to impart notice of its existence to a purchaser for value or to a judgment or lien creditor.

10. Any defect in or lien or encumbrance on the Title or other matter included in Covered Risks 1 through 9 that has been created or attached or has been filed or recorded in the Public Records subsequent to Date of Policy and prior to the recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

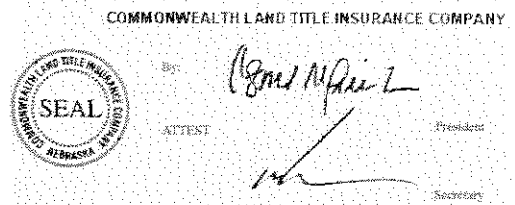
The Company will also pay the costs, attorneys' fees, and expenses incurred in defense of any matter insured against by this Policy, but only to the extent provided in the Conditions.

IN WITNESS WHEREOF, the Company has caused this Policy to be signed with the facsimile signatures of its President and Secretary and sealed as required by its By-Laws.



Authorized Signatory
Anthony G. Massimiano

MA0635 AGM10-H78RA
George, DeGregorio, Massimiano & McCarthy, P.C.
2 South St, Ste 255
Pittsfield, MA 01201
Tel: (413) 499-4400
Fax: (413) 499-0716



ALTA OWNERS POLICY

Issued by **COMMONWEALTH LAND TITLE INSURANCE COMPANY**



FILE NUMBER	DATE OF POLICY	POLICY AMOUNT	POLICY NUMBER
AGM10-H78RA	8/11/2011 at 2:55 P.M.	\$400,000.00	MA0635-81-AGM10- H78RA-2011.81306- 84102616
ADDRESS REFERENCE:	Tax Parcels Nos. K11-7-201, K11-7-1 and portion of K11-7-2, Pittsfield, MA 01201		

SCHEDULE A

1. Name of Insured:

Massachusetts Department of Environmental Protection

2. The estate or interest in the Land that is insured by this policy is:

Grant of Environmental Restriction and Easement, in accordance with the terms thereof

3. The estate or interest referred to herein is at Date of Policy vested in the Insured, as Grantee, by virtue of and in accordance with the terms of a Grant of Environmental Restriction and Easement made by General Electric Company and granted to the Insured, dated June 8, 2011 and recorded on August 11, 2011 in the Berkshire Middle District Registry of Deeds as Document No. 00807852 in Book 4793, Page 1.

NOTE: Fee simple is vested in General Electric Company as of the date and time of this policy.

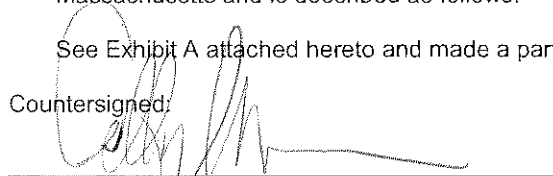
4. The land herein described is encumbered by the following mortgage and assignments:

NONE

5. The land referred to in this policy is situated in the City of Pittsfield, County of Berkshire, Commonwealth of Massachusetts and is described as follows:

See Exhibit A attached hereto and made a part hereof.

Countersigned:



Authorized Officer or Agent
George, DeGregorio, Massimiano & McCarthy, P.C.

**COMMONWEALTH LAND TITLE INSURANCE COMPANY
OWNER'S POLICY
SCHEDULE B**

FILE NUMBER
AGM10-H78RA

POLICY NUMBER
MA0635-81- AGM10-H78RA- 2011.81306- 84102616

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of the following:

1. Riparian rights of others.
2. Taxes assessed as of January 1, 2011, for the fiscal period beginning July 1, 2011, which are not yet due and payable, and for subsequent years.

Note: This policy insures that the quarterly taxes are paid through September 30, 2011.

3. Easement reserved by Pittsfield Industrial Development Corporation ("PIDC"), its successors and assigns, including the City of Pittsfield, for sewer and surface water drain easements in deed of said PIDC to General Electric Company, dated December 30, 1927, and recorded in Book 434, Page 573.

Note: This Policy affirmatively insures against loss or damage arising out of the attempted enforcement of the easement rights of PIDC, its successors and assigns."

4. Rights of United States America, Department of Navy, under contract to construct emergency plant facilities on land of General Electric Company, entered into between United States of America, Department of Navy, and General Electric Company, dated February 21, 1945, recorded February 26, 1945, in Book 500, Page 476.
5. Rights of United States of America – Bureau of Ships, under contract to construct emergency plant facilities on land of General Electric Company, entered into between United States of America, Department of Navy – Bureau of Ships, and General Electric Company, dated February 19, 1942, recorded February 1, 1943, in Book 501, Page 248.
6. Option to purchase granted by General Electric Company to United States of America, Department of Navy, by Option Agreement, dated June 28, 1957, recorded July 24, 1968, in Book 860, Page 262.
7. This policy contains the Change Endorsement attached hereto and incorporated herein by reference as Exhibit B.

NOTE: This policy omits any covenants, condition or restriction referred to above, if any, which is based on race, color, religion, sex, handicap, familial status or national origin, unless and only to the extent that the restriction is not in violation of state or federal law, or relates to a handicap, but does not discriminate against handicapped people.

EXHIBIT A
Description of Insured Premises

Land in the city of Pittsfield, Berkshire County, Massachusetts, bounded and described as follows:

Beginning at a point located at the northwesterly corner of the parcel herein described in the easterly line of the 1931 city layout of New York Avenue;

Running thence N 62°29'52" E through the land of General Electric Company a distance of 615.28 feet to a point at the southwesterly corner of land conveyed to the City of Pittsfield by deed dated February 15, 1950 and recorded in the Berkshire Middle District Registry of Deeds in Book 554, Page 59;

Running thence N 62°29'52" E along said land of the City of Pittsfield a distance of 833.87 feet to the southeasterly corner of said land of the City of Pittsfield;

Running thence S 26°50' E a distance of 294.4 feet to a point;

Running thence N 68°58' E a distance of 62.8 feet to a point;

Running thence N 65°14' E a distance of 373.6 feet to a point;

Running thence S 74°27' E a distance of 11.8 feet to a point;

Running thence S 21°53' E a distance of 200.1 feet to a point;

Running thence S 25°19' E a distance of 115.2 feet to a point;

Running thence S 64°16' W a distance of 123.0 feet to a point;

Running thence S 26°04' E a distance of 330.1 feet to a point;

Running thence N 79°53' E a distance of 125.9 feet to a point;

Running thence S 27°29' E a distance of 279.7 feet to a point;

Running thence S 32°22' E a distance of 49.2 feet to a point;

Running thence S 42°41' E a distance of 50.3 feet to a point in the northerly sideline of the 2004 state layout of Merrill Road;

Running thence S 45°07'33" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 36.22 feet to a point;

Running thence along the sideline of the said 2004 state layout of Merrill Road following a curve to the right with a radius of 434.03 feet and an arc distance of 14.87 feet to the northeasterly corner of land taken by the City of Pittsfield by instrument dated December 18, 1996 and recorded in said Registry of Deeds in Book 1542, Page 41;

Running thence N 65°54'43" W along the northerly line of said land taken by the City of Pittsfield and along the northerly line of other land taken by the City of Pittsfield by instrument dated February 4, 1998 and recorded in said Registry of Deeds in Book 1593, Page 182, a distance of 233.25 feet to the northwesterly corner thereof;

Running thence S 13°41'23" W along the westerly line of said land taken by the City of Pittsfield and along the westerly line of land conveyed to Angelo and Onorini Battaini by deed dated October 28, 1944 and recorded in said Registry of Deeds in Book 511, Page 402, a distance of 217.58 feet to the southwesterly corner thereof in the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence S 81°45'18" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 57.75 feet to a point at the intersection of the northerly sideline of the 1918 city layout of said Merrill Road and the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence N 82°15'54" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 513.77 feet to a point;

Running thence S 81°09'36" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 449.08 feet to a point;

Running thence S 67°39'39" W along the northerly sideline of the said 1918 city layout of Merrill Road a distance of 115.34 feet to a point;

Running thence S 67°40'35" W along the northerly sideline of the 1807 county layout of said Merrill Road a distance of 65.49 feet to a point;

Running thence S 60°47'37" W along the northerly sideline of the said 1807 county layout of Merrill Road a distance of 244.56 feet to a point at the intersection of the northerly sideline of the said 2004 state layout of Merrill Road;

Running thence along the sideline of the said 2004 state layout of Merrill Road following a curve to the left with a radius of 8051.53 feet and an arc distance of 163.13 to a point;

Running thence S 81°40'11" W along the northerly sideline of the said 2004 state layout of Merrill Road a distance of 61.30 feet to a point at the intersection of the easterly sideline of the 1931 city layout of New York Avenue;

Running thence N 27°27'49" W along the easterly sideline of the said 1931 city layout of New York Avenue a distance of 835.05 feet to the point of beginning.

Excepting and excluding from the above-described parcel an area, described as the On-Plant Consolidation Areas, bounded as follows:

Beginning at a point located S 34°45'04" E a distance of 105.61 feet from the southwesterly corner of the said land conveyed to the City of Pittsfield by deed dated February 15, 1950 and recorded in the said Registry of Deeds in Book 554, Page 59;

Running thence N 52°20' E a distance of 36.0 feet to a point;

Running thence N 61°09' E a distance of 178.0 feet to a point;

Running thence N 62°41' E a distance of 245.0 feet to a point;

Running thence N 70°24' E a distance of 26.0 feet to a point;

Running thence N 04°13' W a distance of 23.0 feet to a point;

Running thence N 16°09' E a distance of 14.0 feet to a point;

Running thence N 51°45' E a distance of 25.0 feet to a point;

Running thence N 62°03' E a distance of 113.0 feet to a point;

Running thence N 72°19' E a distance of 33.5 feet to a point;

Running thence N 83°45' E a distance of 47.0 feet to a point;

Running thence S 85°35' E a distance of 34.5 feet to a point;

Running thence S 63°10' E a distance of 79.4 feet to a point;

Running thence S 39°01' E a distance of 62.0 feet to a point;

Running thence S 25°50' E a distance of 79.0 feet to a point;

Running thence S 85°45' E a distance of 28.0 feet to a point;

Running thence N 70°58' E a distance of 364.0 feet to a point;

Running thence N 80°30' E a distance of 34.0 feet to a point;
Running thence S 64°00' E a distance of 16.0 feet to a point;
Running thence S 31°38' E a distance of 57.0 feet to a point;
Running thence S 23°03' E a distance of 119.5 feet to a point;
Running thence S 14°38' E a distance of 42.0 feet to a point;
Running thence S 33°55' W a distance of 23.5 feet to a point;
Running thence S 58°40' W a distance of 85.5 feet to a point;
Running thence S 13°02' E a distance of 75.0 feet to a point;
Running thence S 42°26' E a distance of 20.3 feet to a point;
Running thence S 18°07' E a distance of 65.0 feet to a point;
Running thence S 37°30' W a distance of 67.3 feet to a point;
Running thence S 76°28' W a distance of 107.0 feet to a point;
Running thence N 76°49' W a distance of 20.3 feet to a point;
Running thence N 50°24' W a distance of 25.0 feet to a point;
Running thence N 23°31' W a distance of 86.0 feet to a point;
Running thence N 11°09' W a distance of 91.2 feet to a point;
Running thence N 54°25' W a distance of 29.0 feet to a point;
Running thence N 88°56' W a distance of 25.0 feet to a point;
Running thence S 78°45' W a distance of 73.8 feet to a point;
Running thence S 77°24' W a distance of 77.5 feet to a point;
Running thence S 76°12' W a distance of 114.5 feet to a point;
Running thence S 81°48' W a distance of 81.5 feet to a point;
Running thence S 73°52' W a distance of 35.5 feet to a point;
Running thence S 37°22' W a distance of 25.0 feet to a point;
Running thence S 03°02' W a distance of 25.0 feet to a point;
Running thence S 05°08' E a distance of 31.0 feet to a point;
Running thence S 03°51' W a distance of 41.0 feet to a point;
Running thence S 17°11' W a distance of 20.5 feet to a point;
Running thence S 50°48' W a distance of 30.0 feet to a point;
Running thence S 76°11' W a distance of 58.0 feet to a point;
Running thence S 61°58' W a distance of 23.3 feet to a point;
Running thence S 04°19' W a distance of 30.0 feet to a point;

Running thence S 07°32' E a distance of 59.0 feet to a point;
Running thence S 16°12' W a distance of 31.0 feet to a point;
Running thence S 56°21' W a distance of 36.0 feet to a point;
Running thence S 76°15' W a distance of 96.0 feet to a point;
Running thence S 85°33' W a distance of 59.0 feet to a point;
Running thence N 78°42' W a distance of 31.0 feet to a point;
Running thence N 77°00' W a distance of 50.0 feet to a point;
Running thence N 69°22' W a distance of 46.0 feet to a point;
Running thence N 64°09' W a distance of 50.0 feet to a point;
Running thence N 47°36' W a distance of 25.0 feet to a point;
Running thence N 52°13' W a distance of 39.0 feet to a point;
Running thence N 41°28' W a distance of 64.0 feet to a point;
Running thence N 33°25' W a distance of 76.2 feet to a point;
Running thence N 23°19' W a distance of 65.4 feet to a point;
Running thence N 06°33' E a distance of 137.3 feet to the point of beginning.

Further excluding any interest of the owner of the above-described property in New York Avenue and in all of the aforementioned layouts of Merrill Road.

The above-described parcel of land contains 29.989 acres of land and is more particularly shown on a plan entitled "Plan of Property, Hill 78 Area-Remainder," dated February 11, 2011, consisting of two sheets, prepared by Hill Engineers, Architects, Planners, Dalton, Massachusetts, which plan was recorded in the Berkshire Middle District Registry of Deeds on August 11, 2011, in Plat J, No. 59.

EXHIBIT B

Commonwealth Land Title Insurance Company

CHANGE ENDORSEMENT

To be annexed to and form a part of Policy Number: **MA0635-81-AGM10-H78RA-2011.81306-84102616**
Insuring:

Massachusetts Department of Environmental Protection (the "Insured") as Grantee, by virtue of and in accordance with the terms of a Grant of Environmental Restriction and Easement made by the City of Pittsfield, Massachusetts and granted to the Insured

Said Policy is hereby amended in the following manner:

Section 14 of the "Conditions" section of said policy, entitled "Arbitration", is hereby deleted.

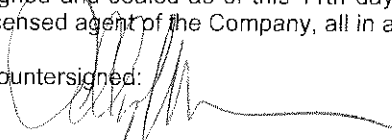
The total liability of the company under said Policy and any endorsements attached thereto shall not exceed, in the aggregate, the face amount of said Policy and costs which the Company is obligated under the provisions of said Policy to pay.

This endorsement is made a part of said Policy and is subject to the exclusions, schedule, endorsements, conditions, stipulations and terms thereof, except as modified by the provisions hereof.

Nothing herein contained shall be construed as extending or changing the effective date of said Policy, unless otherwise expressly stated.

IN WITNESS WHEREOF COMMONWEALTH LAND TITLE INSURANCE COMPANY has caused this endorsement to be signed and sealed as of this 11th day of August, 2011. to be valid when countersigned by an authorized officer or licensed agent of the Company, all in accordance with its By-Laws.

Countersigned:



Authorized Officer or Agent
Anthony G. Massimiano
George, DeGregorio, Massimiano & McCarthy, P.C.
Berkshire Common, Suite 255
2 South Street
Pittsfield, MA 01201
Agent ID: MA0635

Change Endorsement

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
 - (a) a fraudulent conveyance or fraudulent transfer; or
 - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

CONDITIONS

1. DEFINITION OF TERMS

The following terms when used in this policy mean:

(a) "Amount of Insurance": The amount stated in Schedule A, as may be increased or decreased by endorsement to this policy, increased by Section 8(b), or decreased by Sections 10 and 11 of these Conditions.

(b) "Date of Policy": The date designated as "Date of Policy" in Schedule A.

(c) "Entity": A corporation, partnership, trust, limited liability company, or other similar legal entity.

(d) "Insured": The Insured named in Schedule A.

(i) The term "Insured" also includes

(A) successors to the Title of the Insured by operation of law as distinguished from purchase, including heirs, devisees, survivors, personal representatives, or next of kin;

(B) successors to an Insured by dissolution, merger, consolidation, distribution, or reorganization;

(C) successors to an Insured by its conversion to another kind of Entity;

(D) a grantee of an Insured under a deed delivered without payment of actual valuable

consideration conveying the Title

(1) if the stock, shares, memberships, or other equity interests of the grantee are wholly-owned by the named Insured,

(2) if the grantee wholly owns the named Insured,

(3) if the grantee is wholly-owned by an affiliated Entity of the named Insured, provided the affiliated Entity and the named Insured are both wholly-owned by the same person or Entity, or

(4) if the grantee is a trustee or beneficiary of a trust created by a written instrument established by the Insured named in Schedule A for estate planning purposes.

(ii) With regard to (A), (B), (C), and (D) reserving, however, all rights and defenses as to any successor that the Company would have had against any predecessor Insured.

(e) "Insured Claimant": An Insured claiming loss or damage.

(f) "Knowledge" or "Known": Actual knowledge, not constructive knowledge or notice that may be imputed to an Insured by reason of the Public Records or any other records that impart constructive notice of matters

affecting the Title.

(g) "Land": The land described in Schedule A, and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is insured by this policy.

(h) "Mortgage": Mortgage, deed of trust, trust deed, or other security instrument, including one evidenced by electronic means authorized by law.

(i) "Public Records": Records established under state statutes at Date of Policy for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge. With respect to Covered Risk 5(d), "Public Records" shall also include environmental protection liens filed in the records of the clerk of the United States District Court for the district where the Land is located.

(j) "Title": The estate or interest described in Schedule A.

(k) "Unmarketable Title": Title affected by an alleged or apparent matter that would permit a prospective purchaser or lessee of the Title or lender on the Title to be released from the obligation to purchase, lease, or lend if there is a contractual condition requiring the delivery of marketable title.

2. CONTINUATION OF INSURANCE

The coverage of this policy shall continue in force as of Date of Policy in favor of an Insured, but only so long as the Insured retains an estate or interest in the Land, or holds an obligation secured by a purchase money Mortgage given by a purchaser from the Insured, or only so long as the Insured shall have liability by reason of warranties in any transfer or conveyance of the Title. This policy shall not continue in force in favor of any purchaser from the Insured of either (i) an estate or interest in the Land, or (ii) an obligation secured by a purchase money Mortgage given to the Insured.

3. NOTICE OF CLAIM TO BE GIVEN BY INSURED CLAIMANT

The Insured shall notify the Company promptly in writing (i) in case of any litigation as set forth in Section 5(a) of these Conditions, (ii) in case Knowledge shall come to an Insured hereunder of any claim of title or interest that is adverse to the Title, as insured, and that might cause loss or damage for which the Company may be liable by virtue of this policy, or (iii) if the Title, as insured, is rejected as Unmarketable Title. If the Company is prejudiced by the failure of the Insured Claimant to provide prompt notice, the Company's liability to the Insured Claimant under the policy shall be reduced to the extent of the prejudice.

4. PROOF OF LOSS

In the event the Company is unable to determine the amount of loss or damage, the Company may, at its option, require as a condition of payment that the Insured Claimant furnish a signed proof of loss. The proof of loss must describe the defect, lien, encumbrance, or other matter insured against by this policy that constitutes the basis of loss or damage and shall state, to the extent possible, the basis of calculating the amount of the loss or damage.

5. DEFENSE AND PROSECUTION OF ACTIONS

(a) Upon written request by the Insured, and subject to the options contained in Section 7 of these Conditions, the Company, at its own cost and without unreasonable delay, shall provide for the defense of an Insured in litigation in which any third party asserts a claim covered by this policy adverse to the Insured. This obligation is limited to only those stated causes of action alleging matters insured against by this policy. The Company shall have the right to select counsel of its choice (subject to the right of the Insured to object for reasonable cause) to represent the Insured as to those stated causes of action. It shall not be liable for and will not pay the fees of any other counsel. The Company will not pay any fees, costs, or expenses incurred by the Insured in the defense of those causes of action that allege matters not insured against by this policy.

(b) The Company shall have the right, in addition to the options contained in Section 7 of these Conditions, at its own cost, to institute and prosecute any action or proceeding or to do any other act that in its opinion may be necessary or desirable to establish the Title, as insured, or to prevent or reduce loss or damage to the Insured. The Company may take any appropriate action under the terms of this policy, whether or not it shall be liable to the Insured. The exercise of these rights shall not be an admission of liability or waiver of any provision of this policy. If the Company exercises its rights under this subsection, it must do so diligently.

(c) Whenever the Company brings an action or asserts a defense as required or permitted by this policy, the Company may pursue the litigation to a final determination by a court of competent jurisdiction, and it expressly reserves the right, in its sole discretion, to appeal any adverse judgment or order.

6. DUTY OF INSURED CLAIMANT TO COOPERATE

(a) In all cases where this policy permits or requires the Company to prosecute or provide for the defense of any action or proceeding and any appeals, the Insured shall secure to the Company the right to so prosecute or provide defense in the action or proceeding, including the right to use, at its option, the name of the Insured for this purpose. Whenever requested by the Company, the Insured, at the Company's expense, shall give the Company all reasonable aid (i) in securing

evidence, obtaining witnesses, prosecuting or defending the action or proceeding, or effecting settlement, and (ii) in any other lawful act that in the opinion of the Company may be necessary or desirable to establish the Title or any other matter as insured. If the Company is prejudiced by the failure of the Insured to furnish the required cooperation, the Company's obligations to the Insured under the policy shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation, with regard to the matter or matters requiring such cooperation.

(b) The Company may reasonably require the Insured Claimant to submit to examination under oath by any authorized representative of the Company and to produce for examination, inspection, and copying, at such reasonable times and places as may be designated by the authorized representative of the Company, all records, in whatever medium maintained, including books, ledgers, checks, memoranda, correspondence, reports, e-mails, disks, tapes, and videos whether bearing a date before or after Date of Policy, that reasonably pertain to the loss or damage. Further, if requested by any authorized representative of the Company, the Insured Claimant shall grant its permission, in writing, for any authorized representative of the Company to examine, inspect, and copy all of these records in the custody or control of a third party that reasonably pertain to the loss or damage. All information designated as confidential by the Insured Claimant provided to the Company pursuant to this Section shall not be disclosed to others unless, in the reasonable judgment of the Company, it is necessary in the administration of the claim. Failure of the Insured Claimant to submit for examination under oath, produce any reasonably requested information, or grant permission to secure reasonably necessary information from third parties as required in this subsection, unless prohibited by law or governmental regulation, shall terminate any liability of the Company under this policy as to that claim.

7. OPTIONS TO PAY OR OTHERWISE SETTLE CLAIMS; TERMINATION OF LIABILITY

In case of a claim under this policy, the Company shall have the following additional options:

(a) To Pay or Tender Payment of the Amount of Insurance.

To pay or tender payment of the Amount of Insurance under this policy together with any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to the time of payment or tender of payment and that the Company is obligated to pay.

Upon the exercise by the Company of this option, all liability and obligations of the Company to the Insured under this policy, other than to make the payment required in this subsection, shall terminate, including any

liability or obligation to defend, prosecute, or continue any litigation.

(b) To Pay or Otherwise Settle With Parties Other Than the Insured or With the Insured Claimant.

(i) To pay or otherwise settle with other parties for or in the name of an Insured Claimant any claim insured against under this policy. In addition, the Company will pay any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to the time of payment and that the Company is obligated to pay; or

(ii) To pay or otherwise settle with the Insured Claimant the loss or damage provided for under this policy, together with any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to the time of payment and that the Company is obligated to pay.

Upon the exercise by the Company of either of the options provided for in subsections (b)(i) or (ii), the Company's obligations to the Insured under this policy for the claimed loss or damage, other than the payments required to be made, shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation.

8. DETERMINATION AND EXTENT OF LIABILITY

This policy is a contract of indemnity against actual monetary loss or damage sustained or incurred by the Insured Claimant who has suffered loss or damage by reason of matters insured against by this policy.

(a) The extent of liability of the Company for loss or damage under this policy shall not exceed the lesser of

(i) the Amount of insurance; or

(ii) the difference between the value of the Title as insured and the value of the Title subject to the risk insured against by this policy.

(b) If the Company pursues its rights under Section 5 of these Conditions and is unsuccessful in establishing the Title, as insured,

(i) the Amount of Insurance shall be increased by 10%, and

(ii) the Insured Claimant shall have the right to have the loss or damage determined either as of the date the claim was made by the Insured Claimant or as of the date it is settled and paid.

(c) In addition to the extent of liability under (a) and (b), the Company will also pay those costs, attorneys' fees, and expenses incurred in accordance with Sections 5 and 7 of these Conditions.

9. LIMITATION OF LIABILITY

(a) If the Company establishes the Title, or removes the alleged defect, lien, or encumbrance, or cures the lack of a right of access to or from the Land, or cures the claim of Unmarketable Title, all as insured, in a reasonably diligent manner by any method, including



litigation and the completion of any appeals, it shall have fully performed its obligations with respect to that matter and shall not be liable for any loss or damage caused to the Insured.

(b) In the event of any litigation, including litigation by the Company or with the Company's consent, the Company shall have no liability for loss or damage until there has been a final determination by a court of competent jurisdiction, and disposition of all appeals, adverse to the Title, as insured.

(c) The Company shall not be liable for loss or damage to the Insured for liability voluntarily assumed by the Insured in settling any claim or suit without the prior written consent of the Company.

10. REDUCTION OF INSURANCE; REDUCTION OR TERMINATION OF LIABILITY

All payments under this policy, except payments made for costs, attorneys' fees, and expenses, shall reduce the Amount of Insurance by the amount of the payment.

11. LIABILITY NONCUMULATIVE

The Amount of Insurance shall be reduced by any amount the Company pays under any policy insuring a Mortgage to which exception is taken in Schedule B or to which the Insured has agreed, assumed, or taken subject, or which is executed by an Insured after Date of Policy and which is a charge or lien on the Title, and the amount so paid shall be deemed a payment to the Insured under this policy.

12. PAYMENT OF LOSS

When liability and the extent of loss or damage have been definitely fixed in accordance with these Conditions, the payment shall be made within 30 days.

13. RIGHTS OF RECOVERY UPON PAYMENT OR SETTLEMENT

(a) Whenever the Company shall have settled and paid a claim under this policy, it shall be subrogated and entitled to the rights of the Insured Claimant in the Title and all other rights and remedies in respect to the claim that the Insured Claimant has against any person or property, to the extent of the amount of any loss, costs, attorneys' fees, and expenses paid by the Company. If requested by the Company, the Insured Claimant shall execute documents to evidence the transfer to the Company of these rights and remedies. The Insured Claimant shall permit the Company to sue, compromise, or settle in the name of the Insured Claimant and to use the name of the Insured Claimant in any transaction or litigation involving these rights and remedies.

If a payment on account of a claim does not fully cover the loss of the Insured Claimant, the Company shall defer the exercise of its right to recover until after the Insured Claimant shall have recovered its loss.

(b) The Company's right of subrogation

includes the rights of the Insured to indemnities, guaranties, other policies of insurance, or bonds, notwithstanding any terms or conditions contained in those instruments that address subrogation rights.

14. ARBITRATION

Either the Company or the Insured may demand that the claim or controversy shall be submitted to arbitration pursuant to the Title Insurance Arbitration Rules of the American Land Title Association ("Rules"). Except as provided in the Rules, there shall be no joinder or consolidation with claims or controversies of other persons. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the Insured arising out of or relating to this policy, any service in connection with its issuance or the breach of a policy provision, or to any other controversy or claim arising out of the transaction giving rise to this policy. All arbitrable matters when the Amount of Insurance is \$2,000,000 or less shall be arbitrated at the option of either the Company or the Insured.

All arbitrable matters when the Amount of Insurance is in excess of \$2,000,000 shall be arbitrated only when agreed to by both the Company and the Insured.

Arbitration pursuant to this policy and under the Rules shall be binding upon the parties. Judgment upon the award rendered by the Arbitrator(s) may be entered in any court of competent jurisdiction.

15. LIABILITY LIMITED TO THIS POLICY; POLICY ENTIRE CONTRACT

(a) This policy together with all endorsements, if any, attached to it by the Company is the entire policy and contract between the Insured and the Company. In interpreting any provision of this policy, this policy shall be construed as a whole.

(b) Any claim of loss or damage that arises out of the status of the Title or by any action asserting such claim shall be restricted to this policy.

(c) Any amendment of or endorsement to this policy must be in writing and authenticated by an authorized person, or expressly incorporated by Schedule A of this policy.

(d) Each endorsement to this policy issued at any time is made a part of this policy and is subject to all of its terms and provisions. Except as the endorsement expressly states, it does not (i) modify any of the terms and provisions of the policy, (ii) modify any prior endorsement, (iii) extend the Date of Policy, or (iv) increase the Amount of Insurance.

16. SEVERABILITY

In the event any provision of this policy, in whole or in part, is held invalid or unenforceable under applicable law, the policy shall be deemed not to include that provision or such part held to be invalid, but all other provisions shall remain in full force and effect.

17. CHOICE OF LAW; FORUM

(a) Choice of Law: The Insured acknowledges the Company has underwritten the risks covered by this policy and determined the premium charged therefor in reliance upon the law affecting interests in real property and applicable to the interpretation, rights, remedies, or enforcement of policies of title insurance of the jurisdiction where the Land is located.

Therefore, the court or an arbitrator shall apply the law of the jurisdiction where the Land is located to determine the validity of claims against the Title that are adverse to the Insured and to interpret and enforce the terms of this policy. In neither case shall the court or arbitrator apply its conflicts of law principles to determine the applicable law.

(b) Choice of Forum: Any litigation or other proceeding brought by the Insured against the Company must be filed only in a state or federal court within the United States of America or its territories having appropriate jurisdiction.

18. NOTICES, WHERE SENT

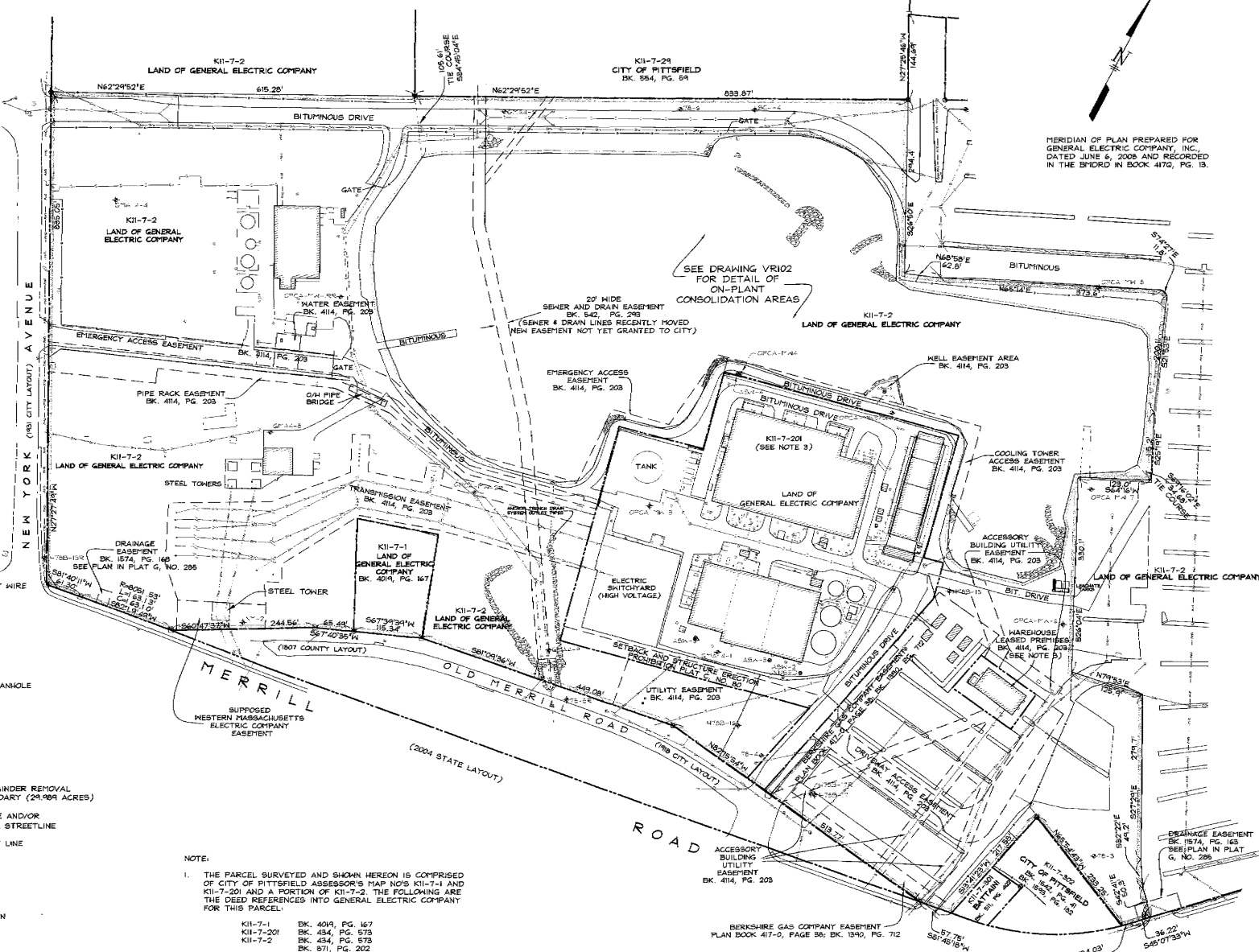
Any notice of claim and any other notice or statement in writing required to be given to the Company under this Policy must be given to the Company at: P.O. Box 45023, Jacksonville, FL 32232-5023.





Plan of Property

Plan 3 459
 COUNTY OF BERKSHIRE
 SUBJECT: ELECTRIC FACILITY OF GEORGIA
 PLAN RECEIVED AND FILED FOR RECORD
 Aug. 11, 2011 at 2:55 PM
 IN PLAT J #559 (2 Sheets)
 SEE INSTRUMENT RECORDED IN
 BOOK 4793 PAGE 1
 Arthur F. Zif Jr.



MERIDIAN OF PLAN PREPARED FOR
 GENERAL ELECTRIC COMPANY, INC.
 DATED JUNE 6, 2008 AND RECORDED
 IN THE BIRD IN BOOK 4170, PG. 13.

SEE DRAWING VRI02
 FOR DETAIL OF
 ON-PLANT
 CONSOLIDATION AREAS

I CERTIFY THAT THIS PLAN HAS BEEN
 PREPARED IN CONFORMITY WITH THE
 RULES AND REGULATIONS OF THE
 REGISTERED PROFESSIONAL LAND SURVEYORS
 OF THE COMMONWEALTH OF MASSACHUSETTS.
 I CERTIFY THAT THIS PLAN SHOWS THE
 PROPERTY LINES THAT ARE THE LINES OF
 EXISTING OWNERSHIPS, AND THE LINES OF
 STREETS AND WAYS SHOWN ARE
 THOSE OF PUBLIC OR PRIVATE STREETS
 OR WAYS ALREADY ESTABLISHED, AND
 THAT NO NEW LINES FOR THE DIVISION OF
 EXISTING OWNERSHIPS OR FOR NEW
 WAYS ARE SHOWN.
 Mary Ann Condon 2-11-11
 PROFESSIONAL LAND SURVEYOR DATE

LEGEND

- ▲ COMPUTED POINT
- IRON PIN FOUND
- REBAR FOUND
- BOUND FOUND
- UTILITY POLE & GUY WIRE
- ▭ EXISTING BUILDING
- ▬ RIPRAP SHALE
- LIGHT POLE
- CATCH BASIN
- SANITARY SEWER MANHOLE
- DRAIN MANHOLE
- MONITORING WELL
- SUPPLY WELL
- HYDRANT
- CONCRETE PADS
- ▬ HILL 78 AREA-REMAINDER REMOVAL ACTION AREA BOUNDARY (24.989 ACRES)
- ▬ TAX ASSESSOR LINE AND/OR LEASE LINE AND/OR STREETLINE
- ▬ EXISTING EASEMENT LINE
- ▬ CHAIN LINK FENCE
- ▬ OVERHEAD WIRES
- ▬ SANITARY SEWER
- ▬ UNDERGROUND DRAIN
- ▬ GAS LINE
- ▬ EDGE OF BITUMINOUS
- ▬ EDGE OF GRAVEL

NOTE.

1. THE PARCEL SURVEYED AND SHOWN HEREON IS COMPRISED OF CITY OF PITTSFIELD ASSESSOR'S MAP NO'S KII-7-1 AND KII-7-201 AND A PORTION OF KII-7-2. THE FOLLOWING ARE THE DEED REFERENCES INTO GENERAL ELECTRIC COMPANY FOR THIS PARCEL.

KII-7-1	BK. 4019, PG. 167
KII-7-201	BK. 434, PG. 573
KII-7-2	BK. 434, PG. 573
	BK. 871, PG. 202
	BK. 885, PG. 11
2. ALL IMPROVEMENTS AND UTILITIES LOCATED ON THE SUBJECT PREMISES ARE NOT SHOWN HEREON.
3. PARCEL KII-7-201 AND THE WAREHOUSE LEASED PREMISES COMPRISE THE AREA LEASED TO PITTSFIELD GENERATING COMPANY, L.P.

HILL
 ENGINEERS
 50 Depot Street
 Pittsfield, MA 01226
 (413) 684-0925
 41 Park Street
 Adams, MA 01220
 (413) 743-0013
 www.hillengineers.com



DATE	2-11-11
BY	MARY ANN CONDON
FOR	GENERAL ELECTRIC COMPANY
PROJECT	HILL 78 AREA-REMAINDER
SCALE	AS SHOWN

GENERAL ELECTRIC COMPANY
 159 PLASTICS AVENUE
 PITTSFIELD, MA
 PROJECT NO. 1143-001
 PLAN OF PROPERTY
 HILL 78 AREA-REMAINDER
 KII-7-1, KII-7-201 &
 PORTION OF KII-7-2

DRAWN BY: MAC
 DATE: 2-11-11
 SCALE: 1"=80'
 APP'D BY:
 Dwg. Desc: GE-1143-001-VRI01M.dwg
 GRFP: C SPSLE
 D
 PROJECT NUMBER: GE-1143-001

DRAWING NUMBER	VRI01
REV.	A

Arthur F. Whit Jr.

REFER TO PLAN VR101 FOR SITE DETAIL OUTSIDE OF THE AREA DEPICTED HEREON.

Hill
engineers
architects
electrical

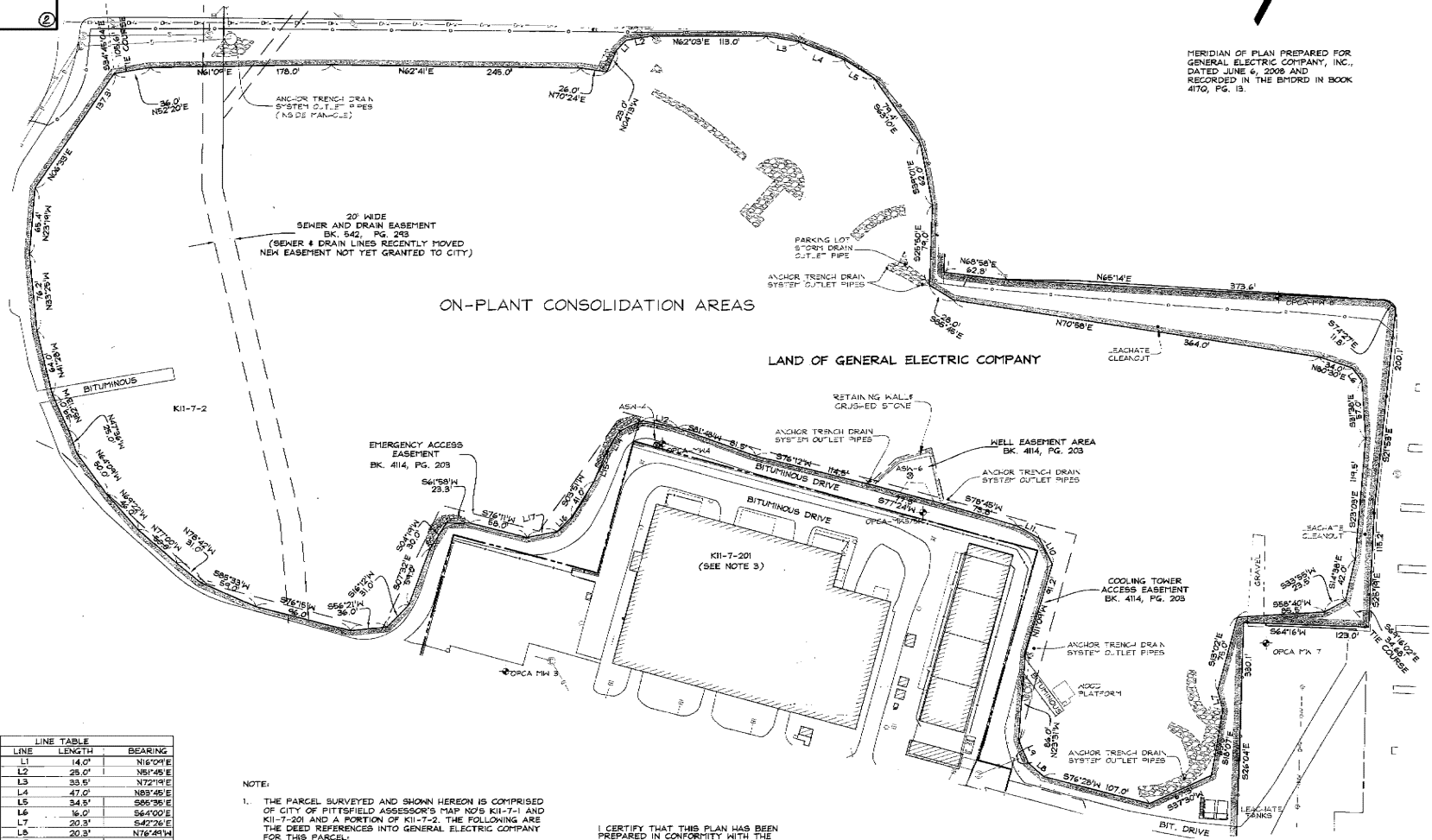
50 Depot Street
Dartmouth, MA 01228
(413) 684-0925

41 Park Street
Dartmouth, MA 01220
(413) 743-0013
www.hillengineers.com

MERIDIAN OF PLAN PREPARED FOR
GENERAL ELECTRIC COMPANY, INC.,
DATED JUNE 6, 2008 AND
RECORDED IN THE EMBRD IN BOOK
4170, PG. 13.



DATE	BY	REVISION
2-11-11	MAC	



LINE	LENGTH	BEARING
L1	14.0'	N6°09'E
L2	25.0'	N51°45'E
L3	33.5'	N72°11'E
L4	47.0'	N89°46'E
L5	34.5'	S88°35'E
L6	16.0'	S64°00'E
L7	20.3'	S47°26'E
L8	20.3'	N76°41'W
L9	28.0'	N50°24'W
L10	24.0'	N54°25'W
L11	25.0'	N88°56'W
L12	36.5'	S73°32'W
L13	28.0'	S37°22'W
L14	25.0'	S03°02'W
L15	31.0'	S05°09'E
L16	20.5'	S17°11'W
L17	30.0'	S50°48'W

NOTE:

- THE PARCEL SURVEYED AND SHOWN HEREON IS COMPRISED OF CITY OF PITTSFIELD ASSESSOR'S MAP NO'S K11-7-1 AND K11-7-201 AND A PORTION OF K11-7-2. THE FOLLOWING ARE THE DEED REFERENCES INTO GENERAL ELECTRIC COMPANY FOR THIS PARCEL.

K11-7-1	BK. 4019, PG. 167
K11-7-201	BK. 434, PG. 573
K11-7-2	BK. 434, PG. 573
	BK. 871, PG. 202
	BK. 883, PG. 11
- ALL IMPROVEMENTS AND UTILITIES LOCATED ON THE SUBJECT PREMISES ARE NOT SHOWN HEREON.
- PARCEL K11-7-201 AND THE WAREHOUSE LEASED PREMISES COMPRISE THE AREA LEASED TO PITTSFIELD GENERATING COMPANY, L.P.

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. I CERTIFY THAT THIS PLAN SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIP, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

Arthur F. Whit Jr. 2-11-11
PROFESSIONAL LAND SURVEYOR DATE

GENERAL ELECTRIC COMPANY
199 PLASTICS AVENUE
PITTSFIELD, MA

PLAN OF PROPERTY
K11-7-1, K11-7-201 &
PORTION OF K11-7-2

DRAWN BY: MAC
DATE DRAWN: 2-11-11
SCALE: 1"=50'
REVISED BY:

PROJECT NUMBER:
GE-1143-001-VR101.dwg
GRAPHIC SCALE:
0 50 100
PROJECT NUMBER:
GE-1143-001
DRAWING NUMBER: VR102
REV: A



Plan of Restricted Area

Plan # 60
 COUNTY OF BERKSHIRE
 Middle District Registry of Deeds
 Plan Received and Filed for Record
 Aug 11, 2011 at 2:55 PM
 14 PLATS # 60 (2 Sheets)
 SEE INSTRUMENT RECORDED IN
 BOOK 4193, PAGE 1
 Anderson, R. J.

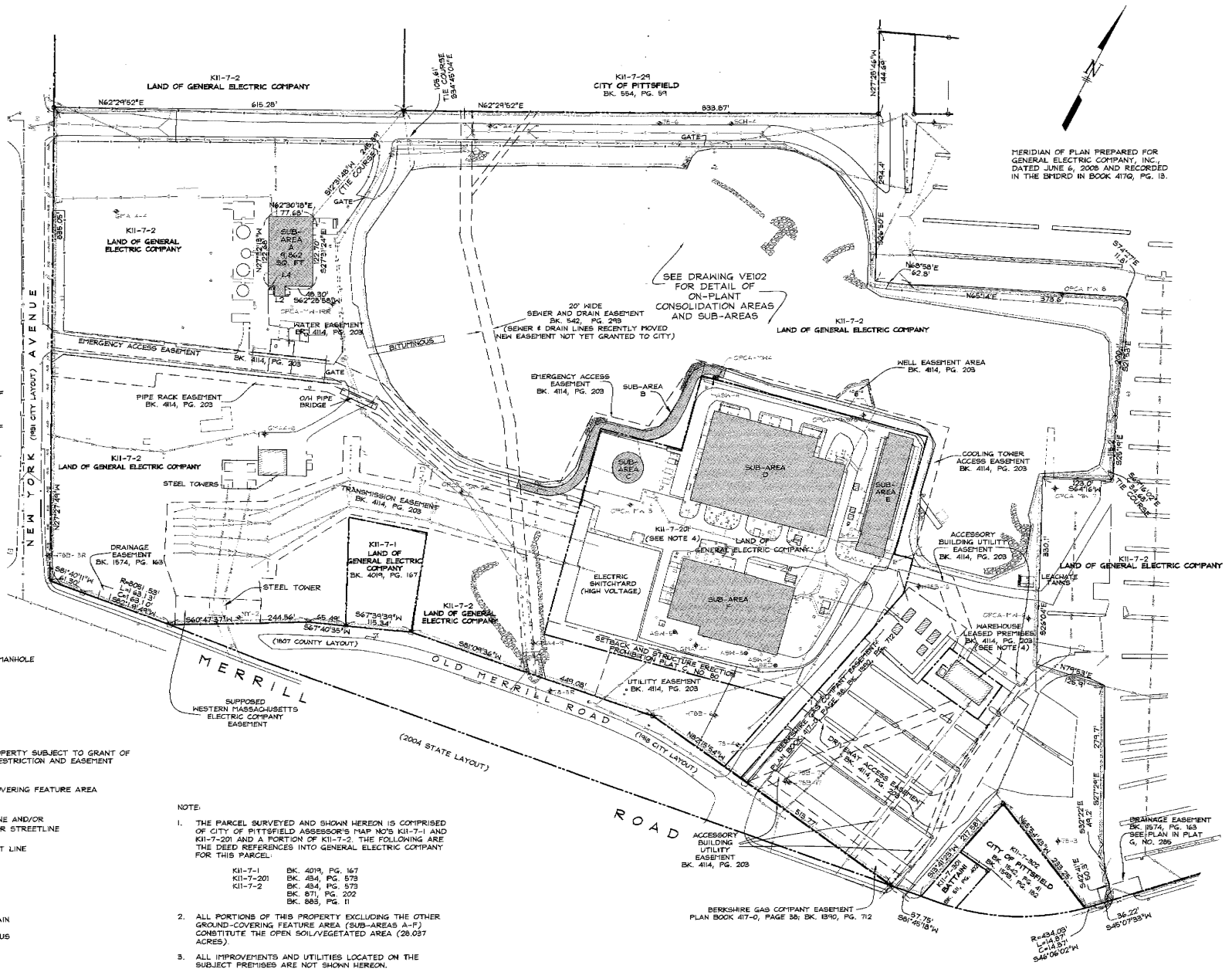
LINE	LENGTH	BEARING
L1	18.04'	S27°36'12"E
L2	18.42'	S62°33'03"W
L3	18.00'	N27°24'03"W
L4	11.00'	S62°49'17"W

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.
 I CERTIFY THAT THIS PLAN SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIPS, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIPS OR FOR NEW WAYS ARE SHOWN.
 May 14, 2011
 PROFESSIONAL LAND SURVEYOR DATE

- LEGEND**
- ▲ COMPUTED POINT
 - IRON PIN FOUND
 - ⊕ REBAR FOUND
 - ⊖ BOUND FOUND
 - UTILITY POLE & GUY WIRE
 - ▭ EXISTING BUILDING
 - ▭ RIPRAP SWALE
 - LIGHT POLE
 - CATCH BASIN
 - ⊕ SANITARY SEWER MANHOLE
 - ⊖ DRAIN MANHOLE
 - ⊕ MONITORING WELL
 - SUPPLY WELL
 - ⊖ CONCRETE PADS
 - HYDRANT
 - ▭ BOUNDARY OF PROPERTY SUBJECT TO GRANT OF ENVIRONMENTAL RESTRICTION AND EASEMENT (SEE NOTE 2).
 - ▭ OTHER GROUND-COVERING FEATURE AREA

- NOTE:**
- THE PARCEL SURVEYED AND SHOWN HEREON IS COMPRISED OF CITY OF PITTSFIELD ASSESSOR'S MAP NO'S K11-7-1 AND K11-7-201 AND A PORTION OF K11-7-2. THE FOLLOWING ARE THE DEED REFERENCES INTO GENERAL ELECTRIC COMPANY FOR THIS PARCEL.

K11-7-1	BK. 4019, PG. 167
K11-7-201	BK. 434, PG. 573
K11-7-2	BK. 434, PG. 573
	BK. 871, PG. 202
	BK. 885, PG. 11
 - ALL PORTIONS OF THIS PROPERTY EXCLUDING THE OTHER GROUND-COVERING FEATURE AREA (SUB-AREAS A-F) CONSTITUTE THE OPEN SOIL/VEGETATED AREA (28,037 ACRES).
 - ALL IMPROVEMENTS AND UTILITIES LOCATED ON THE SUBJECT PREMISES ARE NOT SHOWN HEREON.
 - PARCEL K11-7-201 AND THE WAREHOUSE LEASED PREMISES COMPRISE THE AREA LEASED TO PITTSFIELD GENERATING COMPANY, L.P.



MERIDIAN OF PLAN PREPARED FOR GENERAL ELECTRIC COMPANY, INC. DATED JUNE 6, 2008 AND RECORDED IN THE BMRD IN BOOK 4170, PG. 13.

SEE DRAWING VEI02 FOR DETAIL OF ON-PLANT CONSOLIDATION AREAS AND SUB-AREAS

20' WIDE SEWER AND DRAIN EASEMENT (SEWER & DRAIN LINES RECENTLY MOVED NEW EASEMENT NOT YET GRANTED TO CITY)

Hill
 engineers
 architects
 planners
 50 Depot Street
 Dalton, MA 01226
 (413) 854-0925
 41 Park Street
 Adams, MA 01220
 (413) 743-0013
 www.hillengineers.com



DATE	DESCRIPTION
2-11-11	REVISION

GENERAL ELECTRIC COMPANY
 189 PLASTICS AVENUE
 PITTSFIELD, MA
 PLAN OF RESTRICTED AREA
 HILL 75 AREA-REMAINDER
 K11-7-1, K11-7-201 &
 PORTION OF K11-7-2

DRAWN BY:	MAC
CHECKED BY:	2-11-11
SCALE:	1"=50'
DATE:	
PROJECT NUMBER:	GE-1143-001-VEI01.dwg
PRODUCT NUMBER:	GE-1143-001
DRAWING NUMBER:	VEI01
REV:	A

Andrus F. Ziff Jr.

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architects
planners

50 Depot Street
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41 Park Street
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REFER TO PLAN VEI01 FOR
SITE DETAIL OUTSIDE OF THE
AREA DEPICTED HEREON.

MERIDIAN OF PLAN PREPARED FOR
GENERAL ELECTRIC COMPANY, INC.,
DATED LINE 6, 2009 AND
RECORDED IN THE Bk/DK IN BOOK
4170, PG. 13.

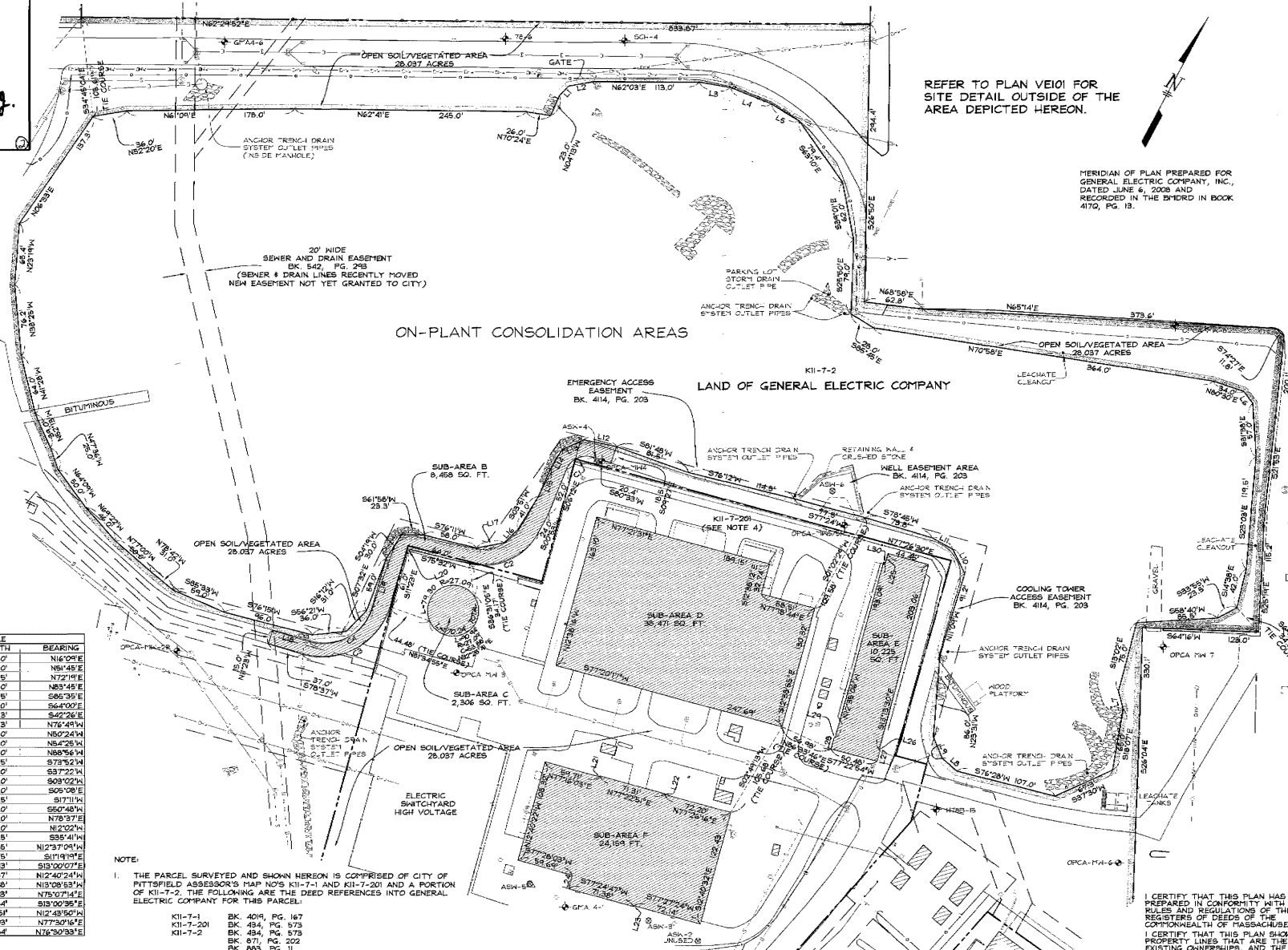


NO.	DATE	BY	FOR
1	2-11-11	MAC	GENERAL ELECTRIC COMPANY

GENERAL ELECTRIC COMPANY
159 PLASTICS AVENUE
PITTSFIELD, MA

PLAN OF RESTRICTED AREA
HILL 76 AREA-REMAINDER

KII-7-1, KII-7-201 &
PORTION OF KII-7-2



LINE	LENGTH	BEARING
L1	14.0'	N16°02'E
L2	25.0'	N61°45'E
L3	33.5'	N72°19'E
L4	47.0'	N83°45'E
L5	34.5'	S86°39'E
L6	16.0'	S64°00'E
L7	20.3'	S49°24'E
L8	20.3'	N76°49'W
L9	25.0'	N80°24'W
L10	29.0'	N54°26'W
L11	25.0'	N88°56'W
L12	35.5'	S73°52'W
L13	25.0'	S37°22'W
L14	25.0'	S69°02'W
L15	31.0'	S05°08'E
L16	20.5'	S17°11'W
L17	30.0'	S50°48'W
L18	41.0'	N78°37'E
L19	54.0'	N12°02'W
L20	4.5'	S95°41'W
L21	0.85'	N12°37'04'W
L22	0.75'	S11°10'16'E
L23	0.93'	S13°00'07'E
L24	14.67'	N12°40'22'W
L25	4.80'	N19°08'53'W
L26	0.98'	N70°01'41'E
L27	12.54'	S13°00'35'E
L28	12.61'	N12°49'50'W
L29	1.09'	N77°50'16'E
L30	1.64'	N76°30'33'E

CURVE	LENGTH	RADIUS	CHORD	CHORD DIR
C1	33.3'	22.0'	30.2'	S37°11'W
C2	84.71'	65.0'	78.8'	S83°19'W
C3	117.81'	75.0'	106.1'	S33°37'W
C4	83.8'	53.0'	75.4'	N33°18'E

- NOTE:
- THE PARCEL SURVEYED AND SHOWN HEREON IS COMPRISED OF CITY OF PITTSFIELD ASSESSOR'S MAP NOS KII-7-1 AND KII-7-201 AND A PORTION OF KII-7-2. THE FOLLOWING ARE THE DEED REFERENCES INTO GENERAL ELECTRIC COMPANY FOR THIS PARCEL:
 KII-7-1 Bk. 4019, PG. 167
 KII-7-201 Bk. 484, PG. 573
 KII-7-2 Bk. 484, PG. 573
 Bk. 871, PG. 202
 Bk. 885, PG. 11
 - ALL PORTIONS OF THIS PROPERTY EXCLUDING THE OTHER GROUND-COVERING FEATURE AREA (SUB-AREAS A-F) CONSTITUTE THE OPEN SOIL/VEGETATED AREA (28.037 ACRES).
 - ALL IMPROVEMENTS AND UTILITIES LOCATED ON THE SUBJECT PREMISES ARE NOT SHOWN HEREON.
 - PARCEL KII-7-201 AND THE WAREHOUSE LEASED PREMISES COMPRISE THE AREA LEASED TO PITTSFIELD GENERATING COMPANY, L.P.

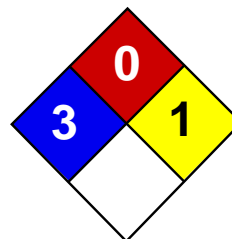
I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERED PROFESSIONAL LAND SURVEYORS OF THE COMMONWEALTH OF MASSACHUSETTS. I CERTIFY THAT THIS PLAN SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIP, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

Andrus F. Ziff Jr. 2-11-11
PROFESSIONAL LAND SURVEYOR DATE

PROJECT NUMBER	GE-1143-001-VEI01.dwg
DATE DRAWN	2-11-11
SCALE	1"=50'
PROJECT NUMBER	GE-1143-001
DATE	2-11-11
PROJECT NUMBER	VEI02
DATE	A

Appendix B

Safety Data Sheets



Health	3
Fire	0
Reactivity	1
Personal Protection	

Material Safety Data Sheet

Hydrochloric acid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric acid

Catalog Codes: SLH1462, SLH3154

CAS#: Mixture.

RTECS: MW4025000

TSCA: TSCA 8(b) inventory: Hydrochloric acid

CI#: Not applicable.

Synonym: Hydrochloric Acid; Muriatic Acid

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

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

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

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Hydrogen chloride	7647-01-0	20-38
Water	7732-18-5	62-80

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). **CARCINOGENIC EFFECTS:** Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target

organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

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

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of metals

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:

Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammable gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrogen gas.

Special Remarks on Explosion Hazards:

Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4 , Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:

Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials, metals, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

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

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m3) from NIOSH TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)] TWA: 2 STEL: 8 (mg/m3) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Irritating (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point:

108.58 C @ 760 mm Hg (for 20.22% HCl in water) 83 C @ 760 mm Hg (for 31% HCl in water) 50.5 C (for 37% HCl in water)

Melting Point:

-62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -25.4 C (39.17% HCl in water)

Critical Temperature: Not available.

Specific Gravity:

1.1- 1.19 (Water = 1) 1.10 (20%and 22% HCl solutions) 1.12 (24% HCl solution) 1.15 (29.57% HCl solution) 1.16 (32% HCl solution) 1.19 (37% and 38%HCl solutions)

Vapor Pressure: 16 kPa (@ 20°C) average

Vapor Density: 1.267 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.25 to 10 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble in cold water, hot water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, water

Incompatibility with various substances:

Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.

Corrosivity:

Extremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Reacts with water especially when water is added to the product. Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Sodium reacts very violently with gaseous hydrogen chloride. Calcium phosphide and hydrochloric acid undergo very energetic reaction. It reacts with oxidizers releasing chlorine gas. Incompatible with, alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts with most metals to produce flammable Hydrogen gas. Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct sunlight, alkalis (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and pressure) Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid onto silicon dioxide results in exothermic reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. Hydrogen chloride or Hydrochloric Acid in contact with the following can cause explosion or ignition on contact or

Special Remarks on Corrosivity:

Highly corrosive. Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinum, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (fetotoxicity). May affect genetic material.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjunctivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and laryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well as headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomiting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophageal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

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

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Hydrochloric acid, solution UNNA: 1789 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid California Director's List of Hazardous Substances: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg)

Other Regulations:

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

Other Classifications:

WHMIS (Canada):

CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):

R34- Causes burns. R37- Irritating to respiratory system. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 1

Personal Protection:

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

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References:

-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangereuses au Canada. Centre de conformité international Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 05:45 PM

Last Updated: 06/09/2012 12:00 PM

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GAS INNOVATIONS

MATERIAL SAFETY DATA SHEET (MSDS)

ISOBUTYLENE

PRODUCT IDENTIFICATION

▪D.O.T. SHIPPING NAME	Isobutylene
▪SYNONYM (S)	Liquefied Petroleum Gas, Isobutene, 2 Methylpropene
▪D.O.T. I.D. NUMBER	UN-1055
▪D.O.T. HAZZARD CLASS	2.1 Flammable Gas
▪D.O.T. LABEL (S)	Flammable Gas
▪C.A.S. NUMBER	115-11-7
▪CHEMICAL FORMULA	C ₄ H ₈ or (CH ₃) ₂ C:CH ₂

PHYSICAL DATA

▪MOLECULAR WEIGHT	56.108
▪FREEZING POINT	-140.4°C, -220.6°F
▪BOILING POINT	-6.9°C, 19.6°F
▪VAPOR PRESSURE	168 kPa (gauge), 24.3 psig @21.1°C
▪SPECIFIC VOLUME	0.418m ³ /kg, 6.7 ft ³ /lb @ 1 atm, 21.1°C
▪RELATIVE DENSITY, (air=1)	1.947 @ 1 atm, 25°C
▪SOLUBILITY IN WATER	Negligible
▪DESCRIPTION	At room temperature and atmospheric pressure isobutene is a colorless, flammable gas, with an unpleasant odor. It is shipped as a liquefied gas under its own vapor pressure.

FIRE AND EXPLOSION HAZARD DATA

▪FLAMMABLE LIMITS IN AIR	1.8 – 9.6 % by volume
▪AUTO-IGNITION TEMPERATURE	465°C, 869°F
▪FIRE FIGHTING PROCEDURES	The only safe way to extinguish an isobutylene fire is to stop the flow of gas. If the flow cannot be stopped, let the fire burn out while cooling the cylinder and the surroundings using a water spray. Personnel may have to wear approach type protective suits and positive pressure self-contained breathing apparatus. Firefighters' turnout gear may be inadequate. Small secondary fires may be brought under control by using carbon dioxide or a dry chemical fire extinguisher and stopping the flow.

Date prepared: September 7, 2007

▪ UNUSUAL HAZARDS

1. Cylinders exposed to fire may rupture with violent force. Extinguish surrounding fire and keep cylinders cool by applying water from a maximum possible distance with a water spray.
2. Flammable gases may spread from a spill after the fire is extinguished and be subject to re-ignition.

HEALTH HAZARD DATA

▪ PERMISSIBLE EXPOSURE LIMITS

OSHA TWA None established.
ASGIH TWA None established.

▪ ACCUTE EFFECTS OVEREXPOSURE

Isobutylene is a simple asphyxiant. Inhalation of high concentrations may cause rapid respiration, dizziness, fatigue, and nausea. Massive exposure may cause unconsciousness and death. Contact with the liquid phase or with the cold has escaping from a cylinder may cause frostbite.

▪ CHRONIC EFFECTS OF OVEREXPOSURE

None known.

FIRST AID INFORMATION

▪ INHALATION

Move victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

▪ CONTACT

Treat for frostbite.

REACTIVITY DATE

▪ STABILITY

(X) Stable. () Unstable.

▪ INCOMPATIBILITY

Oxidizing materials and compounds that can add across double bonds.

▪ HAZARDOUS DECOMPOSITION/ OXIDATION PRODUCTS

Carbon monoxide, carbon dioxide.

▪ POLYMERIZATION

(X) Will not occur () May occur

SPILL OR LEAKAGE PROCEDURE

Shut off all ignition sources and ventilate the area. For controlling large flow, personnel may have to wear approach-type protective suits and positive pressure self-contained breathing apparatus.

Date prepared: September 7, 2007

PRECAUTIONS

- STORAGE RECOMMENDATIONS

Cylinders should be stored and used in dry, cool, well-ventilated areas away from sources of heat or ignition. Do not store with oxidizers

- PERSONAL PROTECTIVE EQUIPMENT

1. Eye protection – Safety glasses should be worn.
2. Respiratory protection – Approved respiratory equipment must be worn when airborne concentrations exceed safe levels.
2. Skin protection – No specific equipment is required. Gloves are recommended for cylinder handling.

- BEFORE USING THE GAS

1. Secure the cylinder to prevent it from falling or being knocked over.
 2. Leak check the lines and equipment.
 3. Have an emergency plan covering steps to be taken in the event of an accidental release.
-

DISCLAIMER

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Date prepared: September 7, 2007

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Methanol

Product Number : 179337
Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant

Target Organs

Eyes, Kidney, Liver, Heart, Central nervous system
Eyes, Kidney, Liver, Heart, Central nervous system

GHS Classification

Flammable liquids (Category 2)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 1)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.
H301 + H311 Toxic if swallowed or in contact with skin
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H370 Causes damage to organs.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ protective clothing.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 3
Reactivity Hazard: 0

Potential Health Effects

Inhalation Toxic if inhaled. Causes respiratory tract irritation.
Skin Toxic if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Methyl alcohol
Formula : CH₄O
Molecular Weight : 32.04 g/mol

Component	Concentration
Methanol	
CAS-No.	67-56-1
EC-No.	200-659-6
Index-No.	603-001-00-X
Registration number	01-2119433307-44-XXXX

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption			
		STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption			
		TWA	200 ppm 260 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		STEL	250 ppm 325 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		TWA	200 ppm 260 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate.			
		TWA	200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption			

	ST	250 ppm 325 mg/m ³	USA. NIOSH Recommended Exposure Limits
Potential for dermal absorption			

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Immersion protection

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: > 480 min

Material tested: Butoject® (Aldrich Z677647, Size M)

Splash protection

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: > 30 min

Material tested: Camatril® (Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form liquid

Colour colourless

Safety data

pH no data available

Melting point/freezing point Melting point/range: -98 °C (-144 °F)

Boiling point 64.7 °C (148.5 °F)

Flash point 11.0 °C (51.8 °F) - closed cup

Ignition temperature 455 °C (851 °F)

Autoignition temperature	455.0 °C (851.0 °F)
	385.0 °C (725.0 °F)
Lower explosion limit	6 %(V)
Upper explosion limit	36 %(V)
Vapour pressure	546.6 hPa (410.0 mmHg) at 50.0 °C (122.0 °F) 130.3 hPa (97.7 mmHg) at 20.0 °C (68.0 °F)
Density	0.791 g/mL at 25 °C (77 °F)
Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: -0.77
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid

Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - rat - 5,628 mg/kg

Inhalation LC50

LC50 Inhalation - rat - 4 h - 64000 ppm

LC50 Inhalation - rat - 4 h - 87.6 mg/l

Dermal LD50

LD50 Dermal - rabbit - 15,800 mg/kg

Other information on acute toxicity

no data available

Skin corrosion/irritation

Skin - rabbit - No skin irritation

Serious eye damage/eye irritation

Eyes - rabbit - No eye irritation

Respiratory or skin sensitization

guinea pig - OECD Test Guideline 406 - Does not cause skin sensitization.

Germ cell mutagenicity

no data available

Genotoxicity in vitro - Non-mammalian - Other cell types - negative

Genotoxicity in vivo - mouse - male and female - Intraperitoneal - negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

Causes damage to organs.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	Toxic if inhaled. Causes respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Toxic if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Headache, Vomiting, Gastrointestinal disturbance, Dizziness, Weakness, Confusion., Drowsiness, Unconsciousness, May cause convulsions.

Synergistic effects

no data available

Additional Information

Repeated dose toxicity - Monkey - Gavage - 72 h - Lowest observed adverse effect level - 2,340 mg/kg

RTECS: PC1400000

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 19,000.00 mg/l - 96 h mortality LC50 - Lepomis macrochirus (Bluegill) - 15,400 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 24,500.00 mg/l - 48 h

EC100 - Daphnia magna (Water flea) - 10,000.00 mg/l - 24 h
Toxicity to algae Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 22,000 mg/l - 96 h

Persistence and degradability

Biodegradability aerobic
Result: 72 % - rapidly biodegradable

Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 72 d at 20 °C
Bioconcentration factor (BCF): 1.0

Mobility in soil

Will not adsorb on soil.

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol
Reportable Quantity (RQ): 5000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN number: 1230 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHANOL
Marine pollutant: No

IATA

UN number: 1230 Class: 3 (6.1) Packing group: II
Proper shipping name: Methanol

15. REGULATORY INFORMATION

OSHA Hazards

Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Methanol

CAS-No.
67-56-1Revision Date
2007-07-01**Pennsylvania Right To Know Components**

Methanol

CAS-No.
67-56-1Revision Date
2007-07-01**New Jersey Right To Know Components**

Methanol

CAS-No.
67-56-1Revision Date
2007-07-01**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION**Further information**

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Fisher Scientific

Part of Thermo Fisher Scientific

Material Safety Data Sheet

Creation Date 12-Mar-2009

Revision Date 27-Sep-2011

Revision Number 3

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Nitric acid (65 - 70%)
Cat No.	A198C-212, A200-212, A200-212LC, A200-500, A200-500LC, A200-612GAL, A200C-212, A200S-212, A200S-212LC, A200S-500, A200SI-212, A467-1, A467-2, A467-250, A467-500, A483-212
Synonyms	Azotic acid; Engraver's acid; Aqua fortis
Recommended Use	Laboratory chemicals
Company Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 001-703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

Oxidizer: Contact with combustible/organic material may cause fire. Causes severe burns by all exposure routes. May cause pulmonary edema.

Appearance Clear Colorless, Light yellow **Physical State** Liquid **odor** strong Acrid

Target Organs Eyes, Respiratory system, Skin, Teeth, Kidney, Gastrointestinal tract (GI)

Potential Health Effects

Acute Effects

Principle Routes of Exposure

Eyes	Causes severe burns. May cause blindness or permanent eye damage.
Skin	Causes severe burns. May be harmful in contact with skin.
Inhalation	Causes severe burns. May cause pulmonary edema. May be harmful if inhaled.
Ingestion	Ingestion causes burns of the upper digestive and respiratory tract. May be harmful if swallowed.

Chronic Effects

Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. May cause adverse kidney effects. Experiments have shown reproductive toxicity effects on laboratory animals.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

Preexisting eye disorders. Skin disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Nitric acid	7697-37-2	65 - 70
Water	7732-18-5	30 - 35

4. FIRST AID MEASURES

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately.

Notes to Physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Flash Point
Method**

Not applicable
No information available.

**Autoignition Temperature
Explosion Limits**

No information available.

**Upper
Lower**

No data available
No data available

Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire..

Unsuitable Extinguishing Media

No information available.

Hazardous Combustion Products

No information available.

**Sensitivity to mechanical impact
Sensitivity to static discharge**

No information available.
No information available.

Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. Corrosive Material. Causes severe burns by all exposure routes. Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

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

NFPA **Health** 4 **Flammability** 0 **Instability** 0 **Physical hazards** OX

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Keep away from clothing and other combustible materials.

7. HANDLING AND STORAGE

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Keep away from clothing and other combustible materials. Do not breathe vapors/dust. Do not ingest. Contents under pressure.

Storage Keep containers tightly closed in a cool, well-ventilated place. Do not store near combustible materials

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nitric acid	TWA: 2 ppm STEL: 4 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 5 mg/m ³ (Vacated) STEL: 4 ppm (Vacated) STEL: 10 mg/m ³ TWA: 2 ppm TWA: 5 mg/m ³	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Nitric acid	TWA: 2 ppm TWA: 5.2 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 2 ppm STEL: 4 ppm

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection

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

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear Colorless, Light yellow
odor	strong Acrid
Odor Threshold	No information available.
pH	1.0 (0.1M)
Vapor Pressure	0.94 kPa (20°C)
Vapor Density	No information available.
Viscosity	No information available.
Boiling Point/Range	120.5°C / 248.9°F
Melting Point/Range	-41°C / -41.8°F
Decomposition temperature	No information available.
Flash Point	Not applicable
Evaporation Rate	No information available.
Specific Gravity	1.40
Solubility	No information available.
log Pow	No data available
Molecular Weight	63.02
Molecular Formula	HNO ₃

10. STABILITY AND REACTIVITY

Stability	Oxidizer: Contact with combustible/organic material may cause fire.
Conditions to Avoid	Incompatible products. Combustible material. Excess heat.
Incompatible Materials	Strong bases, Reducing agents, Organic materials, Aldehydes, Alcohols, Cyanides, Metals, Powdered metals, Ammonia
Hazardous Decomposition Products	Nitrogen oxides (NO _x)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions .	None under normal processing..

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid	Not listed	Not listed	130 mg/m ³ (Rat) 4 h 7 mg/L (Rat) 1 h

Irritation Causes severe burns by all exposure routes

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product

Sensitization No information available.

Mutagenic Effects No information available.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects No information available.

Teratogenicity Teratogenic effects have occurred in experimental animals..

Other Adverse Effects See actual entry in RTECS for complete information.

Endocrine Disruptor Information No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nitric acid	Not listed	72 mg/L LC50 96 h	Not listed	Not listed

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available

Mobility .

Component	log Pow
Nitric acid	-2.3

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

DOT

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

TDG

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

IATA

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

IMDG/IMO

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

15. REGULATORY INFORMATION

All of the components in the product are on the following Inventory lists:

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Nitric acid	X	X	-	231-714-2	-		X	X	X	X	X
Water	X	X	-	231-791-2	-		X	-	X	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
 P - Indicates a commenced PMN substance
 R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
 S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
 T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
 XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
 Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
 Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nitric acid	7697-37-2	65 - 70	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard Yes
 Chronic Health Hazard No
 Fire Hazard No
 Sudden Release of Pressure Hazard No
 Reactive Hazard Yes

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nitric acid	X	1000 lb	-	-

Clean Air Act

Not applicable

OSHA

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Nitric acid	-	TQ: 500 lb

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nitric acid	1000 lb	1000 lb

California Proposition 65

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nitric acid	X	X	X	X	X

U.S. Department of Transportation

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

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Nitric acid	2000 lb STQ

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

- C Oxidizing materials
- E Corrosive material



16. OTHER INFORMATION

Prepared By Regulatory Affairs
 Thermo Fisher Scientific
 Tel: (412) 490-8929

Creation Date 12-Mar-2009

Print Date 27-Sep-2011

Revision Summary (M)SDS sections updated 3

Disclaimer

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

End of MSDS



Fisher Scientific

Part of Thermo Fisher Scientific

Material Safety Data Sheet

Creation Date 12-Mar-2009

Revision Date 27-Sep-2011

Revision Number 3

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Nitric acid (65 - 70%)
Cat No.	A198C-212, A200-212, A200-212LC, A200-500, A200-500LC, A200-612GAL, A200C-212, A200S-212, A200S-212LC, A200S-500, A200SI-212, A467-1, A467-2, A467-250, A467-500, A483-212
Synonyms	Azotic acid; Engraver's acid; Aqua fortis
Recommended Use	Laboratory chemicals
Company Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 001-703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

Oxidizer: Contact with combustible/organic material may cause fire. Causes severe burns by all exposure routes. May cause pulmonary edema.

Appearance Clear Colorless, Light yellow **Physical State** Liquid **odor** strong Acrid

Target Organs Eyes, Respiratory system, Skin, Teeth, Kidney, Gastrointestinal tract (GI)

Potential Health Effects

Acute Effects

Principle Routes of Exposure

Eyes	Causes severe burns. May cause blindness or permanent eye damage.
Skin	Causes severe burns. May be harmful in contact with skin.
Inhalation	Causes severe burns. May cause pulmonary edema. May be harmful if inhaled.
Ingestion	Ingestion causes burns of the upper digestive and respiratory tract. May be harmful if swallowed.

Chronic Effects

Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. May cause adverse kidney effects. Experiments have shown reproductive toxicity effects on laboratory animals.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

Preexisting eye disorders. Skin disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Nitric acid	7697-37-2	65 - 70
Water	7732-18-5	30 - 35

4. FIRST AID MEASURES

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately.

Notes to Physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Flash Point
Method**

Not applicable
No information available.

**Autoignition Temperature
Explosion Limits**

No information available.

**Upper
Lower**

No data available
No data available

Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire..

Unsuitable Extinguishing Media

No information available.

Hazardous Combustion Products

No information available.

**Sensitivity to mechanical impact
Sensitivity to static discharge**

No information available.
No information available.

Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. Corrosive Material. Causes severe burns by all exposure routes. Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

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

NFPA **Health** 4 **Flammability** 0 **Instability** 0 **Physical hazards** OX

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Keep away from clothing and other combustible materials.

7. HANDLING AND STORAGE

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Keep away from clothing and other combustible materials. Do not breathe vapors/dust. Do not ingest. Contents under pressure.

Storage Keep containers tightly closed in a cool, well-ventilated place. Do not store near combustible materials

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nitric acid	TWA: 2 ppm STEL: 4 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 5 mg/m ³ (Vacated) STEL: 4 ppm (Vacated) STEL: 10 mg/m ³ TWA: 2 ppm TWA: 5 mg/m ³	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Nitric acid	TWA: 2 ppm TWA: 5.2 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 2 ppm TWA: 5 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 2 ppm STEL: 4 ppm

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection

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

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear Colorless, Light yellow
odor	strong Acrid
Odor Threshold	No information available.
pH	1.0 (0.1M)
Vapor Pressure	0.94 kPa (20°C)
Vapor Density	No information available.
Viscosity	No information available.
Boiling Point/Range	120.5°C / 248.9°F
Melting Point/Range	-41°C / -41.8°F
Decomposition temperature	No information available.
Flash Point	Not applicable
Evaporation Rate	No information available.
Specific Gravity	1.40
Solubility	No information available.
log Pow	No data available
Molecular Weight	63.02
Molecular Formula	HNO ₃

10. STABILITY AND REACTIVITY

Stability	Oxidizer: Contact with combustible/organic material may cause fire.
Conditions to Avoid	Incompatible products. Combustible material. Excess heat.
Incompatible Materials	Strong bases, Reducing agents, Organic materials, Aldehydes, Alcohols, Cyanides, Metals, Powdered metals, Ammonia
Hazardous Decomposition Products	Nitrogen oxides (NO _x)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions .	None under normal processing..

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid	Not listed	Not listed	130 mg/m ³ (Rat) 4 h 7 mg/L (Rat) 1 h

Irritation Causes severe burns by all exposure routes

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product

Sensitization No information available.

Mutagenic Effects No information available.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects No information available.

Teratogenicity Teratogenic effects have occurred in experimental animals..

Other Adverse Effects See actual entry in RTECS for complete information.

Endocrine Disruptor Information No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nitric acid	Not listed	72 mg/L LC50 96 h	Not listed	Not listed

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available

Mobility .

Component	log Pow
Nitric acid	-2.3

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

DOT

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

TDG

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

IATA

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

IMDG/IMO

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

15. REGULATORY INFORMATION

All of the components in the product are on the following Inventory lists:

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Nitric acid	X	X	-	231-714-2	-		X	X	X	X	X
Water	X	X	-	231-791-2	-		X	-	X	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
 P - Indicates a commenced PMN substance
 R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
 S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
 T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
 XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
 Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
 Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nitric acid	7697-37-2	65 - 70	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard Yes
 Chronic Health Hazard No
 Fire Hazard No
 Sudden Release of Pressure Hazard No
 Reactive Hazard Yes

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nitric acid	X	1000 lb	-	-

Clean Air Act

Not applicable

OSHA

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Nitric acid	-	TQ: 500 lb

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nitric acid	1000 lb	1000 lb

California Proposition 65

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nitric acid	X	X	X	X	X

U.S. Department of Transportation

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

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Nitric acid	2000 lb STQ

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

- C Oxidizing materials
- E Corrosive material



16. OTHER INFORMATION

Prepared By Regulatory Affairs
 Thermo Fisher Scientific
 Tel: (412) 490-8929

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Revision Summary (M)SDS sections updated 3

Disclaimer

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

End of MSDS

Appendix C

Glove Selection Guideline

APPENDIX B: GLOVE SELECTION GUIDELINE			
HAZARD	EXAMPLE TASKS	ANSI CUT/ABRASION RATING*	REPRESENTATIVE GLOVE
Impact Hazards, Med/Heavy Duty Puncture Cut	Drilling/direct push activities. Construction. Heavy materials handling. Power tools. Air knifing. Excavation.	ANSI Cut and Abrasion Resistance Level 5 EN 388 4521	Hexarmor®Chrome Hexarmor® GGT5 Hexarmor® L5 Hexarmor® SteelLeather III Ironclad® Kong Glove
Med/Heavy Duty Puncture Cut Oil/Solvent Resistant	Tasks where materials are treated with oil or solvents.	ANSI Cut and Abrasion Resistance Level 3 - 4 EN 388 4522	Ansell Alpha-Tec ® Memphis® Ultra Tech Nitrile Cut & Splash Best® Neoprene 6780 Hexarmor™ TenX Threesixty
Medium Duty Cut/Puncture Gloves with Oily Surface Grip	Light materials handling, wet service	ANSI Cut and Abrasion Resistance Level 3 EN 388 44xx	Best®Zorb-It Ultimate HV 4567 Ansell® Cut Protective Glove 97-505 Ansell HyFlex® 11-511 Ansell HyFlex® 11-624
Med/Heavy Duty Cut/Puncture	Light Materials Handling. System O&M. Use of Hand Tools. Hand Augering. Heavy Equipment Operator.	ANSI Cut and Abrasion Resistance Level 2 EN 388 33xx	Perfect Fit® PF570 Hexarmor® Level Six 9010/9012 Ironclad® Cut Resistant Glove Ansell HyFlex® 11-511 Ansell HyFlex® 11-624 Ansell® Cut Protective Glove 97-505
Light Duty Cut/Puncture Abrasion Only	Handling soil and Groundwater Samples. Opening spoons. Well construction.	ANSI Cut and Abrasion Resistance Level 2 - 4 EN 388 21xx	Memphis® Ninja Max N9676GL Memphis® UltraTech Dyneema 9676 Memphis® Ninja Ice (Cold Weather) Ansell HyFlex® 11-511 Ansell® Cut Protective Glove 97-505 Ansell® Powerflex 80-813 Ironclad™ Workforce
Light Duty Glove Cut/Abrasion (used under nitrile gloves)	Groundwater Sampling.	ANSI Cut and Abrasion Resistance Level 2 EN 388 21xx	Ansell HyFlex® 11-500 Ansell HyFlex® 11-624 Ansell GoldKnit
* Reference to ANSI and EN 388 glove testing standards. Listed gloves meet the standards in the table, but are not the only gloves that meet the standard.			
This selection chart is not intended to address all chemical hazards. Gloves used for chemical protection shall provide cut/puncture resistance, or be used in tandem with cut/puncture protection. Nitrile gloves used for environmental sampling must be used in tandem with a cut/puncture resistant glove.			
Gloves available in high visibility colors have shown to be effective and are preferred.			

Appendix D

Heat & Cold Stress

COLD STRESS

Ambient air temperatures during site activities may create cold stress for on-site workers. Procedures for recognizing and avoiding cold stress must be followed. Cold stress can range from frostbite to hypothermia. The signs and symptoms of cold stress are listed below.

Frostbite is defined as the actual freezing of one or more layers of skin. In severe cases, organs and structures below the skin can become frozen. Usually, body areas exposed to the most cold, and least body warmth, are affected first. These areas include fingers, toes, ears, and the tip of your nose. Frostbite is characterized by pain and loss of dexterity in the affected limb. The tissue initially appears reddened, but may progress to white, blue, or black.

FIRST AID: Bring the affected employee indoors and call the local emergency clinic. Rewarming of frostbitten parts is best left to a medical doctor in a controlled setting.

Hypothermia is the condition that occurs when the body's natural warming mechanisms (muscle activity and shivering) cannot counteract the loss of body heat to the environment. The onset of hypothermia is greatly hastened by being wet. Hypothermia is marked by severe, uncontrollable shivering. The patient will show signs of excessive fatigue, drowsiness, irritability, or euphoria. As hypothermia progresses, the patient will begin to lose consciousness, blood pressure will drop, shivering will cease, and the patient may slip into a coma and possibly die.

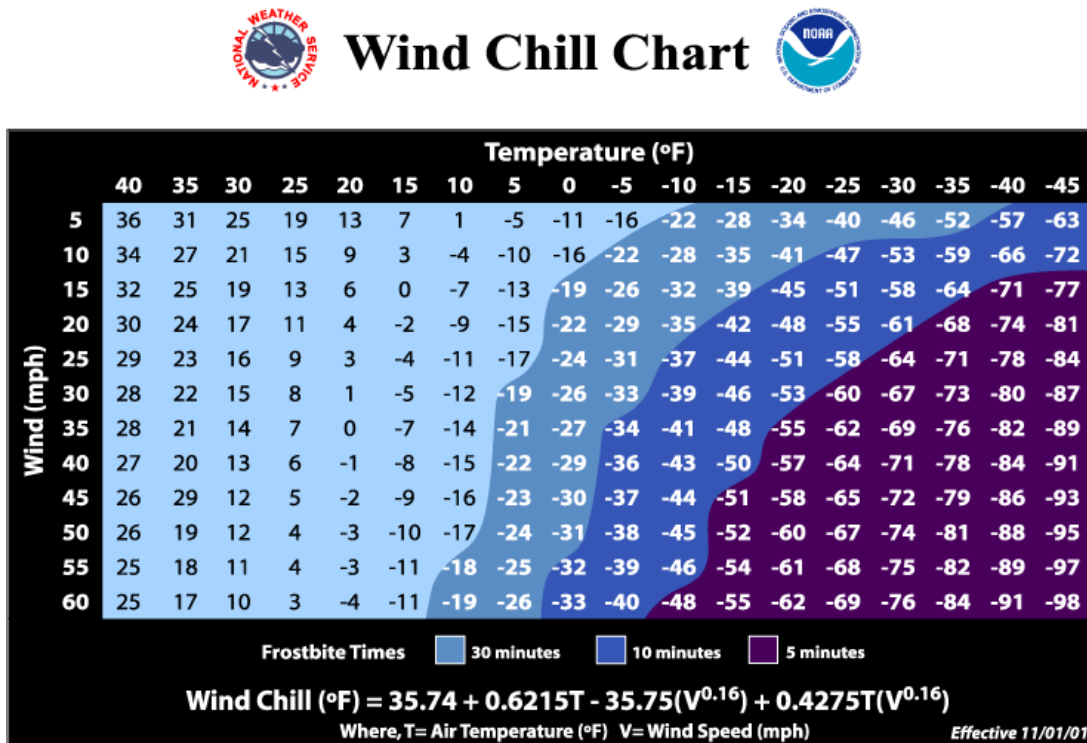
FIRST AID: If these symptoms occur, remove the patient to a warm, dry place. If clothing is wet, remove and replace with dry clothing. Keep the patient warm, but not overheated. The patient should be gradually rewarmed to prevent shock. If the patient is conscious and alert, warm liquids should be provided. Coffee and other caffeinated liquids should be avoided because of diuretic and circulatory effects. Notify the emergency clinic if conditions worsen, the patient loses consciousness, or the patient has an altered mental status. Have the patient transported to an emergency facility.

General Precautions. The reduction of adverse health effects from cold exposure can be achieved by adopting the following work practices.

- Provide adequate insulating clothing to maintain core temperature at 98.6° F if work is to be performed in air temperatures below 40° F. Wind chill cooling rates and the cooling power of air are critical factors. The higher the wind speed and the lower the air temperature in the work area, the greater the insulation value of the protective clothing should be.
- If the air temperature is 32° F or less, hands should be protected by mittens/gloves.
- If only light work is involved and if the clothing on the worker may become wet on the job site, the outer layer of clothing should be impermeable to water. With more severe work under such conditions, the outer layer should be water repellent, and the outer layer should be changed as it becomes wet. The outer garments should include provisions for easy ventilation in order to prevent wetting of the inner layer by sweat.
- If available clothing does not give adequate protection to prevent cold injury, work should be modified or suspended until adequate clothing is available, or until weather conditions improve.
- For prolonged work, heated shelters should be available. Workers should be encouraged to use these at regular intervals, with the frequency depending on the severity of the environmental exposure. When entering the shelter, the outer layer of clothing should be removed and the remainder of the clothing loosened to permit heat evaporation, or a change of work clothing should be provided.

- Warm, sweet drinks, such as hot cocoa or soup, should be available at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited because of diuretic and circulatory effects.
- The weight and bulk of cold-weather gear should be included in estimating the required work performance and weights to be lifted in the field.

Workers should be instructed in safety and health procedures regarding cold work environments as part of the pre-work safety meeting. The training program should include instruction in preventing, recognizing, and treating cold stress conditions.



HEAT STRESS

There is a potential for heat stress from the use of protective clothing and climate conditions. One or more of the following procedures may be employed to alleviate potential heat stress problems in the event that site conditions warrant the use of personal protective equipment (PPE), or ambient temperatures exceed 85° F. Heat stress training must be emphasized during the daily safety meetings, and adequate supplies of potable water must be provided to workers each day.

General Precautions. Provide plenty of liquids. To replace body fluids (water and electrolytes) lost because of sweating, use a 0.1 percent saltwater solution, more heavily salted foods, or commercial drink mixes. The commercial mixes may be preferable for those employees on a low sodium diet. Employees on low sodium diets, or other special diets, are advised to contact their personal physician for recommendations regarding appropriate electrolyte replacement fluids/beverages.

In extremely hot weather, conduct operations in early morning or evening and rotate shifts of workers wearing

impervious clothing. Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.

Ensure that adequate shelter is available for breaks to protect personnel against heat, which can decrease physical efficiency and increase the probability of accidents.

Acclimatization for workers not accustomed to working in elevated temperature environments will be considered and implemented as appropriate in accordance with American Conference of Governmental and Industrial Hygienists (ACGIH) Guidelines.

Heat Stress Monitoring.

For monitoring the body's recuperative ability toward excess heat, one or more of the following techniques should be used as a screening mechanism. Monitoring of personnel wearing impervious clothing should commence when the ambient temperature is 70° F or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates are indicated. When temperatures exceed 80° F, regardless of the use of Personal Protective Equipment (PPE), workers will be monitored for heat stress after every work period.

Good hygienic standards must be maintained by the employee to aid in the prevention of heat stress illnesses. At a minimum, frequent changes of clothing and daily showering should occur with clothing being allowed to dry during rest periods. Persons who notice skin problems should immediately inform their supervisor.

Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats/minute. If the HR is higher, the next work period should be shortened by 25 percent. The HR is then measured again, once each minute for 2 minutes (a total of three measurements), after the initial rest period measurement. The HR should decrease by ten beats per minute between each measurement (a total reduction of 20 beats). If the HR does not decrease, the work period should be reduced by an additional 25 percent.

Body temperature can be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99°F. If it is greater than 99°F, the next work period should be shortened by 25 percent. The OT should be measured again at the end of the rest period to make sure that it has dropped below 99° F.

Effects of Heat Street

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat loading, a number of physical reactions can occur. The severity of these reactions ranges from mild (such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement) to severe (fatal).

Heat-related illnesses include:

Heat rash (also known as prickly heat rash) is caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Heat rash decreases the ability to tolerate heat as well as being a nuisance. Signs are not limited to, but may include, a red prickly rash.

FIRST AID: Employees exhibiting signs of heat rash will be directed to shower and change into clean, dry clothing.

Heat cramps are caused by profuse perspiration with inadequate fluid intake and electrolyte replacement (especially salts). Signs are muscle spasms and pain in the extremities and abdomen, and may occur several hours after work has stopped.

FIRST AID: Employees showing signs of heat cramps will be directed to lie in a cool, shady area, and drink cool fluids. If symptoms persist or worsen, the employee will be transported to an emergency facility.

Heat exhaustion is caused by increased stress on various organs to meet increased demands to cool the body. Signs are shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.

FIRST AID: Employees with signs of heat exhaustion will be brought to a cool, shady location and given fluids. After recovering, the employee will be dismissed for the day. If employee is unconscious, or conditions persist, the employee will be transported to a hospital.

Heat stroke is the most severe form of heat stress. The body must be cooled immediately to prevent severe injury and/or death. Signs and symptoms are red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; and/or coma.

FIRST AID: HEAT STROKE IS A MEDICAL EMERGENCY. Employees will be brought to a cool area, aggressively treated by removing constricting clothes and applying wet towels or ice packs, and transported without delay to an emergency facility.

Appendix E

Tailgate Meeting/Checklist & JSA/HAS Notes

Project Name: _____ Project Number: _____

Work Location: _____ Date: _____

Tasks Performed: _____ Time: _____ AM PM

Client Name: _____ Submitted By: _____

Weather: _____

Refuge Area: _____

First Aid/CPR Persons: _____

Potential Hazards: _____

For Emergencies Dial 911

For Non-Emergencies Dial WorkCare (888) 449-7787

Personal Protective Equipment Required			Procedures/Programs Required	<u>Yes</u>	<u>No</u>	Additional Considerations
	<u>Yes</u>	<u>No</u> <u>Specify</u>				
Clothing	<input type="checkbox"/>	<input type="checkbox"/> _____	Confined Space	<input type="checkbox"/>	<input type="checkbox"/>	Work Procedures: <input type="checkbox"/> Dig Safe
FR, reflective vest, chemical, other (specify))			Hot Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Working clearances <input type="checkbox"/> _____
Eye/Face	<input type="checkbox"/>	<input type="checkbox"/> _____	Signs/Barricades	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
Safety glasses, goggles, face shield, other (specify)			LOTO/Energy Control	<input type="checkbox"/>	<input type="checkbox"/>	People: <input type="checkbox"/> Worker fatigue <input type="checkbox"/> Other site activities
Respirator	<input type="checkbox"/>	<input type="checkbox"/> _____	Scaffolds/Aerial Lifts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Public safety <input type="checkbox"/> Pedestrian control <input type="checkbox"/> Experience
1/2 face, full face, other (specify)			_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Traffic control <input type="checkbox"/> Other utilities
Foot Protection	<input type="checkbox"/>	<input type="checkbox"/> _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
Safety toe, EH rated, rubber boots, other (specify)			_____	<input type="checkbox"/>	<input type="checkbox"/>	Tools/Equipment: <input type="checkbox"/> Eye wash <input type="checkbox"/> First Aid Kit
Hand Protection	<input type="checkbox"/>	<input type="checkbox"/> _____	Employee Certification/Training Required			<input type="checkbox"/> Inspection of tools/equipment
Kevlar, chemical, EH, other (specify)			HAZWOPWER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Specialized tools/equipment
Head Protection	<input type="checkbox"/>	<input type="checkbox"/> _____	Asbestos Awareness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Correct tool/equipment for the job
hard hat, electrical hazard, other (specify)			Asbestos Inspector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
Fall Protection	<input type="checkbox"/>	<input type="checkbox"/> _____	XRF Trained	<input type="checkbox"/>	<input type="checkbox"/>	Special Precautions: <input type="checkbox"/> Environmental
body harness, lifelines, barricades, other (specify),			_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Condition of structures <input type="checkbox"/> Weather conditions
Hearing Protection	<input type="checkbox"/>	<input type="checkbox"/> _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Lighting conditions <input type="checkbox"/> Terrain <input type="checkbox"/> Water bodies
Other: _____			_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Adjacent structures
			_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____

If Conditions CHANGE...Stop Work, Review and Revise the Plan!!

Hazards Associated with the Job				
<input type="checkbox"/> Hazardous Chemicals	<input type="checkbox"/> Ladder	<input type="checkbox"/> Trenches Excavations	<input type="checkbox"/> Plants	<input type="checkbox"/> Confined space
<input type="checkbox"/> Asbestos	<input type="checkbox"/> Lighting	<input type="checkbox"/> Utilities	<input type="checkbox"/> Animals/Insects	<input type="checkbox"/> Hot Work
<input type="checkbox"/> Dust	<input type="checkbox"/> Manual Lifting	<input type="checkbox"/> Water/Boat Safety	<input type="checkbox"/>	<input type="checkbox"/> Radioactive Materials
<input type="checkbox"/> Edges/Material Handling	<input type="checkbox"/> Pressurized Fluids/Gases	<input type="checkbox"/> Weather (hot/cold)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Electricity	<input type="checkbox"/> Slip/Trip and Falls	<input type="checkbox"/> Work in Active Rail ROW	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Heavy Equipment	<input type="checkbox"/> Traffic Hazards	<input type="checkbox"/> Work in Active Substation	<input type="checkbox"/>	<input type="checkbox"/>
List all hazards associated with this task	Signature of Crew Members Present		Post Task Safety Analysis	
			Did any injuries or incidents occur today? If yes, explain.	
			<input type="checkbox"/> Yes <input type="checkbox"/> No	
Barriers to eliminate/control above hazards?			Was the injury or incident reported the safety department?	
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
			What problems did you have with today's work assignment?	
			What can we do tomorrow to improve performance?	
Supervisor Signature	Date			

Appendix F

WorkCare Program Information



FACT SHEET

EARLY INCIDENT INTERVENTION[®]

Immediate Access to Medical Advice for Work Related Incidents

(888) 449-7787

INTRODUCTION

WorkCare, Inc. (WorkCare) and TRC have partnered together to promote Incident Intervention[®], a resource designed to support company safety goals/targets—while reducing runaway-costs associated with workplace injuries and illnesses.

PURPOSE

Early Incident Intervention provides TRC employees with **IMMEDIATE** telephonic access to WorkCare clinicians at the time of a presumed, non-emergency workplace injury or illness. Clinicians provide expert guidance on the evaluation of symptoms, appropriate first aid, and the need for additional medical evaluation or treatment.

When utilizing this service within the first hour of an incident, known as the “Golden Hour,” licensed medical staff can guide the case so that medical evaluation and treatment are rendered appropriately.

“...helps the worker traverse the unpredictable terrain of work-related injuries and illness.”

PRINCIPLES OF EARLY INCIDENT INTERVENTION

- Utilizes principles of the “Golden Hour.”
- Provides workers immediate clinician support at the time of an incident.
- Focuses on providing the right care, at the right time in the proper setting.

BENEFITS FOR EMPLOYEES

- Instant access to a medically qualified professional for evaluation of symptoms and possible outcomes.
- Professional guidance on appropriate first aid measures and medications.
- Professional advice regarding the need for additional medical evaluation or treatment.


BENEFITS FOR TRC

- Point of contact for emergency and non-emergency medical clinicians.
- Triage the incident to determine risk and urgency, delivering interventions that are consistent with medical guidelines for the specified injury and illness.
- Maintains communication with clinicians to ensure accurate and timely reporting.

The Right Care - The Right Time - The Proper Setting

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Appendix G
Stop Work Authority Program
Safe Catch Form

	TRC HEALTH AND SAFETY MANAGEMENT SYSTEM		EHS Policy
	DOCUMENT TITLE: Stop Work Authority Program		Management System Procedures
	DOCUMENT NUMBER: CP049	Revision Number: 0	Compliance Programs
	APPROVED BY: Mike Glenn	Page 1 of 2	Forms, Checklists, Permits, etc.

1. PURPOSE

The Stop Work Authority (SWA) process involves a stop, notify, correct and resume approach for the resolution of a perceived unsafe condition, act, error, omission or lack of understanding that could result in an undesirable event.

All TRC employees have the authority to stop work when the control of the HSE risk is not clearly established or understood. All TRC employees have the authority and obligation to stop any task or operation where concerns or questions regarding the control of HSE risk exist.

2. SCOPE

This program applies to TRC projects and operations.

3. RESPONSIBILITIES

3.1 Management:

- Management must establish and support clear expectations to exercise SWA, create a culture where SWA is exercised freely and hold those accountable that chose not to comply with established SWA policies.

3.2 Supervisors:

- Supervisors are responsible to ensure a culture is created where SWA is exercised and honored freely to resolve issues before operations resume and recognize proactive participation.


3.3 Employees:

- Employees are responsible to initiate a Stop Work Intervention when warranted and management is responsible to create a culture where SWA is exercised freely.

4. PROCEDURE

4.1 General Requirements:

- When an unsafe condition is identified the Stop Work Intervention will be initiated and coordinated through the supervisor. It should be initiated in a positive manner. Notify all affected personnel and supervision of the stop work issue. Correct the issue and resume work when safe to do so.
- No work will resume until all stop work issues and concerns have been adequately addressed.

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- Employees will not be reprimanded for issuing a Stop Work Intervention. Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated.

4.2 Follow Up

- Stop Work Interventions should be documented for lessons learned and corrective measures to be put into place.
- Stop Work reports shall be reviewed by a supervisor or manager in order to measure participation, determine quality of interventions and follow-up, trend common issues, identify opportunities for improvement, and facilitate sharing of learnings.
- TRC places a high importance on follow-up after a Stop Work Intervention has been initiated and closed. It is the desired outcome of any Stop Work Intervention that the identified Safety concern(s) have been addressed to the satisfaction of all involved persons prior to the resumption of work. Most issues can be adequately resolved in a timely manner at the job site. Occasionally, additional investigation and corrective actions may be required to identify and address root causes.

5. TRAINING REQUIREMENTS

- Employees are provided training on Stop Work Authority. Employees must receive Stop Work Authority training before initial assignment. The training must be documented, including the employee name, the date of training, and subject.

6. REFERENCES/RELATED DOCUMENTATION

CP002 – Risk Analysis/Site-Specific Health and

Safety Program CP019 TRC Incident Response and

Lessons Learned Program



“Safe Catch” Report

A “Safe Catch” is a potential hazard or incident that has not resulted in any personal injury. Unsafe working conditions, unsafe employee behaviors, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone’s responsibility to report and/or correct these potential incidents immediately. Please complete this form as a means to report these “Good Catch” situations and submit to your local OSC Representative and Mike Glenn, National Safety Director.

Complete ALL field entries:			
Employee Name:		Date:	
Location:		Office:	
Project Number:		Practice:	
Conditions			
Please check all appropriate conditions:			
<input type="checkbox"/> Unsafe Act	<input type="checkbox"/> Unsafe Condition	<input type="checkbox"/> Unsafe Equipment	<input type="checkbox"/> Unsafe Use of Equipment
Description of Incident or Potential Hazard:			
Task Performed at Time of Incident:			
Causes (Primary and Contributing):			
Corrective Action(s) Taken (remove the hazard, replace, repair, or retrain):			
Employee Signature:		Date Completed:	

Our Mission: To reduce the frequency of incidents by applying local lessons learned globally.

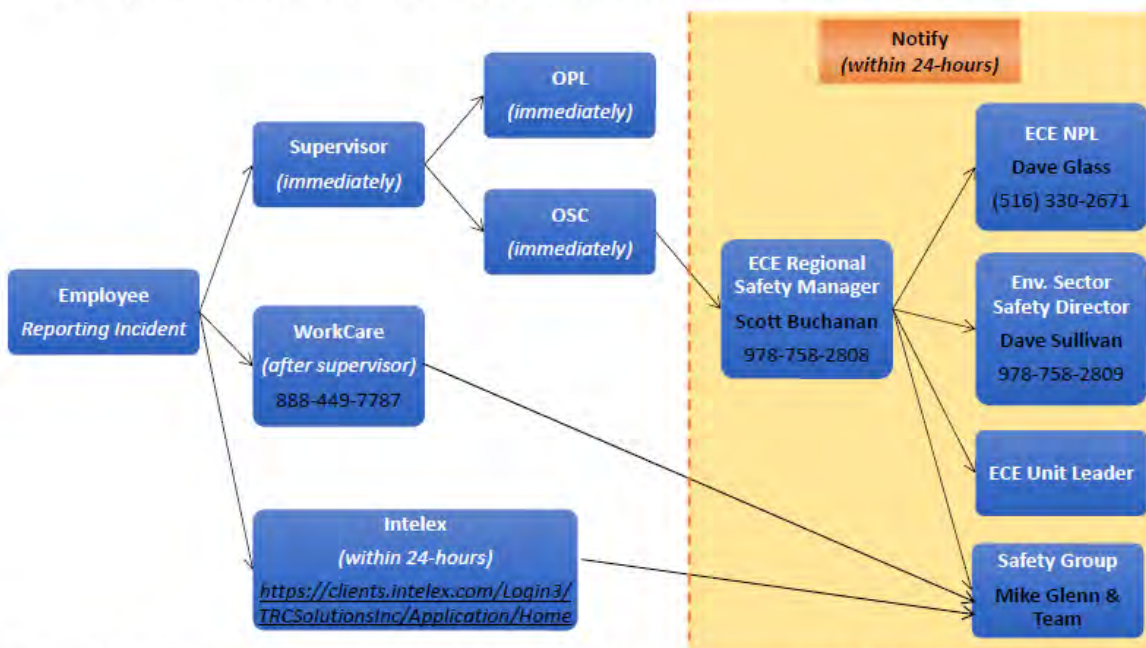
If you have any questions about this report or would like additional information, please reference Compliance Program [CP019—TRC Incident Response and Lessons Learned Program](#), located on TRCNET or contact Mike Glenn, National Safety Director at mglenn@trcsolutions.com.

Appendix H

In Case of Emergency

ECE Initial Incident Reporting Flow Chart

If emergency care is needed or if there is a motor vehicle incident call 9-1-1 first.



This flow chart is for the initial reporting of all incidents. It is expected that communications will occur across all or selected personnel on the chart when incident investigations are conducted. In the event that personnel within the reporting chain cannot be reached in a timely manner please reach out to the next level to ensure communication occurs in a reasonable time. The Regional Safety Manager may compile low level incidents in a monthly update to the unit, sector and national managers.

Appendix I

Acknowledgement

