00-00-103 (6/78)

New York State Department of Environmental Conservation

MEMORANDUM

TO:
FROM:
SUBJECT:

DATE:

workplan.hw.130009-130053B.2006-12-01.D004436-04_AECOM.pdf

SITE SAFETY AND HEALTH PLAN (SSHP)
DRAFT (80 Percent Submission)

Photocircuits/Pall Corp
OU2 (Deep Groundwater) RI/FS

Photocircuits (#130009),
Pall Corp (#130053B)

Work Assignment No. D004436-04

Prepared for:

SUPERFUND STANDBY PROGRAM
New York State
Department of Environmental Conservation
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December 2006

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LIST OF ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIH	Certified Industrial Hygienist
CNS	Central Nervous System
CP	Competent Person
CRZ	Contamination Reduction Zone
DDAT	Defensive Driver Awareness Training
ft	foot or feet
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations
IDLH	Immediately Dangerous to Life and Health
IDW	Investigation-Derived Waste
LO/TO	Lock Out/Tag Out
mg/m^3	milligrams per cubic meter
MSDS	Material Safety Data Sheet
NIOSH	National Institute for Occupational Safety and Health
NYSDEC	NYSDEC
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PA	Preliminary Assessment
PCE	Perchloroethene (tetrachloroethene)
PEL	Permissible Exposure Level
PM	Project Manager
PPE	Personal Protective Equipment
ppm	parts per million
RI	Remedial Investigation
SOP	Standard Operating Procedure
SHM	Safety and Health Manager
SOP	Standard Operating Procedure
SOW	Scope of Work
SSHO	Site Safety and Health Officer

SSHP	Site Safety and Health Plan
STEL	Short Term Exposure Limit
TBD	To Be Determined
TCA	Trichloroethane
TCE	Trichloroethene
THA	Task Hazard Analysis
TLV	Threshold Limit Value
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Site Safety and Health Plan (SSHP) (including Appendices A through E) provides a general description of the levels of personal protection and safe operating guidelines expected of each employee or subcontractor associated with the environmental services being conducted at the Photocircuits/Pall Corp Site, located in Glen Cove, Nassau County, NY (Figure 1). This SSHP also identifies chemical and physical hazards known to be associated with the Earth Tech-managed activities addressed in this document.

SSHP Supplements will be generated as necessary to address any additional activities or changes in site conditions, which may occur during field operations. This SSHP will be reviewed, updated as necessary, and re-approved by the Safety and Health Manager at least annually.

1.1 GENERAL

The provisions of this SSHP are mandatory for all Earth Tech personnel engaged in field work associated with the environmental services being conducted at the subject site. A copy of this SSHP, any applicable SSHP Supplements, the Earth Tech *Consolidated Safety, Health, and Environmental Manual* will be maintained on site and available for review. Record keeping will be maintained in accordance with this SSHP and the applicable Standard Operating Procedures (SOPs). The requirements of this SSHP represent the minimum acceptable standard of performance for all subcontractor activities conducted on the work site.

1.2 POLICY STATEMENT

It is the policy of Earth Tech to provide a safe and healthy work environment for all of its employees. Earth Tech considers no phase of operations or administration of greater importance than injury and illness prevention. Safety takes precedence over expediency. It is Earth Tech policy that every accident and every injury is avoidable, and every reasonable step will be taken to reduce the possibility of injury, illness, or accident. This policy is detailed in SH&E 001, *Safety, Health, and Environmental Policy Statement* (see Appendix A).

The practices and procedures presented in this SSHP and any supplemental documents associated with this SSHP are binding on all Earth Tech employees while engaged in the subject work. In addition, all site visitors shall abide by these procedures as the minimum acceptable standard for the work site. Operational changes to this SSHP and supplements that could affect the health or safety of personnel, the community, or the environment will not be made without prior approval of the Earth Tech Project Manager (PM) and the Safety and Health Manager (SHM), defined in **Section 3.0.**

Earth Tech's safety website is available for all Earth Tech employees as a resource for safety information, updates, and procedures. The corporate safety website can be accessed via Earth Tech's corporate intranet at http://etonline.earthtech.com/etonline/healthsafety. Project management and employees are encouraged to visit the website for key safety items and information, such as:

- The Earth Tech Employee Orientation
- Defensive Driver Awareness Training (DDAT)
- Contact information for Earth Tech's Safety Department staff
- Safety Forms
- Safety Program Manuals
- Safety Alerts and other communications
- Accident, Injury, and Near-Miss Reporting Requirements
- Links to Safety and Regulatory Information
- Training Resources

- Ergonomics Information, and
- A Feedback Link to the Earth Tech Safety Director

1.3 REFERENCES

This SSHP conforms to the regulatory requirements and guidelines established in the following documents:

- Title 29, Part 1910 of the Code of Federal Regulations (29 CFR 1910), *Occupational Safety and Health Standards* (with special attention to Section 120, *Hazardous Waste Operations and Emergency Response*)
- Title 29, Part 1926 of the Code of Federal Regulations (29 CFR 1926), *Safety and Health Regulations for Construction*
- National Institute for Occupational Safety and Health (NIOSH)/ Occupational Safety and Health Administration (OSHA)/ U.S. Coast Guard (USCG)/ Environmental Protection Agency (EPA), *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, Publication No. 85-115, 1985
- Earth Tech *Consolidated Safety, Health, and Environmental Manual* (SH&E)

In the event of a conflict between this SSHP, Earth Tech SOPs, and Federal, State, and local regulations, workers will follow the most stringent requirements.

2.0 SITE INFORMATION AND SCOPE OF WORK

Earth Tech will conduct environmental services (performing a remedial investigation of deep groundwater) at the Photocircuits/Pall Corporation site. Work will be performed in accordance with the applicable work assignment (NYSDEC D004436-05; February 2006) and associated work plans developed by Earth Tech for the site. Deviations from the listed SOW will require a Safety and Health Manager review and changes made to this SSHP, to provide adequate protection of personnel and other property.

The following is a summary of relevant data concerning the Photocircuits/Pall Corporation site, and the work procedures to be performed. The Work Plan prepared by Earth Tech as a companion document to this SSHP provides significantly greater detail concerning both site history and planned work operations.

The material in this section is taken almost entirely from the Work Plan submitted to the NYSDEC. Source documents for the information are referenced in the Work Plan and include previous investigations completed by others.

2.1 SITE INFORMATION

2.1.1 Location

The Site is located in a light industrial area on Sea Cliff Avenue in Glen Cove, Nassau County, NY (see Figure 1). The study area for this Deep Groundwater RI/FS is focused primarily on three areas, from south to north: Photocircuits Corporation (including the former Pass and Seymour site); Pall Corporation (including the August Thomsen property formerly owned by Pall); and property owned by the City of Glen Cove to the north, which includes Well No. 21 and the Carney Street Wellfield, along with other structures and uses (Figure 2).

2.1.2 Site Description

The Photocircuits Corporation (Photocircuits) site occupies about 10 acres at 31 Sea Cliff Avenue, on the south side of the street, directly across from the Pall Corporation Site; it is a documented source of chlorinated VOCs and is listed as a NYSDEC Class 2 Inactive Hazardous Waste Site (ID#1-30-009). For this discussion, the Photocircuits site is considered to also include the former Pass and Seymour site, which is now occupied by Photocircuits. The former Pass and Seymour site, on the west side of Glen Cove Creek at 45 Sea Cliff Avenue, occupies about 8 acres and is also a NYSDEC Class 2 site (1-30-053A).

The Pall Corporation (Pall) site, located at 30 Sea Cliff Avenue, consists of approximately 5 acres of property. The Site is mostly covered with asphalt pavement except for small landscaped areas around the Site building and parking area. The Pall site includes another industrial facility, August Thomsen, located on the northwest part of the site. The August Thomsen property (36 Sea Cliff Avenue) was once owned by Pall. The Pall site is currently inactive, although August Thomsen is an active company. The Pall site is bordered to the east by the Glen Cove Arterial Highway and residences and commercial areas situated further to the east. The site is bordered to the south by Sea Cliff Avenue. Industrial property, the Photocircuits site and the Pass and Seymour site, are south of Sea Cliff Avenue. The west side of the site borders on Glen Cove Creek. An industrial facility, Associated Draperies, is situated west of the Creek.

The property north of the Pall site is occupied by the City of Glen Cove and includes the Carney Well Field, a childcare (day care) facility, and garage, maintenance, and equipment storage facilities used by Glen Cove DPW, among others. Vehicular access to this area is only from the southbound shoulder of the Glen Cove Arterial Highway (Route 107), located to the east of the property. Glen Cove Creek is to the west, with the Pall/August Thomsen property to the south. In addition to the Carney Street Well No. 21, several other monitoring wells (planned for use in this RI/FS) are located on this property. NYSDOH collected air samples at the Glen Cove Child Day Care Facility on February 12, 2004; the samples were analyzed by (NYSDOH) Wadsworth Center for Laboratories and Research in Albany, New York. NYSDOH reported

"[t]he results indicate that the groundwater contamination beneath the building is not affecting indoor air quality in the building" (NYSDOH, 2004).

2.1.3 Site History

The Site area, known as the Sea Cliff Avenue Industrial Area, has been documented as an area of variable industrial use from the 1940s to the present. Pall Corporation has operated the facility at Sea Cliff Avenue since the early 1950s. The Pall Corporation facility was previously used as a research and development facility for the manufacture of filtration products, but is currently inactive and unoccupied. The August Thomsen property was formerly owned by the Pall Corporation until 1971, when August purchased the property. Prior to 1971, under Pall's ownership, it was reportedly used by its subsidiary, Glen Components, Inc., as a precision machine shop providing parts to Pall's other divisions. Based on a Pall report, chlorinated solvents were used at the Site until approximately 1971. The Photocircuits site (along with the Pass and Seymour site) has a documented history of chlorinated solvent use and discharges to the environment.

Industrial activities have occurred in the past and are currently occurring on neighboring properties which include Photocircuits Corporation, Pass and Seymour (currently occupied by Photocircuits), and Associated Draperies. The Photocircuits property was formerly owned by Powers Chemco (1954-1971) and Kollmorgen Corporation (1971-1986). Kollmorgen and Photocircuits manufactured printed circuit boards. These industrial properties are subject to NYSDEC regulatory enforcement action. The Pall Corporation, Photocircuits Corporation, and the former Pass and Seymour properties are listed as Class 2 Inactive Hazardous Waste Disposal Sites (IHWDS) by the NYSDEC. Associated Draperies is listed as a NYSDEC Spills site.

2.2 PREVIOUS INVESTIGATIONS

Based on those reports referenced in Section 1.4 of Earth Tech's Field Activities Plan (Appendix A to the Work Plan), the following information was derived during previous investigations at the subject site.

2.2.1 Photocircuits

A Preliminary Site Assessment (PSA) was conducted at the site, which identified the presence of VOCs, particularly 1,1,1-trichloroethane (1,1,1-TCA), in the soil and groundwater associated with these premises, and identified Photocircuits as a source of methylene chloride, 1,1,1-TCA and Tetrachloroethylene (PCE). In January of 1997, a site investigation was conducted which led to completion of a Remedial Investigation / Interim Remedial Measure Work Plan that was finalized in 1997 and executed in 1998. During the summer of 2000, a soil vapor extraction (SVE) system interim remedial measure (IRM) was installed in the most contaminated area of the site. In addition, a pilot study to use bioremediation techniques to remediate groundwater contamination in the same area was conducted. The SVE system operated satisfactorily for a one-year period. The results of the bioremediation pilot study were unsatisfactory. In January 2002, Photocircuits conducted a pilot test for a hydraulic restraint system to prevent migration of VOCs from the site. The full system was installed in January 2003, consisting of four 80 foot-deep extraction wells arrayed in an "L" shape in the northeast and pumping at about one to three gallons per minute (gpm). Currently, an investigation is underway to determine the final remedy for the site.

Pass and Seymour

In 1988, Pass and Seymour began operations at the premises, producing electric components using an injection molding process. There were indoor and outdoor drum storage areas. The manufacturing process included a degreasing operation using PCE as the solvent, which was stored in two tanks located outside of the building. A PSA, completed in 1994, used existing data from previous investigations. The PSA showed that PCE was found in the soil beneath the site, indicating past disposal of this compound on the property. PCE was also found in the groundwater under the site, at concentrations well above the applicable NYS Part 703 Class GA groundwater standard. In 1977, the Carney Street Wellfield was no

longer useable as a source of potable water, due to VOC contamination apparently originating in the Sea Cliff Avenue industrial area. Contamination at the Pass and Seymour site likely contributed to the levels of VOCs which caused the restricted usage of the wells.

A site investigation was carried out in January 1997. Based on the results of this investigation, a Remedial Investigation/Interim Remedial Measure (RI/IRM) workplan was finalized in March 1997 and was conducted in 1998. Additional data collection to refine the remedial design and a pilot test for an air sparging (AS)/SVE IRM were performed in 1999. The AS/SVE system was constructed in the summer of 2000 and is currently running satisfactorily, however, groundwater sampling results from January 2001 still show unacceptable levels of contamination in downgradient groundwater. Additional AS and SVE points were installed in the fall of 2002. The full system has been running since December 2002. Photocircuits now occupies the former Pass and Seymour site, and further investigations and remediation at Pass and Seymour are discussed under, and considered part of, the Photocircuits site.

2.2.2 Pall Corporation/August Thomsen

Pall, which manufactured filtration products at the site, was founded in 1946 and moved to 30 Sea Cliff Avenue some years later. This property was historically a research and development facility for Pall's Aerospace Division until 1971. Pall stored solvents on both of these properties in the past. Spent solvents were released to the ground, confirmed by the presence of VOCs such as PCE and trichloroethylene (TCE) in the soil. These solvents were also found in the groundwater at concentrations much higher than would be produced by any potential upgradient source. August Thomsen is located at 36 Sea Cliff Avenue on the northwest corner of Pall Corporation Site. August Thomsen is currently involved in the manufacture of pastry bags and tubes. Subsequent to a 1994 PSA, TAMS/GZA performed a Focused Remedial Investigation (FRI) at the Pall site, with field work conducted in early 1998. Further investigation was performed due to elevated levels of VOCs in the groundwater [140,000 ppb PCE, 1500 ppb TCE, and 10,000 ppb 1,2-dichlorothene (DCE)]. The PRP signed a Consent Order to complete a RI/FS Phase II investigation. Thirty-six monitoring wells were sampled at the site during the Phase II RI (conducted by Pall's consultant at that time, Enviro-Sciences) in April 1999, January 2000, and December 2000. VOC contamination (maximum 4,250 ppb total VOCs) was detected in several on-site wells and included PCE, TCE, DCE and Freon-113. VOC contamination was also detected in groundwater downgradient (north-northwest) of the site.

A SVE system was installed to remediate soil contamination at the Pall site. A FS and pilot test work plan were approved in 2001 for remediation of groundwater using *in situ* chemical oxidation. In December 2002, the pilot test began with injections of potassium permanganate into the contaminated groundwater. A Record of Decision was signed in March 2004 for *in situ* chemical oxidation of surface and shallow subsurface contamination. The PRP signed a Remedial Design/Remedial Action consent order in 2004. A second *in situ* chemical oxidation pilot test was performed in 2005. The pilot test consisted of injection of Fenton's Reagent into on-site injection wells.

2.2.3 City of Glen Cove/Carney Street Wellfield

The Carney Street Wellfield was used as a water supply for public drinking water until abandonment in 1977. H2M performed investigations at this site and identified potential VOC source areas within the soils. The compounds detected include halogenated and non-halogenated VOCs, including PCE, 1,2-DCE, and TCE.

Groundwater data for well No. 21, covering the period May 1977 through March 2000 (although there is no data for a 10-year period between October 1990 and January 2000) are summarized on D&B Table 2-2 (D&B, 2006). The data shown for the three samples in January 2000 correspond to data provided to Earth Tech by Glen Cove's consultant (Sidney A Bowne) for samples collected at the beginning, mid-point, and end of the pumping test conducted between January 20 and 28, 2006; Earth Tech has not yet located the source of the remaining data. In the earliest data sample for which data are reported (5/31/1977), PCE was

detected at a concentration of 195 µg/L and TCE at 104 µg/L. 1,1,1-TCA was not detected. Concentrations of chlorinated VOCs varied greatly in the 14 samples collected in the remainder of 1977, with PCE ranging from not detected to 295 µg/L; TCE from not detected to 170 µg/L; and 1,1,1-TCA from not detected to 5 µg/L. Between late 1978 and early 1984, VOC concentrations seemed to stabilize at low concentrations (PCE not detected; TCE not detected to 6 µg/L), although the 1,1,1-TCA concentration increased gradually, from ND in the 1970s to 10 to 18 µg/L in 1982-1984. In December 1984, TCE concentrations spiked at 380 µg/L; and TCE concentrations exceeded 100 µg/L in most of the samples analyzed between 1985 and 1989, with a maximum of 690 µg/L. PCE concentrations also increased in this period, though not nearly as much (ranging from not detected to 35 µg/L). 1,1,1-TCA concentrations were low for most of this period, ranging from ND to a maximum of 3 µg/L between 1987 and 1989. The first reported detection of cis-1,2-DCE (150 µg/L) was in the March, 1989 sample (the lone sample collected that year).

A sample was collected on January 2, 2000, shortly before the pump test; PCE (26 µg/L), TCE (2.5 µg/L), and cis-1,2-DCE (19 µg/L) were all detected (1,1,1-TCA was not). Lower concentrations were reported for the sample collected at the outset of the pump test (January 20, 2000) – TCE (3 µg/L) and cis-1,2-DCE (1.5 µg/L) were the only chlorinated VOCs detected. By the termination of the pump test (January 28, 2000) the reported concentrations of PCE, TCE, and cis-1,2-DCE approached (although were still slightly lower than) the concentrations reported in the pre-test sample (January, 2000).

The last sample data reported from Well No. 21 was collected on March 7, 2000; chlorinated VOCs were not detected, except 1,1,1-TCA at 1 µg/L.

2.3 CURRENT STATUS/POTENTIAL CONTAMINANT SOURCES

Current site conditions, based on a September 2006 site visit, indicate that the Photocircuits facility is currently in use and occupies about 10.8 acres on the south side of Sea Cliff Avenue. Photocircuits manufactures prototype and military printed circuit boards in Glen Cove (bulk manufacturing is apparently conducted by a plant in China). Photocircuits currently occupies the former Pass and Seymour (previously Slater Electric) facility.

The part of the site formerly occupied by Pall Corporation is currently not in use, although operations had apparently ceased recently (sometime in 2006). It had previously been used by Pall as a research and development facility for the manufacturing of filtration products. File information indicates that Pall has stated that chlorinated solvents are not used on the Site currently or recently. The Pall site is asphalt-paved except for small landscaped areas around the facility, and tree and grass covered areas along Glen Cove Creek as it flows along the west side of the site.

Earth Tech observed numerous monitoring wells on the Pall site, in addition to wells that were previously unknown. Subsequent file review suggests that many of these additional wells were either injection or monitoring points associated with a pilot study conducted recently in the northeast part of the Pall site.

The August Thomsen building is located north-northwest of the former Pall facility building. The August Thomsen property is currently in use, reportedly for the manufacture and distribution of a comprehensive line of cake decorating items including colors, tubes, decorating bags, spatulas, turntables, rolled fondant icing, and other tools for baking under the 'Ateco' brand name for bakery and restaurant supply companies and kitchenware stores.

The Glen Cove-owned property north of the Pall Corp site includes an active day care center, the inactive Carney Street Wellfield (the wells were not seen but the structure reportedly housing Well 21 was observed, north of the day care center), and other buildings on the west side of the property (garages and maintenance facilities; some outside equipment storage was noted. This parcel is only partially paved (i.e., there are open areas in addition to the parts covered by buildings or roadways). At the time of the site visit, access was through the day care center. The formal access is apparently available only from Route 107 (Glen Cove Arterial Highway) southbound.

The Sea Cliff Avenue monitoring wells were found to be located in the center of Sea Cliff Avenue (i.e., within the yellow stripe separating the eastbound and westbound traffic lanes. In addition, several wells could not be located.

2.4 SCOPE OF WORK

This SSHP for the Photocircuits/Pall Corp site is intended solely to support the acquisition of field and laboratory data.

2.4.1 Surveying and Mapping

Prior to sampling, an initial base map of the site will be produced by a land surveyor licensed by the State of New York (YEC of Valley Cottage, NY). In addition, a physical features map will be developed by the surveyor, which will include a well elevation survey. The mapping will be done in two stages. The initial mapping will be done prior to implementation of the intrusive field work and concurrently with the well location and condition survey. New monitoring wells will be surveyed after installation in a second mobilization. During this second mobilization, any additional features identified as needing to be surveyed (subsequent to the initial baseline survey) can be surveyed, as well as verification of any data points which appear suspect or anomalous. Since this task will be completed by subcontractors, no THA will be provided.

2.4.2 Well Location and Condition Survey

Under this task, existing monitoring wells will be located and their condition assessed in order to properly plan and execute the investigative tasks of this project (e.g., groundwater sampling). During a September 2006 site visit, it was determined that there are ambiguities with regard to the location and identity of some of the monitoring wells. Accomplishing this task will require coordination with several entities, including the site owners and occupants.

In addition, inspection and sampling of some of the wells will also require close coordination with Glen Cove, due to their location in the middle of Sea Cliff Avenue. At least part of Sea Cliff Avenue will need to be closed for varying times (depending on the work being performed) for the safety of Earth Tech or subcontractor personnel.

While Earth Tech will provide all the logistic effort (including, for example, obtaining the necessary permits from the City of Glen Cove), it is assumed that NYSDEC will obtain the necessary rights of entry to the properties identified by Earth Tech. See Appendix B for THA.

2.4.3 Monitoring Well Groundwater Sampling

Earth Tech will conduct two sampling events (rounds) to collect samples from site wells for VOC analysis. Groundwater elevation measurements will be obtained at each well during the sampling. The two sampling events will be separated by an approximately three-month interval (or greater). In addition, a limited third event will be conducted, collecting samples at the Carney Street Wellfield during the pump test.

Prior to sampling, the depth to water in each well will be measured using an electronic water level indicator. Then purging will occur using a bladder pump with a target flow rate of 300 to 350 mL/min. During purging, water quality parameters will be collected using a water quality meter until stabilization is observed. At that time, groundwater samples will be collected in the appropriate containers, stored on ice, and shipped to the laboratory for analysis. Appropriate QA/QC procedures will be followed, as noted in the Quality Assurance Project Plan.

Water level measurements will be collected from all of the wells of the monitoring network identified to be useful and viable during the well inspection survey and all newly installed wells. The water levels will be collected prior to scheduled sampling of the wells and all measurements will include recording information about the well condition. See Appendix B for THA.

The existing monitoring wells identified to be useful and viable during the well inspection survey will be purged and sampled. Based on the initial scope of work provided by NYSDEC, there are 53 existing wells to be sampled, including 20 Pall wells, 7 Photocircuits Wells, 3 Glen Cove wells, 6 August Thomsen wells, 13 public supply wells, and 4 wells located in Sea Cliff Avenue. These groundwater monitoring wells and others on and in the vicinity of the site are shown on Figure 3.

2.4.4 Monitoring Well Installation and Sampling

Prior to installing new wells, a geophysical survey will be conducted at each location to investigate the presence of buried utilities. The approximate locations of the proposed new monitoring wells are shown on Figure 4. A subcontractor to Earth Tech (under Earth Tech direct supervision) will install monitoring wells at various depths (estimated to be up to 220 ft bgs). Hollow-stem auger drilling is the preferred installation method; however, other methods (e.g., mud rotary or water rotary) may also be necessary. The subcontractor will also be responsible for well development. Drilling through concrete or asphalt will likely be required as some locations. Soil cuttings generated from the boreholes will be logged and documented by a geologist. In addition, a subset (six) of the new wells will be logged by collecting split spoon samples at 5-ft intervals. Cuttings will be screened for VOCs using an organic vapor analyzer equipped with a photoionization detector (PID). After installation, as described in Section 2.2.4 of the Work Plan, and development, these wells will be surveyed, purged, and sampled in the same manner as the existing wells in the previous section. See Appendix B for THAs on Drilling/Well Installation, Sample Screening, Well Development, and Well Sampling.

2.4.5 Direct-Push Groundwater Sampling

A limited direct push sampling investigation will be conducted near previous Geoprobe groundwater sampling point 31-GW-04B on the Photocircuits site. At two locations direct push borings will be advanced to a depth of approximately 160 ft bgs for the purpose of collecting stratified groundwater samples. Groundwater samples will be collected at 10 foot intervals from approximately 160 ft bgs to the groundwater table using a hydropunch-type device such as a Geoprobe S-15 sampler. The hydropunch device will be advanced to the targeted depth and retracted to expose the stainless steel screened interval. A peristaltic pump will be used to purge groundwater from the hydropunch with the goal of obtaining clear water prior to sampling. Water quality parameters will be recorded during purging. After several minutes of purging, a groundwater sample will be collected using the peristaltic pump. The sample will be submitted to the laboratory for VOC analysis. Once sampling is complete, the hydropunch will be lifted to the next interval and purged for several minutes to clear water from both the screen and the tubing. See Appendix B for THA.

2.4.6 Pump Test

Earth Tech personnel will conduct a [24-hour] aquifer pump test at the existing supply well (Well No. 21) at the Carney Street Well Field, just north of the Pall Corporation site. The objectives of this test are to determine the capture zone and hydraulic dynamics of Well No. 21, and to determine the groundwater quality of the pumped groundwater. The results of the pump test will be evaluated to assess the viability of future operation of Well No. 21 for VOC plume capture, treatment, and potential use of the treated water for industrial purposes. Pumping will be coordinated with the City of Glen Cove. The test will be conducted for 24 to 48 hours and the well will be pumped at the maximum practical pumping rate (reportedly 1,400 gpm). If the maximum rate cannot be confirmed, a step test will be performed to determine the maximum pumping capacity of well No.21.

The pump test will be scheduled after the installation of the proposed new monitoring wells and after collecting the first round of groundwater sampling. Water levels will be taken during the recovery period. The recovery period will be considered complete when the water level has returned to 90 percent of pre-test levels. The water levels will be collected manually using an electronic water level indicator and electronically by transducers with data logging capacity.

Background measurements will be collected from selected monitoring wells for a week prior to the pump test. The pump test is proposed to be conducted immediately after the second round of groundwater sampling. Therefore, the Earth Tech personnel performing groundwater sampling can also measure water levels in selected monitoring wells at the specified intervals. Groundwater samples will be collected of pumped water from Well No. 21 in addition to the four new wells of the cluster to be installed 75 ft to the south. Earth Tech also recommends sampling from one monitoring well cluster near Sea Cliff Avenue (e.g., well cluster MW-8P) to assess the impact of pumping Well No. 21 on the effectiveness of the hydraulic control system at the Photocircuits site. The samples will be collected at the beginning of the pump test and at approximately12-hour intervals thereafter, including a sample when the test is terminated. These samples will be analyzed for TCL VOCs. See Appendix B for THA.

The NYSDEC scope of work assumed that the pumped water will be discharged to the Glen Cove sewer system as was reportedly done during previous investigations (apparently referring to the pump test performed in 2000 by consultants to the Glen Cove Water Department). Permission will be obtained from the City of Glen Cove and the pump test will be coordinated with the City. On further investigation, Earth Tech has been unable to confirm the disposition of the water from this test, which was run for eight days in January, 2000. Earth Tech does note that there may some difficulty in the disposal of this water, due at least in part to the fact that Nassau County's stormwater management program (under a general SPDES permit) did not begin until 2003.

2.4.7 Additional Tasks

The following additional tasks will be performed in support of planned site activities:

Mobilization/Demobilization: Mobilization and demobilization represent limited pre- and post-task activities. These activities include driving to and from the site; initial site preparations, such as generator, trailer, and toilet facilities setup; and post-work activities, such as removing files and office equipment and general housekeeping.

Utilities Identification: Various forms of aboveground/underground utility lines or pipes may be encountered during subsurface soil sampling. Prior to the start of invasive site operations, all utilities must be located with the New York City – One Call System (1-800-272-4480 for NYC and Long Island). In addition, a private locator will be contracted for identification of private utilities. Should intrusive operations because equipment to come into contact with utility lines, the Site Safety and Health Officer (SSHO) and the Safety and Health Manager (SHM), defined in **Section 3.0**, will be notified immediately. Work will be suspended until the [NY] Underground Plant Protection Service is contacted and the appropriate actions for the particular situations can be taken. For additional information, refer to SH&E 403, *Drilling* (see Appendix A). Since ET personnel will be on-site during the utility location, a THA is attached as Appendix B.

Establishing Site Control Systems: Site control, including identifying and labeling restricted or prohibited areas, must be done before site work can begin, in conjunction with the establishment of HAZWOPER controlled work areas (**Section 9.2**). See Appendix B for THA.

Traffic Control: At least two of the existing wells which must be surveyed, assessed, and sampled are located in the middle of Sea Cliff Avenue. In addition, it is possible that additional monitoring wells may need to be installed in Sea Cliff Avenue. Refer to Appendix B for THA.

Equipment Decontamination: Earth Tech and subcontractor personnel will perform decontamination of equipment used to perform work within controlled work areas using a decontamination pad as indicated in the work plan. Refer to Appendix B for associated THA.

Investigation-Derived Waste (IDW) Management: IDW will be collected and categorized as non-hazardous or hazardous. It is tentatively planned that aqueous wastes (primarily development water but also potentially including decontamination fluids will be discharged to the City of Glen Cove sanitary sewer system.

Potentially hazardous IDW (e.g., soil cuttings) will be stored in 20-cy roll-off containers staged in the Pall Corporation parking lot; the material will characterized and managed as specified in the SAP. Non-hazardous IDW (i.e., normal trash) will be disposed of in a timely fashion during field work. Refer to Appendix B for associated THA.

Sample Packaging:

Groundwater samples collected during the investigation will be packaged using appropriate methods to prevent both exposure to potential contaminants and/or preservatives, as well as prevent breakage of bottleware. See Appendix B for associated THA.

2.4.8 Non-Applicable Tasks

Lockout/Tagout (LOTO) Procedures

No lockout/tagout procedures will be necessary for Earth Tech's proposed scope of work, based on the necessary equipment. Subcontractors will be responsible for their own equipment. No intrusive work is proposed inside site buildings. If the scope changes, then the facility operator (i.e. Photocircuits) will be responsible for LOTO of their own equipment if it is located in the work area.

Confined Space Entry

No confined spaces have been identified that would require entry during the project work, based on the scope of the investigation (i.e. surveying, well sampling, well installation and soil sampling).

3.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

3.1 PROJECT MANAGER - ALLEN BURTON

The Project Manager (PM) has overall management authority and responsibility for all site operations, including safety. The specific safety responsibilities for the PM are listed in Section 2.2 of SH&E 001, *Operational SH&E Structure and Responsibilities.* The PM will provide the site supervisor with work plans, staff, and budgetary resources, which are appropriate to meet the safety needs of the project operations.

3.2 SITE SUPERVISOR – PAUL KARETH

The site supervisor (field team leader) has the overall responsibility and authority to direct work operations at the job site according to the provided work plans.

3.2.1 Responsibilities

The site supervisor is responsible for:

- Discussing deviations from the work plan with the SSHO and PM.
- Discussing safety issues with the PM, SSHO, and field personnel.
- Assisting the SSHO with the development and implementation of corrective actions for site safety deficiencies.
- Assisting the SSHO with the implementation of this SSHP and ensuring compliance.
- Assisting the SSHO with inspections of the site for compliance with this SSHP and applicable SOPs.

3.2.2 Authority

The site supervisor has authority to:

- Verify that all operations are in compliance with the requirements of this SSHP, and halt any activity that poses a potential hazard to personnel, property, or the environment.
- Temporarily suspend individuals from field activities for infractions against the SSHP pending consideration by the SSHO, the Safety and Health Manager, and the PM.

3.2.3 Qualifications

In addition to being HAZWOPER-qualified, the site supervisor has completed the 8-hour HAZWOPER Supervisor Training Course in accordance with 29 CFR 1910.120 (e)(4), has several years experience with health and safety at HAZWOPER sites, and has participated in personal and work zone air monitoring programs at HAZWOPER sites.

3.3 SAFETY AND HEALTH MANAGER - ROBERT POLL, CIH, CSP

The Safety and Health Manager (SHM), also known as the Safety Professional, is the member of the Earth Tech Safety, Health and Environmental Department assigned to oversee health and safety requirements for the project and provide any needed technical support.

3.3.1 Responsibilities

The SHM will be the first point-of-contact for all of the project's health and safety matters. Duties include the following:

- Approving this SSHP and any required changes

- Visiting the site as needed to audit the effectiveness of this SSHP
- Serving as a quality control staff member
- Remaining available for project emergencies
- Reviewing all personal exposure monitoring results and modifying THAs or the SSHP as necessary
- Investigating any reported unsafe acts or conditions

3.3.2 Qualifications

The SHM is a member of the Earth Tech Safety, Health, and Environmental (SH&E) Department, and is certified as a Certified Industrial Hygienist (CIH) and a Certified Safety Professional (CSP). In addition, the SHM is HAZWOPER-qualified and has completed the 8-hour HAZWOPER Supervisor Training Course in accordance with 29 CFR 1910.120(e)(4). Also, the SHM has over five years experience with managing the health and safety at HAZWOPER sites. Organizationally, the SHM reports independently to corporate management, separately from the Project Manager.

3.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO), also known as the Site Safety Officer (SSO), is the Earth Tech employee assigned to oversee daily health and safety requirements for the project.

3.4.1 Responsibilities

The SSHO is responsible for:

- Being on-site to verify that the policies and procedures identified in this SSHP are implemented.
- Establishing any necessary controlled work areas (as designated in this SSHP).
- Establishing safe passageways where hazards exist.
- Reviewing THAs and updating as necessary based on site conditions.
- Updating the site-specific SSHP to reflect changes in site conditions or the scope of work. SSHP updates must be reviewed and approved by the SHM.
- Being aware of changes in Earth Tech Safety Policy - Changes posted on the Earth Tech Safety Website (see **Section 1.2** of this SSHP).
- Monitoring the lost time incidence rate for this project and work toward improving it.
- Inspecting the site for compliance daily with this SSHP and the SOPs using the appropriate audit inspection checklist (Appendix C).
- Working with the PM to develop and implement corrective action plans to correct deficiencies discovered during site inspections. Deficiencies will be discussed with project management to determine appropriate corrective action(s).
- Contacting the SHM for technical advice regarding safety issues.
- Determining emergency evacuation routes, establishing and posting local emergency telephone numbers, and arranging emergency transportation.
- Providing a means for employees to communicate safety issues to management in a discreet manner (e.g., suggestion box, etc.).
- Verifying that all site personnel and visitors have received the proper training and provide appropriate training and medical clearance records prior to entering the site.
- Presenting tailgate safety meetings and maintaining attendance logs and records.
- Discussing potential health and safety hazards with the PM and SHM.

3.4.2 Authority

The SSO has authority to:

- Verify that all operations are in compliance with the requirements of this SSHP.
- Temporarily suspend individuals from field activities for infractions against the SSHP pending consideration by the SHM and the PM, in accordance with SH&E 209, *Disciplinary Actions-Accountability.*

3.4.3 Qualifications

In addition to being HAZWOPER-qualified, the SSHO has completed the 8-hour HAZWOPER Supervisor Training Course in accordance with 29 CFR 1910.120(e)(4), has several years experience with health and safety at HAZWOPER sites, and has participated in personal and work zone air monitoring programs at HAZWOPER sites).

3.5 SITE WORKERS

3.5.1 Responsibilities

Responsibilities of site workers associated with this project include, but are not limited to the following:

- Understanding and abiding by the policies and procedures specified in the SSHP, RPP, and other applicable safety policies, and clarifying those areas where understanding is incomplete.
- Providing feedback to health and safety management relating to omissions and modifications in the SSHP or other safety policies.
- Notifying the SSHO, in writing, of unsafe conditions and acts.

3.5.2 Authority

The health and safety authority of each employee assigned to the site includes the following:

- The right to refuse to work and/or stop work authority when the employee feels that the work is unsafe (including subcontractors or team contractors), or where specified safety precautions are not adequate or fully understood in accordance with SH&E 206, *Stop Work Authority.*
- The right to refuse to work on any site or operation where the safety procedures specified in this SSHP or other safety policies are not being followed.
- The right to contact the SSHO or the SHM at any time to discuss potential concerns.

3.5.3 Qualifications

All site workers will be HAZWOPER-qualified and complete all other training and medical surveillance required by this SSHP.

3.6 SUBCONTRACTORS

The requirements for subcontractor selection and subcontractor safety responsibilities are outlined in SH&E 207, *Contractor and Subcontractor SH&E Requirements* (see Appendix A). Each Earth Tech subcontractor is responsible for assigning specific work tasks to their employees. Each subcontractor's management will be required to provide qualified employees and allocate sufficient time, materials, and equipment to safely complete assigned tasks. In particular, each subcontractor is responsible for equipping its personnel with any required PPE.

Earth Tech considers each subcontractor to be an expert in the aspects of the work operations for which they are tasked to provide, and each subcontractor is responsible for compliance with the regulatory requirements that pertain to those services. Each subcontractor is expected to perform its operations in accordance with its own unique safety policies and procedures, in order to properly control hazards associated with the

performance of the work activities. Such safety policies and procedures will be at least as stringent as the policies and procedures set forth in this SSHP. Copies of any required safety documentation for a subcontractor's work activities will be provided to Earth Tech for review prior to the start of onsite activities, if required.

Hazards not listed in this SSHP, but known to any subcontractor, or known to be associated with a subcontractor's services, must be identified and addressed to the PM prior to beginning work operations. The Site Supervisor or authorized representative has the authority to halt any subcontractor operations, and to remove any subcontractor or subcontractor employee from the site for failure to comply with established health and safety procedures or for operating in an unsafe manner.

3.7 VISITORS

Authorized visitors (e.g., client representatives, regulators, Earth Tech management staff, etc.) requiring entry to any work location on the site will be briefed by the SSHO on the hazards present at that location. Visitors will be escorted at all times at the work location and will be responsible for compliance with their employer's health and safety policies. In addition, this SSHP specifies the minimum acceptable qualifications, training, and personal protective equipment which are required for entry to any controlled work area; visitors must comply with these requirements at all times. Visitors will be briefed on safety policies in the SSHP and RPP relevant to their site visit and the topic of the daily safety briefing and will sign the daily safety briefing log.

Unauthorized visitors, and visitors not meeting the specified qualifications, will not be permitted within established controlled work areas. However, as the work will occur on sites not under the control of Earth Tech or the client (specifically, Photocircuits and Pall Corp sites are under private ownership, and other sampling locations are on property owned by the City of Glen Cove or on rights-of-way controlled by Glen Cove); Earth Tech's ability to enforce access restrictions with visitors will be limited.

4.0 HAZARD/RISK ANALYSIS

The following hazards are unique hazards that employees will be expected to or may potentially encounter at the job site. Mitigation of these hazards is discussed in **Section 8.0**. These hazards will be considered when conducting activity hazard analyses, as described in **Section 4.4**.

4.1 SAFETY AND PHYSICAL HAZARDS

4.1.1 Traffic/Vehicular Hazards

Some work will likely occur within the right-of-way for Sea Cliff Avenue, including work within the traffic lanes for the road. Work of a transient nature (e.g., surveying) may utilize flagmen and cones/barricades for traffic control (with the knowledge and concurrence of the City of Glen Cove). Work of longer duration (well inspection; well development; well installation; groundwater sampling) may require temporary road or lane closure. A specialty subcontractor may be engaged to assist in traffic control for this work. Additional guidance is provided in SH&E 517, *Traffic Safety* (see Appendix A).

4.1.2 Overhead Hazards

Overhead hazards are present both indoors and outdoors. Outdoors, overhead utilities (i.e. power lines) may pose a hazard during drilling activities, especially along roads, in parking lots, and near site buildings. Indoor overhead hazards include low headroom clearance due to remaining production equipment, lighting, utility racks, etc.; however, no sampling is anticipated within buildings.

4.1.3 Underground Utilities

Various forms of underground utility lines or pipes may be encountered during site activities. Prior to the start of intrusive operations, utility clearance is mandated, as well as obtaining authorization from all concerned public utility department offices. Certain task-specific activities may warrant the completion of a geophysical radar survey to confirm the absence of utilities in the work area. Should intrusive operations cause equipment to come into contact with utility lines, the SSHO and the Safety Professional will be notified immediately. Work will be suspended until the applicable utility agency is contacted and the appropriate actions for the particular situations can be taken. The phone numbers for utility agencies is provided in the Emergency Contacts list found in **Section 8.0**.

4.1.4 Cold Stress

Associated with site-specific work activities, PPE usage and geographical project locations, cold stress will likely be a site hazard depending on the field work schedule and weather conditions.

4.1.5 Slips, Trips, Falls and Protruding Objects

A variety of conditions may exist that may result in injury from slips, trips, falls, and protruding objects. Slips and trips may occur as a result of wet, slippery, or uneven walking surfaces. To prevent injuries from slips and trips, always keep work areas clean; keep walkways free of objects and debris; and report/clean up liquid spills. Protruding objects are any object that extends into the path of travel or working area that may cause injury when contacted by personnel. Always be aware of protruding objects and when feasible remove or label the protruding object with an appropriate warning.

During winter conditions, the presence of ice on roads and paved surfaces may be a physical site hazard. If Earth Tech personnel are working in these areas, coordination with site contacts will be pursued to facilitate mitigation of hazards (i.e. plowing, salt spreading, etc.).

4.1.6 Manual Lifting

Most materials associated with investigation and remedial activities are moved by hand. The human body is subject to severe damage in the forms of back injury, muscle strains, and hernia if caution is not

observed in the handling process. Whenever possible, use at least two people to lift, or roll/lift with your arms as close to the body as possible. Under no circumstances should any one person lift more than 49 pounds unassisted.

4.1.7 Hazardous Noise Environments

Working around drill rigs and other heavy equipment often creates excessive noise. The effects of noise can include physical damage to the ear, pain, and temporary and/or permanent hearing loss. Workers can also be startled, annoyed, or distracted by noise during critical activities.

Earth Tech has compiled noise monitoring data that indicates that work locations within 25 feet of operating heavy equipment (e.g., drill rigs, earthworking equipment) can result in exposure to hazardous levels of noise (levels greater than 90 dBA). Accordingly, all personnel are required to use hearing protection (earplugs or earmuffs) within 25 feet of any operating piece of heavy equipment in accordance with SH&E 109 *Hearing Conservation Program.*

4.2 CHEMICAL HAZARDS

The following is a discussion of the hazards presented to worker personnel during this project from on-site chemical hazards reported as chemical hazards, expected to be present based on past site activities, or expected to be released as a result of work activities. Exposure symptoms, health effects, and applicable exposure limits for each suspected site contaminant are summarized in the following subsections. Hazards associated with chemical products brought to the site during work operations are addressed separately, under the Hazard Communication process described in **Section 8.3**.

4.2.1 Trichloroethene

Moderate exposures to trichloroethene (TCE) cause symptoms similar to those of alcohol inebriation. Higher concentrations cause narcotic effects. Ventricular fibrillation has been cited as the cause of death following heavy exposures. TCE-induced hepatocellular carcinomas have been detected in mice during tests conducted by the National Cancer Institute. Organ systems affected by overexposure to TCE are the CNS (euphoria, analgesia, anesthesia), degeneration of the liver and kidneys, the lungs (tachypnea), heart (arrhythmia) and skin (irritation, vesication, and paralysis of fingers when immersed in liquid TCE). Contact with the liquid defats the skin, causing topical dermatitis. Certain people appear to experience synergistic effects from TCE exposure concomitant with exposure to caffeine, alcohol, and other drugs. Other reported symptoms of TCE exposure include abnormal fatigue, headache, irritability, gastric disturbances, and intolerance to alcohol. The OSHA PEL is 100 ppm while the ACGIH TLV is 50 ppm, the ACGIH STEL is set at 100 ppm.

4.2.2 Tetrachlorothene

Tetrachloroethene (PCE) affects the central nervous system, causing loss of coordination, headache, vertigo (loss of balance), light narcosis, dizziness, and unconsciousness. In extremely high concentrations death may occur. Various types of irritable effects have been attributed to PCE exposure. Some of the symptoms involved include: eye, nose, and throat irritation, indications of nausea and intestinal gas, and possible changes to both the liver and the kidneys. Skin exposure to PCE has not been seen to produce harmful effects in cases where the PCE was allowed to evaporate immediately after contact. However, in cases where skin was exposed to PCE frequently and for prolonged periods of time without evaporating, symptoms of dermatitis by defatting of the skin was evident. PCE is listed as an anticipated human carcinogen by the NTP. The OSHA PEL and the ACGIH TLV are 25 ppm with an ACGIH STEL of 100.

4.2.3 1,1,1-Trichloroethane

1,1,1-TCA (also known as methyl chloroform) exhibits low oral toxicity. It can defat the exposed skin of workers and cause redness and scaling. Although TCA is has a low systemic toxicity, it is an anesthetic capable of causing death if inhaled at concentrations of 14,000 ppm to 15,000 ppm. Fatalities that have

occurred in poorly ventilated areas such as pits or tanks are attributed to anesthesia and/or sensitization of the myocardium to epinephrine. Quick and complete recovery is reported upon prompt removal of unconscious exposed persons from the area of exposure. The exposure standards are set to prevent initial anesthetic effects and/or objections to the odor. Both the OSHA permissible exposure level (PEL) and the ACGIH TLV are 350 ppm, while the OSHA and ACGIH short-term exposure limits (STELs) are 450 ppm.

4.2.4 Diesel Exhaust

When diesel fuel burns in an engine, the resulting exhaust is made up of soot and gases representing thousands of different chemical substances. Ninety percent of the soot consists of particles that can be inhaled and deposited in the lungs. These particles may carry absorbed polynuclear aromatic hydrocarbons. The gases in diesel exhaust that can also create health problems include:

- nitrous oxide
- nitrogen dioxide
- formaldehyde
- benzene
- sulfur dioxide
- hydrogen sulfide
- carbon dioxide
- carbon monoxide

Short-term symptoms of diesel exhaust exposure may include: irritation of the eyes, nose and throat, lightheadedness, and headaches. Chronic effects of exposure to diesel exhaust possibly include cancer.

4.2.5 Assessment of Exposure Hazards

Inhalation – The potential for inhalation of diesel exhaust is low, since drilling will not occur within enclosed, unventilated areas. The potential for inhalation of silica is low as engineering controls, such as wet drilling techniques, will be used during concrete and asphalt coring activities and the work will be conducted outdoors, so dusts are unlikely to accumulate or concentrate. The likelihood of inhalation of chlorinated VOCs (TCE, PCE, TCA) in soils is moderate. Background air monitoring will be implemented to monitor worker exposures.

Skin Contact – Skin and eye contact with the listed inorganic and organic contaminants is likely during soil sampling due to close proximity with the contaminants in the soil and groundwater. Use of personal protective equipment (PPE) such as gloves and safety glasses and proper PPE removal techniques will minimize skin and eye contact (see **Section 8.6**).

Ingestion – Ingestion of contaminants through ingestion of soil is most likely when these contaminants are brought out of contaminated work areas and into break areas. Protection against exposure via ingestion can be accomplished by use of gloves and proper PPE removal techniques (see **Section 8.6**).

4.3 BIOLOGICAL HAZARDS

The primary biological hazard expected at this site is exposure to insects. Habitats for insects at the site are primarily outdoor locations, such as uncleared grassy areas. (Such areas are limited, as most of the work conducted for this project will be conducted in paved areas.) Mosquitoes can potentially carry and transmit the West Nile Virus. Ticks can transmit Lyme disease or Rocky Mountain spotted fever. Bees and wasps can sting by injecting venom, which causes some individuals to experience anaphylactic shock (extreme allergic reaction).

4.4 ACTIVITY HAZARD ANALYSIS

Activity Hazard Analysis, also known as Task Hazard Analysis (THA) is a technique used to identify hazards and hazard controls associated with a specific job function. THAs will be developed in accordance with SH&E 204, *Task Hazard Analyses*. The site hazards identified in this SSHP and other known or potential hazards will be considered in the development of each THA. THAs will further identify the tools and equipment and engineering, administrative, and PPE controls required for the completion of the task. Finally, the THAs will identify the specific monitoring required during the task.

Section 2.4 describes the work activities anticipated to be performed during this project. Individual THAs for the tasks associated with this work can be found in Appendix B, including, but not limited to:

- Drilling/Monitoring Well installation oversight
- Direct-Push Groundwater Sampling
- Aquifer Test
- Well Development
- Monitoring Well Groundwater sampling
- Well Condition Survey
- Mobilization/Demobilization
- Utility Location
- Establishing Site Control Systems
- Traffic Control
- Equipment decontamination
- IDW characterization
- Soil sample field screening and collection
- Sample transport preparation

4.4.1 Unanticipated Work Activities/Operations

Unanticipated work activities and operations at the site may require additional tasks or involve additional hazards not identified in **Section 2.4** or addressed in THAs included in Appendix B. Before performing any task not covered in this SSHP, a THA must be prepared and be approved by the SHM, defined in **Section 3.0**, shown to site workers and maintained with site safety and health documentation.

5.0 OCCUPATIONAL EXPOSURE ASSESSMENT

5.1 HEALTH AND SAFETY ACTION LEVELS

Action levels are defined for this project as degrees of hazards that will indicate the need to change levels of PPE, institute a work stoppage or emergency evacuation, or institute additional measures to minimize public exposures. The action levels are defined in the description of each physical, chemical, and biological hazard, where applicable, and in **Table 1** and **Table 2**.

5.2 EXPOSURE MONITORING PROCEDURES

Monitoring procedures will be employed during site characterization activities to assess employee exposure to physical and chemical hazards. Monitoring will consist primarily of on-site determination of various parameters (e.g., airborne contaminant concentrations and heat/cold stress contributors), but may be supplemented by more sophisticated monitoring techniques, if necessary.

5.2.1 Real-Time Exposure Monitoring

Monitoring will be performed within the work area on site in order to detect the presence and relative levels of hazards. The data collected throughout monitoring shall be used to determine the appropriate levels of PPE. Monitoring will be conducted as specified in **Table 1** and **Table 2** and each THA (Appendix B), while work is performed.

Instruments used will be calibrated at the beginning of each work shift, in accordance with the manufacturer's recommendations. Calibration Logs will be maintained in Appendix C. If the owner's manual is not available, the personnel operating the equipment will contact the applicable office representative, rental agency, or manufacturer for technical guidance for proper calibration. If equipment cannot be pre-calibrated to specifications, site operations requiring monitoring for worker exposure or off-site migration of contaminants will be postponed or temporarily ceased until this requirement is completed.

5.2.2 Personal Breathing Zone Monitoring

When the SSHO determines that changes in site activities indicate personnel exposure to chemical hazards may exceed applicable exposure limits, personal breathing zone sampling may be warranted. Personal breathing zone samples may also be warranted to upgrade or downgrade personal protective equipment levels or when long-term exposures above exposure limits are suspected based on real-time exposure monitoring results.

The SSHO, under the direction of the SHM, will be responsible for specifying the monitoring required. Within five working days after the receipt of the monitoring results, the SHM will notify each employee, in writing, of the results that represent that employee's exposure. Copies of air sampling results will be maintained in the project files.

5.2.3 Perimeter Monitoring

Perimeter monitoring, if required by NYSDEC, will be conducted in accordance with the Community Air Monitoring Program (CAMP).

5.3 WORK STOPPAGE OR EMERGENCY EVACUATION

When indicated in **Table 1**, work in an affected area should cease and all personnel notified to leave the area. When an evacuation of a work area is indicated, personnel working in adjacent work areas should be notified of the site conditions and monitoring or personal protective equipment required.

5.4 PREVENTION OR MINIMIZATION OF PUBLIC EXPOSURES

Table 2 identifies site boundary chemical hazard monitoring procedures, action levels, and responses to prevent or minimize public exposures. The SSHO will track site boundary monitoring data and identify trends and preventative mitigation procedures to minimize additional public exposures. Air monitoring will be conducted in accordance with the Community Air Monitoring Plan (CAMP).

6.0 TRAINING AND MEDICAL SURVEILLANCE

6.1 TRAINING

6.1.1 General

Personnel performing work at the job site must be qualified as HAZWOPER workers (unless otherwise noted in specific THAs or by the SSHO), and must meet the medical monitoring and training requirements specified in the following safety procedures, maintained in the Corporate SH&E Manual:

- SH&E 202, *Safety Meetings*
- SH&E 114, *Safety Training Programs*
- SH&E 115, *Hazard Communication Program*
- SH&E 301, *Hazardous Waste Operations (HAZWOPER)*

Personnel must have successfully completed training meeting the provisions established in 29 CFR 1910.120(e)(2) and (e)(3) (40-hour initial training). As appropriate, personnel must also have completed annual refresher training in accordance with 29 CFR 1910.120(e)(8); each person's most recent training course must have been completed within the previous 365 days. Personnel must also have completed a physical exam in accordance with the requirements of 29 CFR 1910.120(f), where the medical evaluation includes a judgment of the employee's ability to use respiratory protective equipment and to participate in hazardous waste site activities. These requirements are further discussed in SH&E 301, *Hazardous Waste Operations (HAZWOPER)*, which is attached in Appendix A.

The Site Supervisor and SSHO are 8-hour HAZWOPER Supervisor-qualified in accordance with 29 CFR 1910.120(e)(4).

6.1.2 Initial On-Site Training

On-site safety training will consist of a detailed safety meeting and training session prior to the beginning of any fieldwork. This meeting will cover anticipated site activities and will also review the site emergency response plan. Site workers and managers are required to attend this meeting. Other topics to be discussed will include donning and doffing personal protective equipment as well as a brief toxicological review of site-specific known and suspected contaminants. Training will be conducted in accordance with SH&E 202, *Safety Meetings*, which is attached in Appendix A.

Initial on-site training will consist of a review of this SSHP, referenced SOPs, OSHA standards referenced in the SOPs, and THAs and shall cover the following topics:

- Site Personnel and Duties
- Site Description
- Site Characterization
- Hazard Evaluation
- Toxicological Information
- Air Monitoring
- Personal Protective Equipment
- Site Layout, Site Control Measures and Work Zones
- Postings
- Safe Work Practices and Engineering Controls

- Decontamination Procedures
- Emergency Response Plan
- On-site Emergencies
- Off-site Emergency Plan
- Evacuation Procedures
- Safe Distances and Places of Refuge
- Emergency Decontamination
- Emergency and Personal Protective Equipment
- Emergency Telephone Numbers
- Directions to Hospital.

6.1.3 Continuing Training

Safety briefings will be conducted at least daily and at the beginning of new operations, changes in site conditions, or changes in operating procedures due to weather, new equipment, or additional site information.

The topics covered in the safety briefings will include, as appropriate:

- Evacuation routes and emergency procedures
- Use of additional protective equipment
- Weather hazards, stop work for lightning, operation of the drill rig in the rain
- New chemical or toxicological information
- Periodic review of portions of the SSHP
- Review of site incidents, follow-up, and corrective measures.

6.1.4 Documentation

All safety and health training conducted on-site will be documented and maintained in accordance with SH&E 202, *Safety Meetings*, and attached to this SSHP in Appendix A. A blank Tailgate Safety Briefing Sign-In Log is included in SH&E 202 in the corporate manual.

6.2 MEDICAL SURVEILLANCE

All personnel involved in hazardous work on the site will be participating in a medical surveillance program in accordance with SH&E 108, *Medical Monitoring and Surveillance*, and SH&E 301, *Hazardous Waste Operations (HAZWOPER)*. A checklist including personnel who have successful completed the medical surveillance applicable to the project site will be maintained in Appendix C.

HAZWOPER medical surveillance will be completed by personnel prior to arriving on-site.

Subcontractors involved in hazardous work must provide to Earth Tech records that their site workers meet the referenced medical surveillance criteria.

7.0 PERSONAL PROTECTIVE EQUIPMENT

The purpose of personal protective equipment (PPE) is to provide a barrier, which will shield or isolate individuals from the chemical and/or physical hazards that may be encountered during work activities. PPE will be used to supplement engineering and administrative controls.

7.1 PPE PROGRAM

SH&E 113, *Personal Protective Equipment (PPE)* (Appendix A), lists the general requirements for selection and usage of PPE. SH&E 112, *Respiratory Protection Program*, provides specific programmatic information related to the use of respiratory protection on-site. **Table 3** lists the minimum PPE required during site operations. **Table 3** also lists additional PPE that may be necessary, as specified in the individual THAs (Appendix B), or by the SSHO or the SHM.

Initial on-site training will include the proper use, care, and limitations of the minimum and additional PPE that are listed in **Table 3**. Personnel will identify during training if they do not feel comfortable with the use of specific PPE or have physical limitations regarding the use of PPE. The SSHO will verify that on-site personnel have appropriate medical clearance and fit testing (in the case of respirators) required in conjunction with use of the PPE prior to personnel assignment to tasks that require such PPE. Medical clearance and respirator fit testing will be coordinated by the home office of personnel prior to personnel arriving on-site.

7.2 PPE DOFFING AND DONNING INFORMATION

The following information regarding donning and doffing of PPE will be included, at a minimum, as part of on-site PPE training.

- When removing nitrile gloves, take care to take them off inside-out, so as not to transfer and contamination onto other people or objects. Immediately discard into trash cans lined with plastic for disposal off-site as IDW.

PPE is anticipated at Level D, with no requirement of protective suits or double-layers of gloves. Any change of status will result in new safety briefings for PPE for on-site personnel.

7.3 PPE STORAGE

PPE will be stored and maintained in accordance with manufacturer's recommendations. Project-specific PPE will be stored in site vehicles. The PPE will be stored in a clean, dry area not subject to solar light or heat load. Personnel will be responsible for the maintenance and storage of the designated minimum PPE.

7.4 DECONTAMINATION

Significant decontamination of PPE will likely be unnecessary, considering that Level D PPE is proposed and most PPE will be disposable and containerized. However, if safety boots are in contact with contaminated materials, then they will be decontaminated prior to leaving the site at the drill rig decontamination pad using an Alconox-water solution and scrub brush while wearing gloves and safety glasses. Policy for performing personal protective equipment decontamination may be found in SH&E 604, *Decontamination* (Appendix A).

7.5 CHANGE IN LEVEL OF PPE

Required levels of PPE are subject to change based on visual observations, exposure evaluations, etc. The SSHO or SHM will notify personnel and document when changes in levels of PPE are dictated, based on visual site observations or when indicated based on sampling, as defined in **Table 1**. PPE levels may be

upgraded by the SSHO or the SHM. PPE levels may not be downgraded from those identified on the THA, in this SSHP without the approval of the SHM.

Reasons to upgrade:

- Known or suspected presence of unforeseen dermal hazards
- Occurrence or likely occurrence of gas, vapor, or dust emission
- Personal or area sampling results which indicate exposures at or above action levels
- Change in work tasks, work area conditions, or conditions in areas adjacent to the work area that will increase the exposure or potential exposure to hazards

Reasons to downgrade:

- New information, including visual observation and personal or area sampling, indicating that the work task is less hazardous than was originally suspected
- Removal or mitigation of hazards
- Change in site conditions that decrease the potential hazard
- Change in work tasks that will reduce exposure to hazardous materials

7.6 PPE PROGRAM EFFECTIVENESS EVALUATION

The effectiveness of the PPE program will be evaluated weekly using the safety audit checklist and completed copies will be placed in Appendix C. A blank audit checklist form is included in SH&E 104. The effectiveness of the PPE program will be evaluated by the SHM at least once during the project duration. The SHM will also review PPE program effectiveness and modify the program as necessary if PPE misuse trends are observed in safety concerns, daily audits, or incident investigations. The SSHO will be responsible for implementing any corrective action identified during PPE program effectiveness evaluations. Corrective actions will be documented, as necessary, using the forms in SH&E 104 and a copy included in Appendix C.

8.0 SITE-SPECIFIC STANDARD OPERATING PROCEDURES

8.1 GENERAL SAFETY RULES

On-site personnel will adhere to SH&E 201, *General Safety Rules*, during site operations. In addition, the housekeeping, sanitation, and personal hygiene requirements in SH&E 208, *General Housekeeping, Hygiene, and Sanitation*, will be observed.

8.1.1 Buddy System

Field personnel will use the buddy system when working within any controlled work area. Personnel belonging to another organization on site can serve as "buddies" for Earth Tech personnel. Under no circumstances will any employee be present alone in a controlled work area.

8.1.2 Housekeeping

During site activities, work areas will be continuously policed for identification of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in plastic trash bags and garbage cans prior to disposal. Debris or trash will not be intermingled with contaminated materials.

8.1.3 Smoking, Eating, or Drinking

Smoking, eating, or drinking will not be permitted inside any controlled work area at any time. Field workers will wash hands and face immediately after leaving controlled work areas and always prior to smoking, eating, or drinking. This includes eating and drinking in heat stress break areas. Smoking will be allowed in a designated area outside of the controlled work area and any support work areas. Consumption of alcoholic beverages is prohibited at any Earth Tech site.

8.1.4 Personal Hygiene

The following personal hygiene requirements will be observed:

Water Supply: A water supply meeting the following requirements will be utilized. Personnel will not use or drink water not designated for that purpose (e.g., ponded surface water).

> *Potable Water* - An adequate supply of potable water will be available for field personnel consumption. Potable water will be provided in the form of water bottles.
>
> *Non-Potable Water* - Non-potable water may be used for hand washing and cleaning activities. Non-potable water will not be used for drinking purposes. All containers of non-potable water will be marked with a label stating:
>
> ***Non-Potable Water***
> ***Not Intended for Drinking Water Consumption***

Toilet Facilities: If working toilet facilities are not readily available for use at the Photocircuits or Pall Corp facilities, a portable toilet will be provided outside of the controlled work area. (However, it may be possible that Earth Tech personnel may be granted access to the currently unoccupied Pall Corp buildings; or that Earth Tech may have access to facilities at the active Photocircuits site.)

Washing Facilities: Temporary washing facilities will be provided at each work location; water, hand soap, and paper towels will be provided. The use of water and hand soap will be required by all employees following exit from the Exclusion Zone, prior to breaks, and at the end of daily work activities. Water and hand soap or hand wipes will also be located adjacent to toilet facilities and at break areas.

8.1.5 Hazardous, Solid, or Municipal Waste

IDW will be collected and categorized as non-hazardous or hazardous waste. It is tentatively planned that aqueous wastes (primarily development water but also potentially including decontamination fluids) will be

discharged to the City of Glen Cove sanitary sewer system. Potentially hazardous IDW (e.g., soil cuttings) will be stored in 20-cy roll-off containers staged in the Pall Corporation parking lot; the material will characterized and managed as specified in the SAP. Non-hazardous IDW (i.e., normal trash) will be disposed of in a timely fashion during field work. Refer to Appendix B for associated THA.

8.1.6 Solar Radiation

Solar radiation may be a concern for employees working outdoors as project activities will be conducted during summer months. To protect against exposure to solar radiation, all workers will be encouraged to wear sunglass-type safety glasses at all times when working outdoors during daylight hours, when determined appropriate by the SSHO. Workers will also be encouraged to utilize a commercial PABA-free sun block with a minimum solar protection factor (SPF) of 15, when determined appropriate by the SSHO.

8.1.7 Cutting Tools

Utility knives with manually retracting blades (including pocket knives and other collapsible, open-blade cutting tools) are not permitted at the work area. Acceptable utility knifes must have automatically retracting blades. Other cutting tools must be equipped with a completely enclosed and guarded blade. Additional recommendations regarding the use of cutting tools can be found in SH&E 506, *Manual Hand Tools*. The SSHO will evaluate and make task-specific determinations for appropriate cutting tools.

8.1.8 Manual Lifting/Ergonomics

Most materials associated with the investigation-related activities will be moved by hand. Workers are subject to back injury, muscle strains, and hernias if caution is not observed in the handling process. Manual lifting conducted at the site will include, but is not limited to, carrying detectors, handling drilling rods, carrying sample coolers, and removing flooring materials to expose the surface below.

Under no circumstances should any one person lift more than 49 pounds unassisted. The SSHO will implement procedures to further minimize injuries related to manual lifting through the use of engineering controls, utilizing the assistance of mechanical aids such as carts or dollies when feasible, and administrative controls, such as rotating job duties for personnel. For additional requirements refer to SH&E 404, *Manual Lifting*.

Additional measures related to manual materials handling activities, such as the handling of investigative-derived waste, may be applicable under SH&E 405, *Handling Drums and Large Containers*.

8.2 STOP WORK AUTHORITY

All employees have the right and duty to stop work when conditions are unsafe, and to assist in correcting these conditions, by notifying the SSHO immediately of the unsafe condition. Whenever the SSHO determines that workplace conditions present an uncontrolled risk of injury or illness to employees, immediate resolution will be sought. Should the SSHO be unable to correct the unsafe conditions, the SSHO is authorized and required to stop work, which will be immediately binding on all affected Earth Tech employees and subcontractors.

Upon issuing the stop work order, the SSHO will implement corrective actions so that operations may be safely resumed. Resumption of safe operations is the primary objective; however, operations will not resume until the SHM has concurred that workplace conditions meet acceptable safety standards.

8.3 HAZARD COMMUNICATION

Section 4.2 provides information concerning the materials that may be encountered as environmental contaminants during the work activities. Hazardous materials, including locally obtained material, brought on-site must have a copy of the item's Material Safety Data Sheet (MSDS). In accordance with the requirements of SH&E 115, *Hazard Communication Program*, all personnel will be briefed on the hazards

of any chemical product they may use during initial on-site training, and will be aware of and have access to all MSDS.

Hazardous materials will not be transferred from original containers without appropriate labeling in accordance with SH&E 115, *Hazard Communication Program.* The SSHO is responsible for auditing compliance with the Hazard Communication Program.

8.4 HAZARD MITIGATION PROCEDURES

The following considerations list specific previously identified hazards and list site-specific procedures that will be used to mitigate those hazards. These items will also be used in the determination or creation of safe passageways.

8.4.1 Traffic/Vehicular Hazards

As indicated in **Section 4.1.1**, some work will likely occur within the right-of-way for Sea Cliff Avenue, including work within the traffic lanes for the road. Work of a transient nature (e.g., surveying) may utilize flagmen and cones/barricades for traffic control (with the knowledge and concurrence of the City of Glen Cove). Work of longer duration (well inspection; well development; well installation; groundwater sampling) may require temporary road or lane closure. Attempts will be made to limit work to be completed in the roadway to non-rush hour traffic times, if possible. The necessary permits will be sought through the City of Glen Cove Department of Public Works (DPW) for any lane or road closure, with the responsibility of barricades, road closure signs, and detour signs to be handled by the local DPW. A specialty subcontractor may be engaged to assist in traffic control for this work. Additional guidance is provided in SH&E 517, *Traffic Safety* included in Appendix A.

8.4.2 Overhead Hazards

Overhead utilities may pose overhead hazards preventing the operation of the drill rig. Each prospective drilling location will be evaluated to verify appropriate overhead clearance for proper operation of the drill rig. A spotter will be used during vehicle maneuvering activities (i.e. turning and backing up) and mast-raising so that avoidance of overhead utilities will be ensured at all times.

8.4.3 Underground Utilities

Underground utilities may be present in the work area and may pose a hazard during intrusive investigation activities. A utility markout will be requested from the NY One Call System prior to subsurface investigation activities. In addition, in certain areas, as necessary, a private contractor will conduct a geophysical radar survey to determine the location of suspect underground utilities.

8.4.4 Slips, Trips, Falls or Protruding Objects

Walking/working surface protection is discussed in this section and is supplemented by SH&E 210, *Walking-Working Surfaces Protection.* Awareness of surroundings while walking is extremely important in a work environment. Uneven or slippery walking surfaces outside the site buildings pose slip, trip, or fall hazards to workers. These conditions may include the presence of pot holes in paving, presence of curbs, and/or the presence of snow and ice on paved areas. For the latter, mitigation may require seeking site contacts to employ maintenance techniques such as salting or plowing. Objects protruding into walking/working surfaces may cause injury when contacted by personnel. Mitigation of these hazards starts with providing adequate lighting for the identification of the walking/working surfaces. If necessary, additional mitigation may include clearly marking hazards with high-visibility tape or paint or using planking to even out floor surfaces.

8.4.5 Lighting

Work will be conducted outdoors and in general there will be adequate natural light for the safe performance of field work. If work is to be conducted outside daylight hours at any outdoor work area, portable lamps must be used as supplemental lighting.

8.4.6 Electrical Hazards

Live electricity is available throughout the plant. All electrical connections and extension cords will follow the requirements put forth in SH&E 121, *Electrical Safety Program.* Consideration will be made regarding the route of electrical power cords and the current work areas. Under no circumstances will electrical lines be routed through doorways, hatches, windows, or other openings where lines could be crimped, bent or cut. Electric lines crossing work areas or personnel or vehicular traffic areas will be either fastened securely overhead (at a height that provides safe clearance for work operations) or protected by a cover capable of withstanding the imposed loads without creating a trip hazard.

8.4.7 Hazardous Noise Environments

Site workers will utilize PPE in the form of hearing protection to minimize impacts of hazardous noise environments (i.e. drill rigs/heavy equipment) in accordance with Earth Tech's Hearing Conservation Program (SH&E 109).

8.4.8 Biological Hazards

Contact with insects is likely at the site, primarily outdoors. Personal chemically protective equipment and decontamination will provide sufficient protection to workers from insects; however, workers will be advised to avoid identified insect habitats.

8.5 CHEMICAL-SPECIFIC PROGRAMS

As potential exposures to site contaminants (chlorinated VOCs) is moderate, chemical-specific exposure control programs are not expected to be required. However, should personal exposure monitoring indicate employee exposures at or above action levels or exposure limits, the SHM will be consulted for development of chemical-specific exposure control programs.

8.6 DECONTAMINATION

Decontamination stations will be present at each entry/exit point of the exclusion zone. The stations will include large plastic garbage cans lined with plastic bags for the storage of contaminated PPE and equipment. Decontamination of the drill rig will be in a decontamination pad. Decontamination of PPE, as necessary, will be conducted at the drill rig decontamination pad.

Decontamination of drilling equipment will be conducted locally at the drilling location using buckets of soapy solution and water and soft-bristle scrub brushes. Tarps or other such equipment will be used to contain any splash from decontamination. Contaminated liquid from the decontamination of drilling equipment will be managed in accordance with the SAP.

Requirements for performing personal and equipment decontamination may be found in SH&E 604, *Decontamination* (Appendix A).

8.7 HEAT/COLD STRESS MONITORING AND MANAGEMENT

The work conducted for the Photocircuits/ Pall Corp deep groundwater RI/FS is expected to last about 16 months; as such, it is likely that some field work will be conducted in both summer and winter, with the potential for hazards associated with both heat and cold temperatures.

8.7.1 Heat Stress - General

Heat stress is likely at this site, as work activities will be conducted during summer months. This site-specific program supplements SH&E 124, *Heat Stress Prevention Program.* Initial on-site training will include training on heat stress. The SSHO determines the potential for heat stress daily based on planned work activities and weather forecasts and implements site-specific programs and conducts training during the daily safety briefing accordingly. This program will become effective when ambient temperatures exceed 75 degrees Fahrenheit (°F) for normally-attired workers. This program will also become effective should any employee exhibit signs of significant heat stress.

8.7.1.1 Temperature Evaluation

If the SSHO determines that a potential for heat stress is likely based on planned work activities and weather forecasts, Wet Bulb Globe Temperature readings will be collected. Wet Bulb Globe Temperature readings will then continue to be collected every two hours during work activities until no longer deemed necessary by the SSHO.

8.7.1.2 Engineering and Administrative Controls

Outdoor work areas may be covered with a cover or partition to shade the work area. If weather forecasts indicate a number of consecutive days that would trigger the heat stress program, the work schedule will be modified to schedule outdoor or high-heat work during cooler parts of the day.

8.7.1.3 Work/Rest Schedule

If the heat stress program is triggered, a work/rest schedule of 75% work/25% rest will be implemented until Wet Bulb Globe Temperature readings are collected and the work/rest schedule determined in accordance with SH&E 124, *Heat Stress Prevention Program.* If sports drinks are provided in the break area, the sports drinks will be cut with equal amounts of water or workers will alternate drinking water with the sports drinks.

The effectiveness of the work/rest schedule will be evaluated through observation of personnel for signs and symptoms of heat stress. For work days where a 50% work or less work/rest schedule is indicated, the work-rest schedule effectiveness will be evaluated using worker pulse rates, as follows.

- At the start of the work day, each worker's baseline pulse rate will be determined for 15 seconds and converted into beats per minute.
- At the start of each break period, each worker's maximum pulse rate should be less than 180 – [worker's age] beats per minute. If this value is exceeded for any worker, the following work period will be decreased by 10 minutes.
- At the end of each break period, each worker's pulse rate should be returned to within 10 percent of their baseline pulse rate. If this value is exceeded for any worker, the break period for that worker will be extended in 5 minute increments until their pulse rate is within 10 percent of their baseline.

8.7.1.4 Break Area

A designated break area will be provided to employees during rest periods dictated by the heat stress program. The break area will be such that heat is minimized by shading or mechanical cooling. The break area will allow workers to loosen or remove PPE, provide ample seating for all affected personnel, and provide access to water or sports drinks. The break area will be located outside the contaminant reduction zone.

8.7.1.5 Responding to Heat-Related Illness

Workers who exhibit mild heat strain (lethargy and significant sweating) will be provided with a work break; and at the end of the break period the worker will work at a modified pace. Workers who exhibit any

signs of significant heat stress (e.g., profuse sweating, confusion, clammy skin) will be relieved of all duties at once, made to rest in the designated break area, and provided with large amounts of water. Any worker exhibiting signs of heat stroke (red, dry skin or unconsciousness) will be taken to the hospital.

It is the worker's responsibility to notify the SSHO of any medications, illness, or pre-existing condition which may increase susceptibility to a heat-related illness.

8.7.2 Cold Stress

There is a potential for cold stress at this site, as work activities may be conducted during winter months. This ET program is provided in SH&E 125, *Cold Stress Prevention Program* (see Appendix A). Initial on-site training will include training on cold stress once projected temperatures are 40 °F or below. The SSHO determines the potential for cold stress daily based on planned work activities and weather forecasts and implements site-specific programs and conducts training during the daily safety briefing accordingly. This program will become effective when ambient temperatures are below 40 °F for normally attired workers. This program will also become effective should any employee exhibit signs of significant cold stress (including frostbite and hypothermia).

8.8 DRILL RIG OPERATIONS

Drill rigs will be used for the installation of monitoring wells. Unprotected personnel or personnel not associated with drill rig operations will not work in the area while the drill rig is being positioned or used. Drill rig operators will be responsible for ensuring that drilling equipment is working properly and is being run in a safe manner.

Underground hazards may be present in the form of utilities and buried debris when collecting soil samples. Utilities will be identified as described in **Section 2.4.3** of this SSHP and Section 4.2 of the FSP. Due to the nature of the potential subsurface debris at outdoor drilling locations at the site, traditional pre-exploration techniques to identify the location of subsurface debris, such as magnetic survey, will likely be inconclusive. Therefore, work crews will advance all borings at outdoor drilling locations carefully and slowly to minimize impact of subsurface debris on worker safety and equipment.

Prior to drilling operations, and in addition to obtaining a utility clearance as described above, a visual clearance will be conducted just prior to drilling to verify no overhead utilities or objects presenting overhead hazards are present.

Earth Tech has compiled noise monitoring data which indicates that work locations within 25 feet of operating heavy equipment (e.g., drill rigs) in outdoor locations can result in exposure to hazardous levels of noise (levels greater than 90 dBA). Accordingly, all personnel within the identified noise exclusion are required to use hearing protection (earplugs or earmuffs) zone while the drill rig is in operation. Non-essential personnel will not enter the noise exclusion zone while the drill rig is in operation. The SSHO may monitor employee exposure to hazardous noise levels using noise dosimetry or a sound level meter to determine adequacy of the exclusion zones.

Exposure to diesel exhaust poses potential short- and long-term health effects to personnel. When operating the drill rig outdoors, the potential for inhalation of diesel exhaust is low. Therefore, engineering controls to maintain ventilation are not anticipated to be needed to minimize accumulation of diesel exhaust in the breathing zone of personnel.

8.9 CONCRETE AND ASPHALT CORING

In order to drill into soils beneath concrete or asphalt paving, it will be necessary for the subcontractor to utilize a concrete coring device to remove the concrete or asphalt materials. During coring operations, it is possible silica will be released into worker breathing zone. To prevent this, engineering controls in the form

of wet drilling methods will be used. A low-pressure water sprayer will be used to wet the materials to be cored; the materials will be kept wet during the entire coring process.

8.10 LOGS, REPORTS, AND RECORDKEEPING

Earth Tech will maintain the following items in Appendix C:

- Weekly audit checklists
- Corrective Action Reports
- Calibration Logs
- Entry/exit logs
- Medical Surveillance Personnel List
- Environmental and personnel exposure monitoring and sampling results

If additional records are found to be required during the course of the site work, those records will also be kept in Appendix D. Training logs, a checklist including personnel who have successful completed the medical surveillance applicable to the project site, and related information will be kept in Appendix D.

8.11 ACCIDENT REPORTING AND INVESTIGATION

In the instance of a health and safety incident, injury or illness (incident), the following steps, in accordance with SH&E 101, *Injury, Illness and Near Miss Reporting* (Appendix A), will be followed:

1. The employee will notify his/her supervisor **immediately** of the incident.
2. The supervisor will **immediately** call 1-800-348-5046 to identify the appropriate procedure for reporting the incident by the end of the current work shift (within two hours in the case of a fatality).
3. The supervisor will also notify the SSHO and SHM of the incident by the end of the current work shift.
4. Applicable Earth Tech reporting procedures will be completed by the end of the next work day.
5. Follow SH&E 101, *Injury, Illness and Near Miss Reporting,* and SH&E 102, *Incident Investigation and Review.*

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9.0 SITE CONTROL

9.1 GENERAL

The purpose of site control is to minimize potential contamination of workers, protect the public from site hazards, and prevent vandalism. The degree of site control necessary depends on the site characteristics, site size, and the surrounding community.

9.2 CONTROLLED WORK AREAS

Each controlled work area will consist of the following three zones:

- Exclusion Zone: Contaminated work area
- Contamination Reduction Zone (CRZ): Decontamination area
- Support Zone: Uncontaminated or "clean area" where personnel should not be exposed to hazardous conditions

The Exclusion Zone and the CRZ are considered work areas. The Support Zone is accessible to the public (e.g., vendors, inspectors).

9.2.1 Exclusion Zone

The Exclusion Zone is the area where primary activities occur, such as sampling. This area will be clearly marked with hazard tape, barricades, or cones. Fences or existing structures may be used to delineate the Exclusion Zone, as long as all potential entry points are clearly marked with the hazard tape, barricades, or cones. Only personnel involved in work activities and meeting the requirements specified in the applicable THA will be allowed in an Exclusion Zone.

The extent of each area will be sufficient to ensure that personnel located at/beyond its boundaries will not be affected in any substantial way by hazards associated with sample collection activities. For example, the Exclusion Zone during drilling activities will extend to a minimum of 25 feet from the drill rig at outdoor sampling locations.

All personnel should be alert to prevent unauthorized, accidental entrance into controlled-access areas (the Exclusion Zone and CRZ). If such an entry should occur, the trespasser should be immediately escorted outside the area, and all HAZWOPER-related work must cease. Personnel, equipment, and supplies that enter controlled-access areas must be decontaminated or containerized as waste prior to leaving (through the CRZ only).

9.2.2 Contamination Reduction Zone (CRZ)

The CRZ is the transition area between the contaminated area and the clean area. Decontamination is the main focus in this area. The decontamination of workers and equipment limits the physical transfer of hazardous substances into the clean area. This area must also be clearly marked with hazard tape and access limited to personnel involved in decontamination. Decontamination procedures are further explained in SH&E 604, *Decontamination* (Appendix A). In some cases, the CRZ may be set up within the primary Exclusion Zone, serving as a two-tiered decontamination approach. Regardless, all personnel leaving the Exclusion Zone will pass through the primary CRZ.

9.2.3 Support Zone

The Support Zone is the uncontaminated zone where the break areas, toilets, etc., are located. The Support Zone has minimal potential for significant exposure to contaminants (i.e., background levels). The Support Zone will also serve as the entry point for controlling site access.

9.3 SITE ACCESS DOCUMENTATION

Personnel entering the site will complete the "Site Entry/Exit Log" (Appendix D) located at the site access entry point.

9.3.1 Visitor Access

Visitors to any HAZWOPER-controlled work area must comply with the health and safety requirements of this SSHP, and demonstrate an acceptable need for entry into the work area. Any visitor desiring to enter any controlled work area must observe the following procedures:

A written confirmation must be received by Earth Tech documenting that each of the visitors has received the proper training and medical monitoring required by this SSHP.

Each visitor will be briefed on the hazards associated with the site activities being performed and acknowledge receipt of this briefing by signing the appropriate daily safety briefing form. Visitors must be escorted by an Earth Tech employee and may not enter the CRZ or Exclusion Zone without confirmation of appropriate training and medical monitoring.

9.4 SITE SECURITY

9.4.1 Reasons for Site Security

- Prevent the exposure of unauthorized, unprotected people to site hazards
- Avoid the increased hazards from vandals or persons seeking to abandon other wastes on the site
- Prevent theft
- Avoid interference with safe working procedures

9.4.2 Maintaining Security During Working Hours

- Utilize existing security to limit unauthorized visitors.
- Utilize existing fencing around the site, adding fencing or closing off buildings where needed to complete perimeter security.
- Establish an identification system to identify authorized persons and limitations to their approved activities.
- Clearly identify work areas with signs to prevent plant personnel or employees (e.g., Photocircuits, City of Glen Cove DPW) from entering site.
- Perform work activities in areas actively occupied during hours when the area is not in use.
- Have the Site Supervisor approve all visitors to the site. Make sure they have valid purpose for entering the site. Have trained site personnel accompany visitors at all times and provide them with the appropriate protective equipment.

9.4.3 Maintaining Site Security During Off-Duty Hours:

The primary method of maintaining site security during off-duty hours will be to gain cooperation of security guards. Site security will be additionally ensured by securing all equipment.

10.0 EMERGENCY EQUIPMENT

10.1 FIRST AID AND SUPPLIES

Earth Tech will provide appropriate emergency first aid kits and equipment. Earth Tech will also provide personnel that have certified first aid/CPR training on-site at all times during site operations.

10.2 EMERGENCY EYEWASHES

A portable eyewash bottle will be available in the same area as the first aid kit. No emergency shower will be necessary for decontamination.

10.3 SPILL CONTAINMENT PROCEDURE

Work activities may involve the use of hazardous materials (e.g., gasoline for an electrical generator). The following procedures will be used to prevent or contain spills:

- Hazardous material will be stored in appropriate containers.
- Tops/lids will be placed back on containers after each use.
- Containers of hazardous materials will be stored appropriately away from moving equipment.
- All hazardous commodities in use (i.e., fuels) will be properly labeled.

10.4 FIRE EXTINGUISHERS

All workers must have immediate access to a fire extinguisher within 75 feet of their work area and on the drill rig. The extinguisher must have a current inspection, and be an ABC extinguisher. Personnel will check the pressure gauge to make sure that their extinguisher is still properly charged monthly and indicate such on the inspection tag.

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11.0 EMERGENCY RESPONSE PLANNING

Although the potential for an emergency to occur is remote, this section of the SSHP will constitute an emergency action plan (EAP) for this project should such critical situations arise. The EAP will be reviewed by site personnel prior to the start of field activities.

Six major categories of emergencies that could occur during site operations are the following:

1. Illnesses and physical injuries (including injury-causing chemical exposure)
2. Catastrophic events (fire, explosion, earthquake)
3. Chemical spills
4. Safety equipment problems
5. Severe weather

11.1 EMERGENCY RESPONSE COORDINATOR

The SSHO will serve as emergency response coordinator for this project. A designated site worker see (**Table 5**) will serve as secondary emergency response coordinator.

11.2 SITE-SPECIFIC EMERGENCY PROCEDURES

Prior to the start of site operations, the SSHO will complete **Table 5** with site-specific information regarding evacuation routes, muster points, communication, muster release instructions, muster point captains, and other site-specific emergency procedures. Earth Tech has incorporated Photocircuit's emergency response procedures, communication, and muster locations as much as possible, for work conducted on the Photocircuits site (including the former Pass and Seymour site). The local fire department will be contacted to provide sufficient notification of site activities and emergency action plans.

The field personnel will be equipped with a cellular telephone. In the event of personnel emergency (vehicle accident, injury, etc.) personnel should immediately phone **911**. The operator should be informed of the incident location and circumstances so that emergency help can be dispatched. In the event of catastrophic structural emergency (fire, etc.) during work at an active site (e.g., at the Photocircuits facility), plant personnel should be notified in accordance with **Table 5**.

11.2.1 Illness and Physical Injury

In the event of a medical emergency, personnel will first make sure that the injured worker is in no immediate danger (e.g., laying face-down in a pool of water). Touch or move the injured employee only if an immediate danger to the employee exists but no immediate danger to assisting employees exists. After the employee is removed from any immediate danger, send someone to call for an ambulance and to notify the emergency response coordinator and site supervisor. The person initially observing the emergency should stay at the scene unless no other personnel are available to call for an ambulance. If the injury occurs within the Exclusion Zone, emergency responders will be notified of the type and magnitude of chemical contamination on the injured worker prior to removing the injured worker from the Exclusion Zone.

11.2.2 Catastrophic Events

In the event of a fire, personnel trained in the use of fire extinguishers by Earth Tech may attempt to extinguish a blaze that is no more than five cubic feet in size. The site supervisor will be notified of the extinguished fire and will determine if work may resume in the area.

If the fire is too large to extinguish, becomes uncontrolled, or in the event of an explosion, the emergency response coordinator will be notified of the fire or explosion, who will then order an evacuation of all site personnel and contact the fire department. All personnel should then proceed to the nearest muster location.

Should personnel be inside of the Exclusion Zone when an emergency evacuation is ordered, personnel will briefly decontaminate at the CRZ. Such personnel will remain isolated as much as possible and will utilize temporary contaminant protection measures, such as standing on a tarp at the muster location, to minimize contaminant spread. In the event a muster location is downwind of the fire or explosion due to prevailing weather conditions, all personnel should convene at the alternate muster point. Under no circumstances will any personnel leave the muster location until accounted for and released from the muster location by the emergency response coordinator.

11.2.3 Chemical Spills

Response to hazardous chemical spills or releases at the site will depend on emergency response actions recommended on that product's MSDS. In the case of a spill or release, immediately refer to the MSDS for the product or the SSHO. If the MSDS is not available, follow the general guidelines below:

Small, minimally hazardous or localized spills – in the case of a small spill or where identified by the product's MSDS, spills that are small, minimally hazardous or localized and do not present an immediate risk to personnel can be corrected and cleaned up by site personnel. The emergency response coordinator should be notified of the spill prior to any cleanup actions. The cleanup should be conducted in accordance with the procedures outlined in the MSDS, or where no MSDS is available, procedures outlined by the emergency response coordinator. Post signage and provide verbal warnings at the spill location to keep personnel from entering the spill area. If the MSDS is unclear or is not available, consult the SSHO for appropriate correction and cleanup procedures.

Large, hazardous or widespread spills – where identified by the product's MSDS or for spills that are large, hazardous to immediate personnel or the environment, with unknown hazards, or widespread, the immediate area around the spill should be evacuated and the emergency response coordinator should be contacted immediately. Post an employee or sign outside all entrances to the spill area to prevent personnel from entering the spill area. The emergency response coordinator will determine the appropriate isolation, correction and cleanup procedures for the spill. If it is determined that the spill cannot be isolated, the building or work site will be evacuated, as will all work areas downwind of the spill location, when necessary. When deemed appropriate, the emergency response coordinator will contact a HAZMAT response team for isolation, correction and cleanup of the spill.

11.2.4 Safety Equipment Failure

In the event of an injury due to safety equipment failure, refer to the Illness or Physical Injury section. In the event of safety equipment failure, all work will cease on the task performed and the SSHO will be notified of the equipment failure. The SSHO will stop work at any other work operations currently in use of similar safety equipment. The nature of the equipment failure will be investigated by the SSHO and reported to the SHM, who will determine subsequent actions.

11.2.5 Severe Weather

Severe weather includes lightning, flooding, and blizzards. Some of these conditions can come upon the site suddenly, with little or no warning. The following actions should be implemented for each situation:

Lightning – If site personnel observe lightning, they will notify the emergency response coordinator. If, through the emergency response coordinator listening to a weather alert radio, lightning is determined to be within 10 miles of the work site, site personnel will secure all equipment currently outdoors, decontaminate and leave the CRZ and Exclusion Zone, remain clear from metal structures and equipment and enter the nearest building outside of the exclusion zone. All personnel must remain inside a building until the emergency response coordinator, through listening to a weather alert radio, determines that lightning is no longer within 10 miles of the site.

Flooding – If flooding is observed at the work site, the emergency response coordinator will be notified and personnel will leave the flooded area. (This caution is not applicable to *de minimis* flooding – i.e., ponded

water – occasionally observed in some areas of the site due to poor drainage or artesian conditions.) Follow all warnings provided by the emergency response coordinator. Personnel will not you drive past barricades on roadways or drive or walk through standing or flowing water.

11.3 HOSPITAL ROUTE

The nearest hospital is located approximately 2.5 miles from the site. The hospital name and address is Glen Cove Hospital – Mildred and Frank Feinberg Campus, 101 St. Andrews Land, Glen Cove, NY. The route to hospital map is shown on **Figure 5**, with turn-by-turn directions presented below:

Direction	Distance
Start out going East on Sea Cliff Avenue toward Hazel ST.	0.2 mi
Turn Left on Cedar Swamp Road (becomes Glen Street)	0.7 mi
Turn Right on Pearsall Ave	0.2 mi
Bear Left onto Walnut Road	0.6 mi
Turn Left on Saint Andrews Lane	< 0.1 mi
Arrive at 101 Saint Andrews Lane (at hospital)	0.8 mi

The hospital phone number is (516)-674-7300.

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12.0 PERSONNEL ACKNOWLEDGEMENT

By signing below, the undersigned acknowledges that he/she has read and reviewed the Earth Tech Site Safety and Health Plan for the Photocircuits/Pall Corp site. The undersigned also acknowledges that he/she has been instructed in the contents of this document and understands the information pertaining to the specified work, and will comply with the provisions contained therein.

PRINT NAME	SIGNATURE	ORGANIZATION	DATE

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Tables

Table 1 - Worker Action Levels During Work Activities

PARAMETER	LOCATION, AND INTERVAL	RESPONSE LEVEL (Meter units/ppm above background)	RESPONSE
Noise Sound level meter or noise dosimeter	When operations are conducted near noise-producing equipment; the SSHO may conduct noise monitoring to determine safe work areas.	< 85 dBA	Continue work and continue monitoring.
		≥ 85 dBA and < 90 dBA	Provide hearing protection as optional to workers in affected area.
		≥ 90 dBA	Workers in affected area must wear hearing protection
Temperature Wet Bulb Globe Thermometer	If heat stress conditions are suspected or workers identify heat stress symptoms.	<75 deg Fahrenheit	Continue work and monitoring
		>75 deg Fahrenheit	Implement 75% work-25% rest schedule until Wet Bulb Globe Temperature obtained; the follow work-rest schedule identified in SH&E 124.
Temperature Thermometer	If cold stress or frost bite conditions are suspected	>50 deg Fahrenheit	Continue work and monitoring
		<50 deg Fahrenheit	See SH&E 124
Carbon Monoxide (by detector tube)	As indicator for exposure to diesel exhaust, sample after 30 minutes run time at a single indoor location and every 30 minutes thereafter	< 20 ppm	Continue work and monitoring
		≥ 20 ppm and < 50 ppm	Increase ventilation at work area. If additional ventilation is not available, cease operation of drill rig
		≥ 50 ppm	Cease operation of drill rig, increase ventilation and leave the area until concentrations fall below 50 ppm.
1,1,1-Trichloroethane, Trichloroethene, Tetrachloro-ethene (Total by VOCs by PID)	During intrusive work activities, in the worker's breathing zone or in the immediate work area.	< 25 ppm	Continue work and continue monitoring.
		≥ 25 ppm	If no detector tubes are drawn, contact the SSHO or SHM, implement mitigation measures, and upgrade to Level C PPE (minimum GMA/P100 cartridges or equivalent chemical cartridge combined with P100).
		PID ≥ 25 ppm and < 35 ppm	Contact the SSHO or SHM, implement mitigation measures, and continue work in Level D. Draw detector tube for TCA every 30 minutes while PID ≥ 25 ppm
		PID ≥ 35 ppm and <70 ppm	Upgrade to Level C PPE (minimum GMA/P100 cartridges or equivalent chemical cartridge combined with P100). Continue environmental and chemical-specific monitoring.
		PID ≥ 70 ppm	Cease work, exit the area, and contact the SSHO and SHM.

* = or equivalent method approved by the SHM

Table 2 – Site Perimeter Action Levels During Work Activities

PARAMETER	LOCATION AND INTERVAL	RESPONSE LEVEL (Meter units above background)	RESPONSE
Hydrocarbons (Total by PID/FID)*	Site perimeter at least every 30 minutes during intrusive activities involving impacted materials, when work area PID indicates reading of 25 ppm or greater.	< 2.5 ppm	Continue work and continue monitoring.
		≥ 2.5 ppm (Sustained for more than 5 minutes)	Implement mitigation measures and contact the SSHO.

* = or equivalent method approved by the SHM

Table 3 - Personal Protective Equipment

TYPE	MATERIAL	ADDITIONAL INFORMATION
Minimum PPE (Level D):		
Boots	Leather	ANSI approved safety toe
Safety Glasses	Any	ANSI Approved
Hard Hat	Plastic	ANSI Approved
Work Uniform	Natural Fiber	No shorts/cutoff jeans or sleeveless shirts
Additional PPE (as identified by THA, SSHO, or SHM):		
Safety Vest	High-visibility (when working outside)	Must have reflective tape and be visible from all sides
Hearing Protection	Ear plugs and/ or muffs	
Protective Gloves	Leather	
Level C Respiratory Protection	MSA (Full Face or equivalent) equipped with P100 or GMA/P100	
Face shield	Any	Safety glasses or goggles must be worn concurrently.
Protective Chemical Gloves	Nitrile	
Protective Chemical Coveralls	Tyvek	
Protective Chemical Boots	Rubber	

Table 4 - Emergency Contact Information

Emergency Coordinators / Key Personnel			
Name	**Title/Workstation**	**Telephone Number**	**Mobile Phone**
Incident Reporting	Incident Reporting Line	(800) 348-5046	
Joe Jones	NYSDEC Project Manager/ Client Contact	(518) 402-9613 (Office)	
Allen Burton	Project Manager	(973) 338-6680 (Office)	(908) 313-5956
	Site Supervisor/SSHO	(Office)	
Robert Poll, CIH	Safety and Health Manager	(518) 951-2200 (Office)	(518) 817-3089
Kimberly Alvestad	Primary Northeast District DOT Level II Shipper	(804) 515-8558 (Office)	
Peter Takach	Photocircuits Primary Emergency Coordinator	(516) 609-1344 (Office)	
	City of Glen Cove Department of Public Works	(516) 676-4278	

Organization / Agency	
Name	**Telephone Number**
Police Department (local)	911
Fire Department (local)	911
State Police	911
Ambulance Service ***(EMT will determine appropriate hospital for treatment)***	911
Non-Emergency Hospital ***(Use by site personnel is only for non-emergency cases)***	(516) 674-7300
Poison Control Center	(800) 222-1222
Pollution Emergency	(800) 292-4706
National Response Center	(800) 424-8802
Chem-Tel	(800) 424-9300
Title 3 Hotline	(800) 535-0202
New York City One Call System (underground utilities)	(800) 272-4480

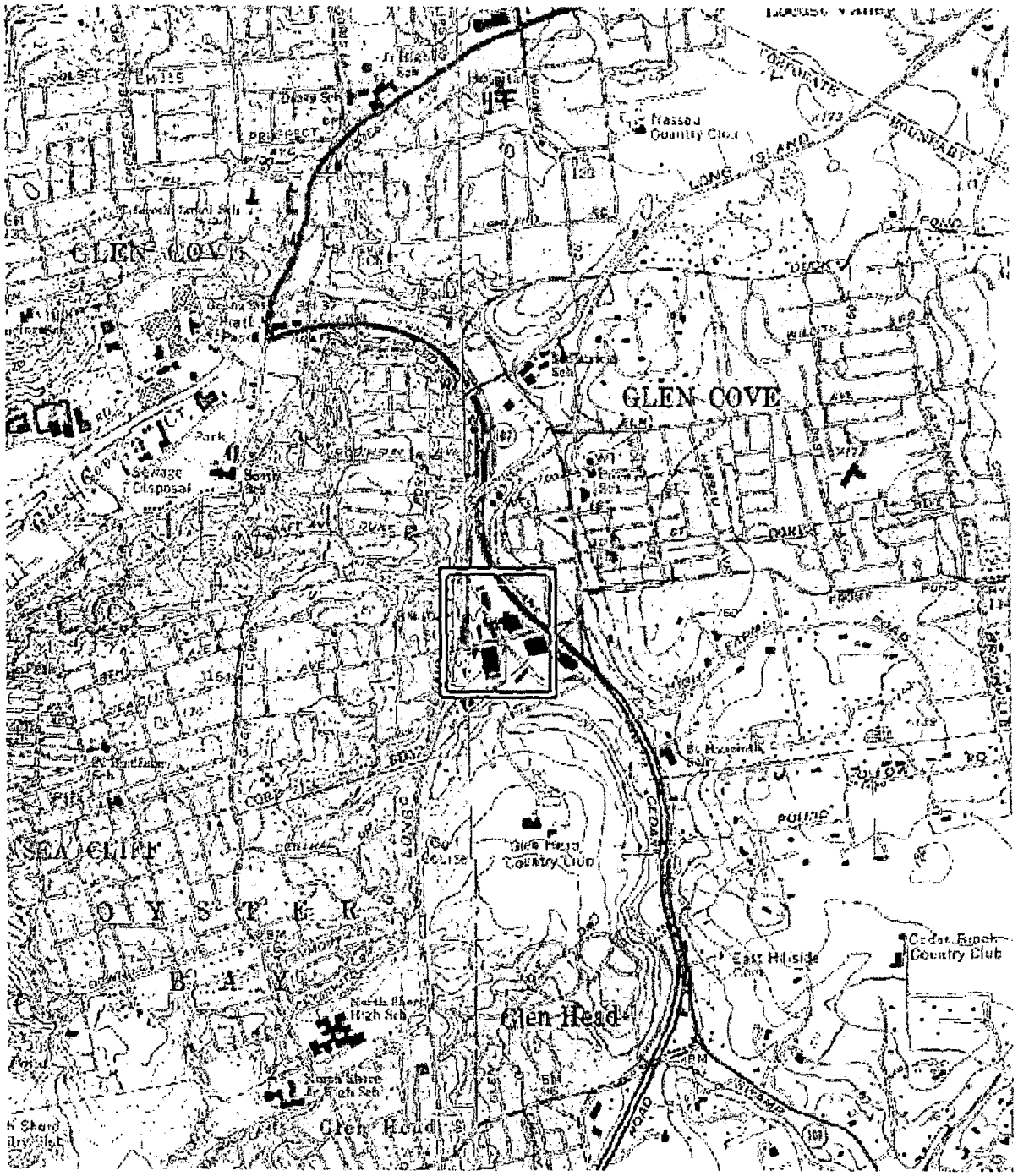
Table 5 - Emergency Planning (Coordination with Photocircuits)

Emergency	Evacuation Route	Muster Location
Chemical Spill	Upwind	TBD
Fire/Explosion	TBD	TBD
Lightning/Severe Weather	TBD	TBD
Additional Information		
Earth Tech Muster Location Captain	SSHO, with alternate TBD	
On-Site Communication Procedures	Verbal; short-range radios or cell phones as necessary	
Photocircuits Emergency Communication Procedures	Plant emergency phone, extensions located throughout facility	
CPR/First Aid Trained Personnel		

TBD – To be determined (coordinated) with facility safety personnel and/or site personnel prior to the start of on-site work.

Attach a diagram with evacuation routes marked; train all personnel on the emergency planning information, and post.

Figures

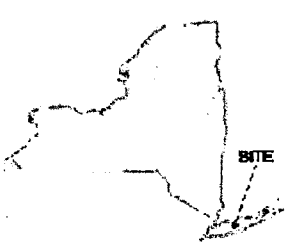


LEGEND

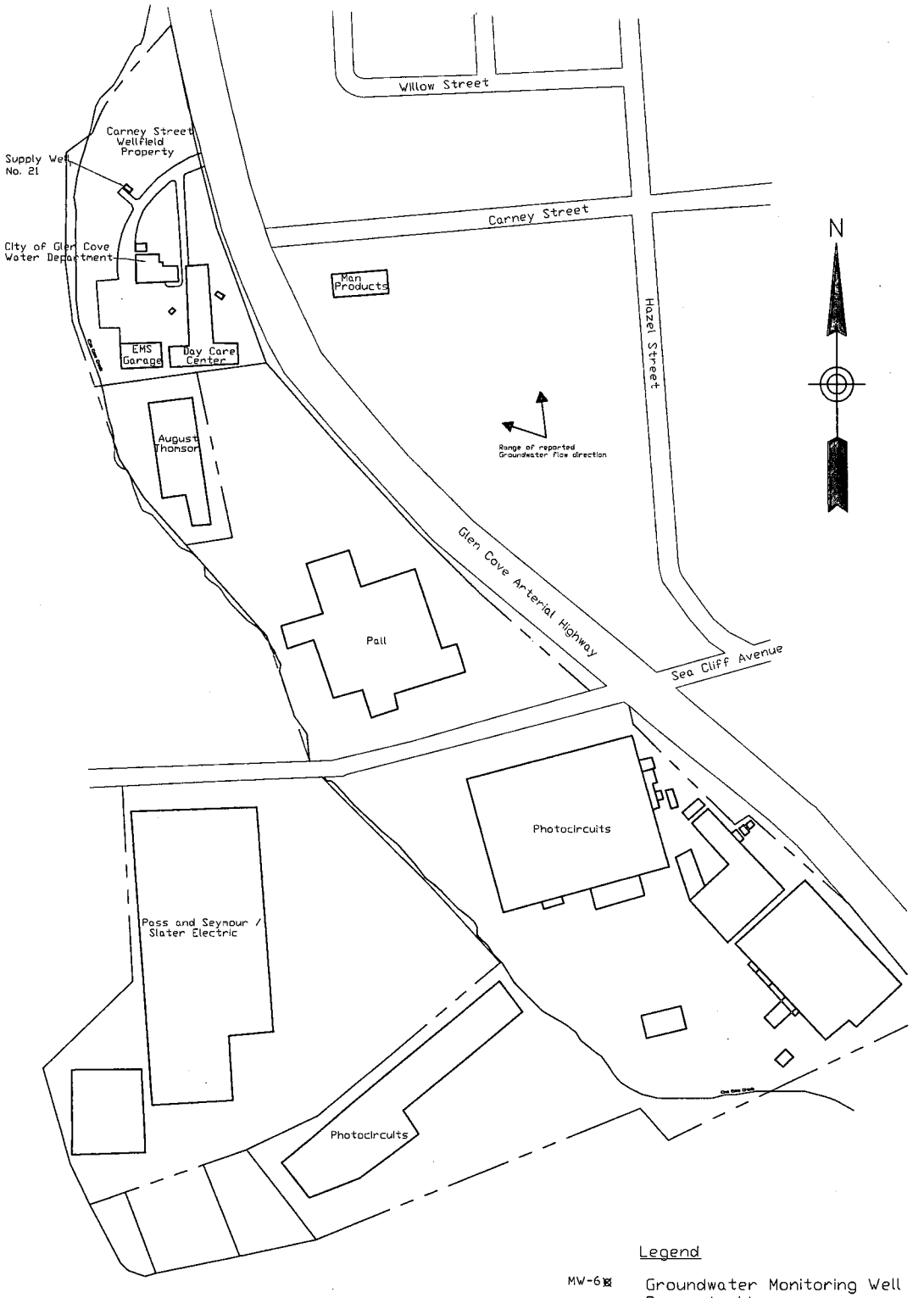
SITE LOCATION

0.2 0 0.2 0.4

GRAPHIC SCALE



EarthTech		New York State Department of Environmental Conservation	
DESIGNED BY: RS	Photocircuits / Pall Corp. GLEN COVE, N.Y.		
DRAWN BY: RS	SITE LOCATION PLAN		
CHECKED BY: AB			
SUBMITTED BY: AB	DATE: SEPTEMBER 2006	SCALE: AS SHOWN	DRAWING NO.: FIGURE 1



300 BROADACRES DRIVE
BLOOMFIELD, NJ 07003

ENVIRONMENTAL / CONSULTING ENGINEERS

DRAWING TITLE: **SITE PLAN**

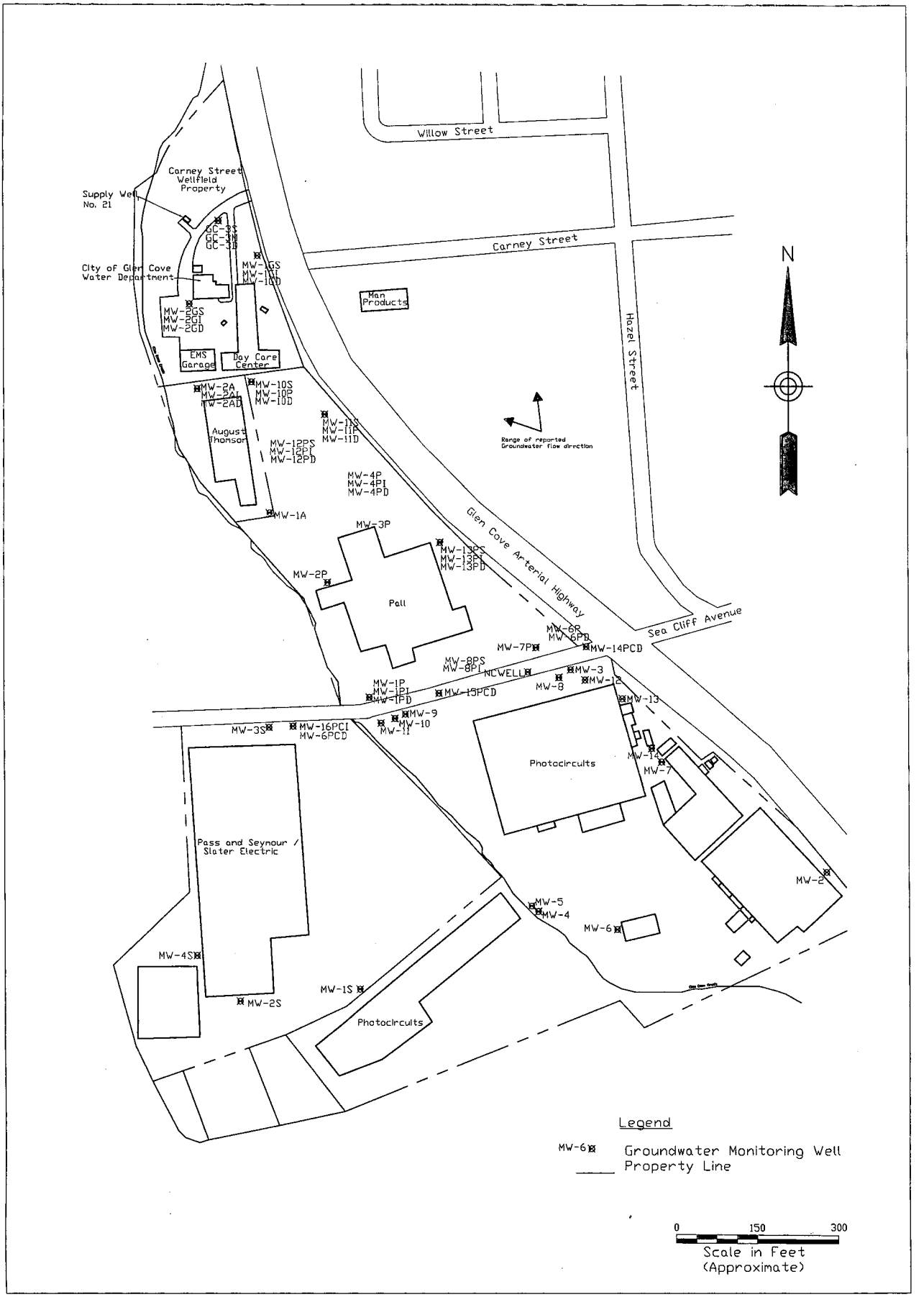
DRAWN BY: MC
CHECKED BY: KS
SCALE: As Shown
DATE: 11/20/06
PROJECT NO. 95635
DRAWING NO. **FIGURE 2**

PROJECT:
Photocircuits and Pall Corp.
Glen Cove, New York

CLIENT:
NYSDEC
Albany, NY

REVISIONS		
NO.	DATE	DESCRIPTION

EARTH TECH



300 BROADACRES DRIVE
BLOOMFIELD, NJ 07003

ENVIRONMENTAL / CONSULTING ENGINEERS

DRAWING TITLE: *Existing Monitoring Wells*

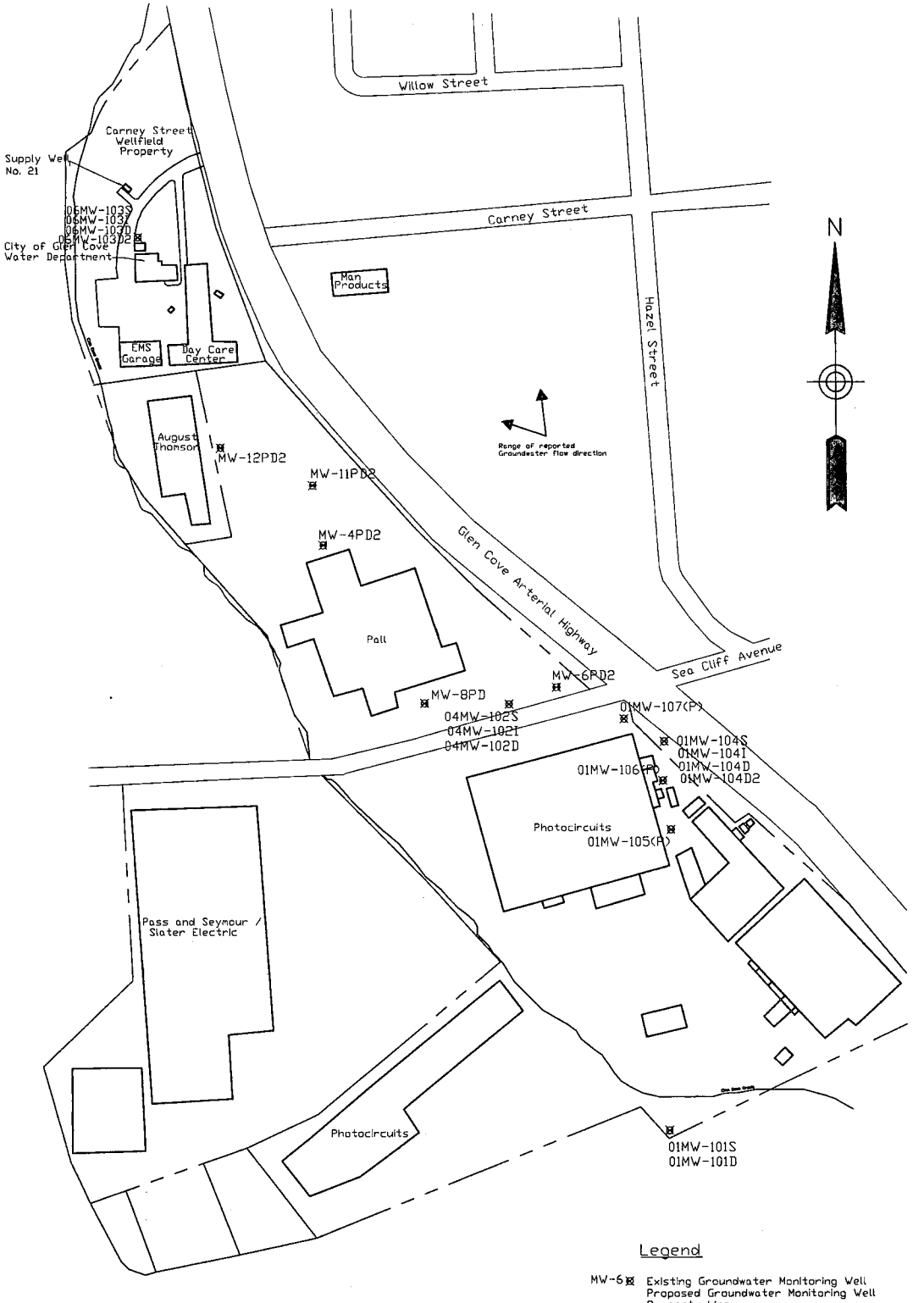
DRAWN BY: MC
CHECKED BY: KS
SCALE: As Shown
DATE: 11/20/06
PROJECT NO: 95636
DRAWING NO: *FIGURE 3*

PROJECT:
Photocircuits and Pall Corp.
Glen Cove, New York

CLIENT:
NYSDEC
Albany, NY

REVISIONS		
NO.	DATE	DESCRIPTION

EARTH TECH



300 BROADACRES DRIVE
BLOOMFIELD, NJ 07003

ENVIRONMENTAL / CONSULTING ENGINEERS

DRAWING TITLE: *Proposed Monitoring Well Locations*

DRAWN BY: MC
CHECKED BY: KS
SCALE: As Shown
DATE: 11/20/06
PROJECT NO: 95636
DRAWING NO: *FIGURE 4*

PROJECT:
Photocircuits and Pall Corp.
Glen Cove, New York

CLIENT:
NYSDEC
Albany, NY

REVISIONS		
NO.	DATE	DESCRIPTION

EARTH TECH

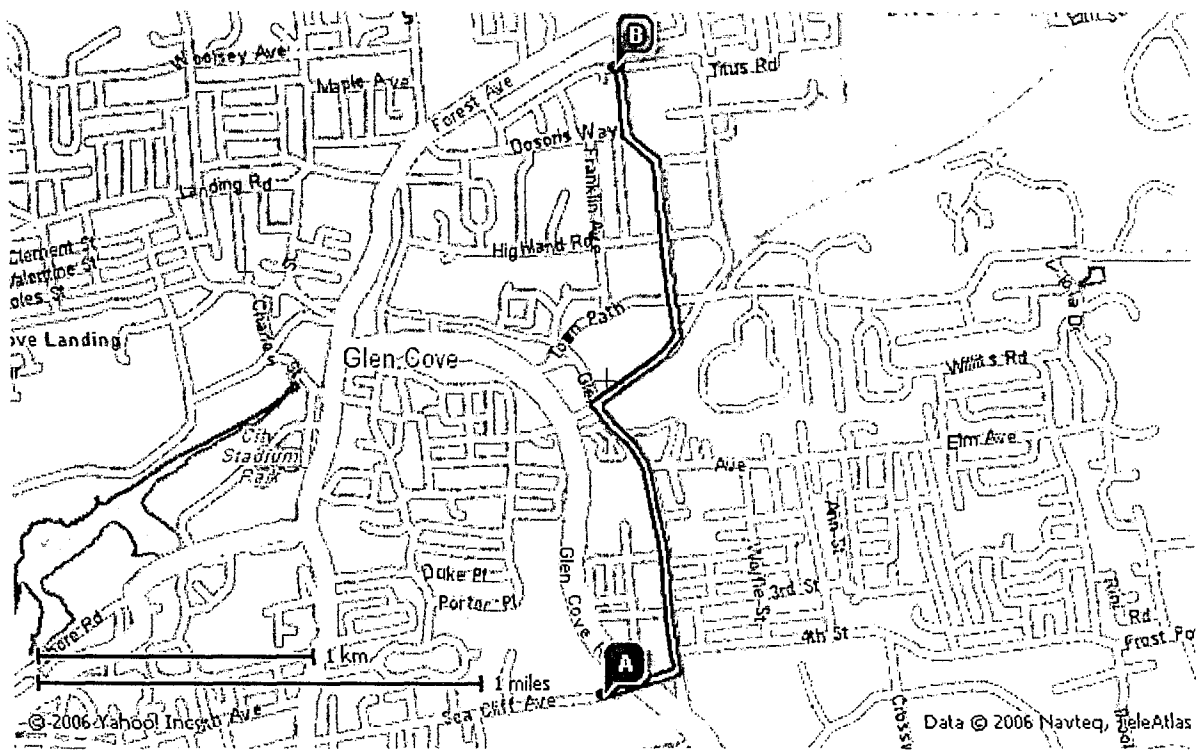
Figure 5
Route to Hospital

(A) Photocircuits Corporation (516) 609-1399
31 Sea Cliff Ave, Glen Cove, NY 11542

1. Start at **31 SEA CLIFF AVE, GLEN COVE** on **CHRISTOPHER COLUMBUS AVE** going toward **HAZEL ST - go 0.2** mi
2. Turn (L) on **CEDAR SWAMP RD - go 0.5** mi
3. Continue on **GLEN ST - go 0.2** mi
4. Turn (R) on **PEARSALL AVE - go 0.2** mi
5. Bear (L) on **WALNUT RD - go 0.6** mi
6. Turn (L) on **ST ANDREWS LN - go 0.0** mi
7. Arrive at **101 SAINT ANDREWS LN, GLEN COVE**

(B) 101 Saint Andrews Ln, glen cove, NY

Total Distance: 1.7 miles, Total Travel Time: 5 mins



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

A

EarthTech A tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 101 DATE March 25, 2005 REVISED March 31, 2006
INJURY, ILLNESS, AND NEAR-MISS REPORTING	PREVIOUSLY EHS 101

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

All work-related injuries, illnesses, and near-miss situations, to include vehicle accidents and general liability claims, must be documented and reported to the Safety, Health & Environmental (SH&E) Department and Earth Tech management in a timely and accurate manner.

2.0 SCOPE

This procedure applies to all safety, health, and/or environmental incidents as defined below:

1. Any work-related injury or illness to an Earth Tech or subcontractor employee;
2. Fire, explosion, or flash;
3. Any accidents involving company-owned, rented, or leased vehicles (including personal vehicles used for company business);
4. Property damage resulting from any Earth Tech or subcontractor activity;
5. Unexpected release or imminent release of a hazardous material;
6. Unexpected chemical exposures to workers or the public;
7. A safety related complaint from the public regarding Earth Tech activities;
8. Incidents that could result in adverse public media interest concerning Earth Tech or an Earth Tech project;
9. Incidents that could result in, or any actual investigation by, OSHA, DOT, EPA, or any other State, Federal, or local safety, health, & environmental enforcement agency;
10. Near-Miss Incidents, defined as an incident having the potential to cause injury or property damage as described in the above categories – but did not. Examples of a near-miss include:
    - A worker steps off a ledge and falls three feet (1 meter) to the floor and is uninjured.
    - A crane drops a 1,000-pound (454 kg) beam during a lift – and nobody is hurt, no equipment is damaged.
    - A work crew is conducting a survey along the highway. A vehicle leaves the roadway (driver asleep) and the vehicle enters the survey area at 50 mph (80 kph). The vehicle misses an employee by 3-feet (1 meter), the driver recovers control of the vehicle and leaves the area.

11. Significant Learning Experience, defined as a near-miss incident that the affected group (i.e. project team, office staff, etc.) believes could have wide-ranging impacts throughout Earth Tech. Examples may include; an incident involving a chlorine distribution system used by multiple wastewater treatment plants (WWTPs); an incident involving the failure of a fall protection system used throughout Earth Tech.

3.0 PROCEDURES

The following response procedures will be followed in the event of any work-related injury, illness, incident, or near miss occurring at an Earth Tech work location as defined in Section 2.0 (Attachment 1 summarizes the Incident Reporting Procedures, to include incidents, injuries, auto accidents, and general liability claims). Incidents are to be reported ASAP to the 1-800-348-5046 hotline after the site has been secured and/or medical treatment has been provided, but no later than the end of the work shift.

1. Affected Employee: Each injured/ill employee must notify his/her supervisor immediately that an incident (to include near misses) has occurred, the circumstances involved, the nature and extent of the injuries/illness, and whether medical treatment may be required. Except for emergency aid, affected employees will discuss their medical status with the supervisor and SH&E representative prior to obtaining medical treatment.

2. Workplace Supervisor: The workplace supervisor must **immediately** perform the following notifications:

   - In a life-threatening situation, use the emergency phone numbers and seek immediate medical care.
   - Follow the directions provided by the 1-800-348-5046 hotline to report an incident/near miss by the end of the current work shift.
   - Notify the SH&E professional listed in the contact information (provided in your HASP, emergency response listing, etc.) if immediate assistance is required.
   - Complete the applicable paperwork (e.g., Supervisor's Report of Incident [SRI], Vehicle Incident Form, General Liability Form) and fax a draft copy to Earth Tech Safety at (804) 515-8313 by the next work day (Attachments 2-4).
   - Notify his/her manager, and secure the manager's signature on the applicable form within 48 hours. If the supervisor's manager is unavailable, obtain the signature from a designated acting manager.
   - Initiate an Incident Investigation and Review per the requirements of EHS 102.
   - Fatalities must be reported to the appropriate SH&E Professional and Corporate SH&E Director as soon as reasonably possible but no less than 2 hours.

3. Manager: Review the applicable paperwork and forms as prepared by the workplace supervisor. Forward to the SH&E Professional within 48 hours of receipt.

4.0 RECORD KEEPING

Earth Tech records company safety statistics and generates reports to identify incident trends and recommend appropriate corrective actions to minimize risk. The Corporate Safety Administrator maintains these records and statistics, which are also required by regulatory agencies, insurance carriers, and for client pre-qualification.

4.1 Reports and Requirements

- The Corporate SH&E Director has overall responsibility for recordkeeping and statistical reports to disseminate company-wide to identify accident trends and appropriate control measures to minimize risk to the company.
- Reports for the previous calendar year summarizing Earth Tech's Statistics are distributed for posting at all offices and project sites from February 1 – April 30. The reports will be posted in a conspicuous place, and taken down after April 30.
- Statistical reports are available from the Corporate Safety Administrator for client prequalification.
- It is imperative that injuries, incidents and near misses are reported to maintain accurate statistical data.

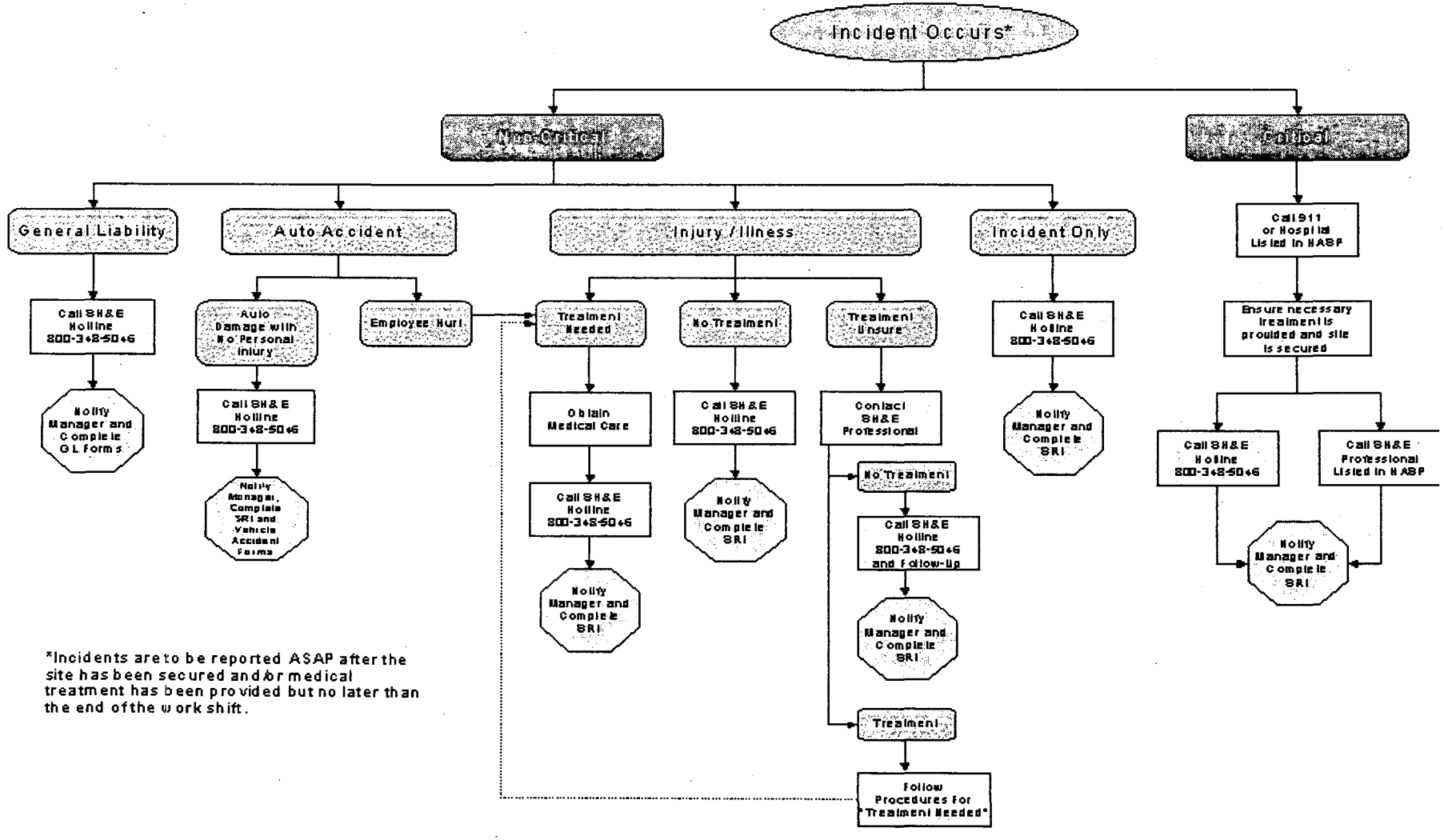
5.0 ATTACHMENTS

Attachment 1: Supervisor's Incident Reporting Procedures Flow Chart
Attachment 2: Supervisor's Report of Incident (SRI) Form
Attachment 3: Vehicle Accident Form
Attachment 4: General Liability Form

6.0 REFERENCES

SH&E 004 - Safety Administrative Support
SH&E 102 - Incident Investigation and Review

Attachment 1 – Supervisors Incident Reporting Procedure Flow Chart



Supervisor's Report of Incident

EarthTech
A Tyco International Ltd. Company

1. Seek immediate medical attention if necessary.
2. Employee must report all incidents and near misses to their supervisor **immediately**.
3. Supervisor calls the Earth Tech Incident, Injury and Near Miss Reporting Line at **(800) 348-5046** with details of the incident, injury, illness, repetitive motion or near miss. ***If your section, district, or division has an additional policy on incident reporting, that policy should be implemented concurrently.*** This form should be faxed to Corporate Safety (562) 499-4012.

Section 1

Global Organization:	District:	Section/Dept:
Earth Tech USA; International Asset Management (IAM); Earth Tech Construction; Earth Tech Canada; Earth Tech Europe		
Office Address:		Office Code:
Client Name:		Project Number:
Project Name:		

Section 2

☐ Near Miss ☐ Injury ☐ Vehicle Incident ☐ Cumulative Trauma ☐ Illness

☐ Property Damage ☐ Other (describe):

Section 3

Employee Name:		☐ Check if worker is a subcontractor ☐ Check if working through a temp agency
Work Phone:	Cell Phone:	Home Phone:
Body Part Injured:		
Nature of Injury:		
Medical Treatment/First Aid ☐ Yes ☐ No	If yes, describe treatment:	
Medical Facility (Name, Address, Phone)		

Section 4

Date/Time of Incident	Date/Time Reported to Supervisor	To Whom
Exact Location & Address of Incident:		
Employee, in own words, describes the incident, injury/near miss, witnesses etc. Employee signs/dates statement. (use additional paper if necessary)		
Supervisor Description of Incident: (use additional paper if necessary)		
Witness Name (witnesses should attach a signed and dated statement)		

Section 5 – Signatures

Supervisor/Foreman

Print Name	Signature	Date	Telephone

Section Manager

Print Name	Signature	Date	Telephone
Comments:			

Safety, Health, & Environmental Professional

Print Name	Signature	Date	Telephone
Comments:			
OSHA Recordable ☐ Yes ☐ No ☐Pending	☐ Days Away From Work	☐ Days Restricted	
Administrator:			*WC:* ☐ *Yes* ☐ *No*

Supervisor's Report of Incident (cont.)

Incident Reporting Instructions

The following types of incidents must be reported using this form:

- Occupational Injury or Illness (includes first aid only, medical treatment, hospitalization, fatality)
- Vehicle Incidents, Accidents and Near Misses Earth Tech owned, leased, rented or personal
- Repetitive Motion, cumulative trauma or other ergonomic-related injury (includes office and field work incidents)
- Near Miss (incident where employee(s) could have been injured) this includes vehicle incidents

INSTRUCTIONS per Corporate Policy EHS101 on Incident Reporting

1. Seek immediate medical attention if necessary
2. Employee must report all incidents and near misses to their supervisor **immediately**.
3. Supervisor calls the Earth Tech Injury, Illness and Near Miss Reporting Line at **(800) 348-5046** with details of the incident, injury, illness, repetitive motion or near miss by the end of the work shift. ***If your section, district, or division has an additional policy on incident reporting, that policy should be implemented concurrently.***
4. Supervisor completes the SRI. If the incident involves an employee, the employee must complete a written statement regarding the incident.
5. Supervisor verbally notifies his/her Manager.
6. Supervisor submits draft copy of SRI to Earth Tech Safety via fax (562) 499-4012 or email to SRI@earthtech.com
7. Supervisor sends SRI to Manager for signature and comment.
8. Manager reviews and signs the SRI then forwards to the appropriate Safety, Health, & Environmental Professional for signature
9. SH&E Professional submits final SRI via fax to (562) 499-4012 or email to SRI@earthtech.com
10. Supervisor should initiate Corporate Policy SH&E 102 on Incident Investigation, if applicable.

Earth Tech Safety Contacts

Corporate

Director	Gary Beswick, CIH	**Program Administrator**	Chelsea Ryan
Coraopolis, PA	Work: (724) 695-9353 Cell: (412) 897-9180 Fax: (562) 951-7946	Richmond, VA	Work: (804) 515-8557 Cell: (804) 229-4025 Fax: (562) 499-4012

Earth Tech USA (ETUSA)

Capital District	Dale Prokopchak, CIH, CSP Work: (804) 515-8556 Cell: (804) 839-8312 Fax: (804) 515-8313	Southeast District	Ron Partilla, CSP, OHST Work: (843) 572-5600 Cell: (843) 259-0512 Fax: (562) 951-4004	Northeast District	Bob Poll, CIH, CSP Work: (518) 951-2200 Cell: (562) 884-1414 Fax: (562) 951-2086
Midwest District	Chad Ross Work: (859) 442-2300 Cell: (859) 512-7774 Fax: (859) 442-2311	Rocky Mtn District	Bart Dawson, CIH Work: (210) 271-0925 Cell: (210) 240-3898 Fax: (210) 271-3061	West District	Joseph Bermudez, CSP Work: (562) 951-2242 Cell: (562) 537-8678 Fax: (562) 637-7754

International Asset Management

North American Contract Operations **ConOps 24-Hr Incident Report Line: (888) 853-7284**		**WPT**		**Asia Pacific, Brazil & Mexico**	
Grand Rapids, MI	Kanwer Khan, PE, QEP Work: (616) 975-4579 Cell: (616) 780-3378 Fax: (616) 942-6499	Salt Lake City, UT	Andrew Peedle Work: (801) 844-4526 Cell: (801) 558-8038 Fax: (801) 973-9733	Long Beach, CA	Rita Van Ryzin Work: (562) 951-2316 Fax: (562) 951-2090

Earth Tech Canada

Markham, ON	Ron Whitmell Work: (905) 886-7022 ext.2244 Cell: (647) 393-6045 Fax: (905) 886-9494

Earth Tech Europe

South Yorkshire, UK	Steve Wood Wk: 011 44-1226-224466 Fax: 011 44-1226-224488

Vehicle Accident Form

EarthTech
A Tyco International Ltd. Company

1. Supervisor calls the Earth Tech Incident, Injury and Near Miss Reporting Line **(800) 348-5046**
2. Supervisor completes the Supervisor's Report of Incident first, and then completes this form.
3. Fax both forms to Earth Tech Safety at (804) 515-8313 and submit forms to manager. Call with questions regarding management of any claim (804) 515-8557.

Section 1

Earth Tech Vehicle was:	☐ Earth Tech Owned		☐ Leased	☐ Rented	☐ Employee Personal Vehicle
Check all involved:	☐ Earth Tech Vehicle		☐ Another Vehicle(s)	☐ A pedestrian	☐ Property
Check all that apply:	☐ Accident	☐ Near Miss	☐ No vehicle damage	☐ Vehicle damage	☐ Vandalism/unknown cause of damage

Section 2 – Incident

Date/Time of Incident:	What was Vehicle Being Used For? ☐ Business ☐ Personal
Explain purpose for vehicle use at the time of incident/near miss (travel, client visit, site visit, field work, etc) and indicate travel origin/destination:	
Intersection/Highway of Incident/Near Miss with Closest Cross Street/Exit. If Exact location is known provide address, city, state, zip:	
Description of Incident/Near Miss:	

Section 3 – Earth Tech Driver

Earth Tech Driver Name			☐ Check if the driver is in the Earth Tech DOT program
Drivers License #	State Issued		Expiration Date
Vehicle Year/Make/Model		License Plate # and State	VIN Number
Is the Vehicle Damaged? ☐ Yes ☐ No If yes, list area(s):			Estimated Amount of Damage: ☐$0-$500 ☐$500-$1000 ☐$1000-$4000 ☐Total Loss
Were Authorities contacted? ☐ Yes ☐ No	If so, who responded?		
Any Citations Issued? ☐ Yes ☐ No	What citation and to whom?		

Vehicle Accident Form (cont.)

EarthTech
A Tyco International Ltd. Company

Section 4 – Other Driver

Name of Other *Driver*	Address City, State, Zip		
Home Phone:	Work Phone:	Cell Phone:	
Date of Birth	Drivers License #	State Issued	Expiration Date
Vehicle Year/Make/Model	VIN Number	License Plate # and State	
Name of Insurance Carrier	Policy Number		
If *Vehicle Owner* is different from Driver please complete Owner Information:	Owner Name		
	Address, City, State, Zip		
	Home Phone:	Work Phone:	Cell Phone:
Is the Vehicle Damaged? ☐ Yes ☐ No If yes, list area(s):			Estimated Amount of Damage: ☐$0-$500 ☐$500-$1000 ☐$1000-$5000 ☐more than $5000

Section 5 - Signatures

Supervisor

Print Name	Signature	Date	Telephone
Comments:			

Manager

Print Name	Signature	Date	Telephone
Comments:			

Safety, Health, & Environmental Professional

Print Name	Signature	Date	Telephone
Comments:			
Administrator:			*AL:* ☐ *Yes* ☐ *No*

General Liability Reporting Form

EarthTech
A Tyco International Ltd. Company

1. Supervisor calls the Earth Tech Incident, Injury and Near Miss Reporting Line **(800) 348-5046**
2. Supervisor completes this form. This form does not admit fault.
3. Fax this form to Earth Tech Safety at (804) 515-8313 and submit form to manager. Call with questions regarding management of any claim (804) 515-8557.

Section 1

Global Organization: (Earth Tech USA; Earth Tech Infrastructure; Earth Tech Canada; Europe, IAM; Mexico)		
Region:	District:	Section:
Office Address:		Office Code:
Project Name:		Project Number:
Client Name:		

Section 2

Date/Time of Incident	*Date incident reported to Earth Tech*	*By Whom:*	*To Whom at Earth Tech:*

Where did incident occur (Address, City and State)?

How did the incident occur?

Were any Earth Tech employees involved? List complete names and involvement in incident.

Were any authorities contacted? ☐ Yes ☐ No If yes, whom?

Witness ☐ Yes ☐ No If Yes, list name and phone (witnesses should attach a signed and dated statement)

Section 3 – Claimant

Claimant name	Home phone	Work phone	Cell Phone

Claimant's address

General Liability Reporting Form (cont.)

Section 4 – Complete this section if the Claimant is reporting an injury. Indicate N/A if non-applicable.

What was injured doing at the time of occurrence?
What is the nature of injury and body part affected?
Doctor/hospital name, address and phone number:

Section 5 – Complete this section if the Claimant is reporting property damage. Indicate N/A if non-applicable.

Description of property?	
Where can property be seen?	
What are the damages?	Estimated Amount of Damage: ☐$0-$500 ☐$1000-$5000 ☐$500-$1000 ☐ more than $5000

Section 6 - Signatures

Supervisor

Print Name	Signature	Date	Telephone
Comments:			

Manager

Print Name	Signature	Date	Telephone
Comments:			

Safety, Health, & Environmental Professional

Print Name	Signature	Date	Telephone
Comments:			
Administrator:			*GL:* ☐ *Yes* ☐ *No*

EarthTech A tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 113 DATE March 25, 2005 REVISED March 31, 2006
Personal Protective Equipment	PREVIOUSLY EHS 401

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

Personal protective equipment (PPE) is specifically designed to protect select parts of the body from chemical, physical and biological hazards. Types of PPE include, but are not limited to, hard hats, safety glasses, safety shoes, full body harnesses, and coated coveralls. This written program, along with site-specific hazard analyses, will provide the requirements for the selection, use and maintenance of personal protective equipment to comply with the provisions of 29 CFR 1910, Subpart I

2.0 SCOPE

A hazard assessment must be conducted for each task being performed for the purpose of identifying the potential hazards and selecting appropriate personal protective equipment based on the identified hazards. A written certification must be in place verifying that the hazard assessment has been performed. Attachment 1 (or 1A) of this procedure contains a PPE Hazard Assessment template that can be used to document this requirement. Other formats, such as formal project-specific Health and Safety Plans (HASPs) and Task Hazard Analyses (THAs), can also be used when approved by the business unit SH&E Manager. All PPE Hazard Assessments must be reviewed annually (at a minimum) to ensure proper PPE has been identified, selected, and issued according to the identified hazards.

3.0 PROCEDURE

3.1 Hierarchy of Controls

Engineering controls are used to eliminate, stop, contain, or capture a hazard at the source or intercept it along its path to the worker. When feasible, these controls are preferred to administrative controls or the use of PPE. Administrative controls are measures to limit the duration of exposure to the hazard. With the exception of administrative controls to prevent heat-, cold-, or radiation- related exposures, the use of administrative controls requires the approval of the SH&E Department.

3.2 General Requirements

1. Earth Tech will provide suitable PPE as required for the nature of the job being performed, such as, but not limited to, steel-toe (or tech-toe if approved by SH&E Manager) boots, chemical protective clothing, respirators, eye and face protection, hardhats, and gloves.
2. Employees will use all required PPE as outlined in project-specific HASPs, THAs and/or PPE Hazard Assessments, or business unit (e.g. NACO) PPE policy.

3. All PPE will meet all applicable current OSHA, MSHA, ANSI and NIOSH standards for the particular equipment.

3.3 Minimum PPE Requirements

The following minimum requirements are mandatory as a condition of working at Earth Tech-controlled field projects, construction projects, and operating facilities (i.e. Water-, Waste Water-, or Groundwater-Treatment Plants) unless the activity is being conducted within a field trailer or facility control room and the project has established these locations as "office-like" areas. Minimum PPE requirements include:

1. Hardhats
2. Safety glasses (ANSI Z-87 w/sideshields)
3. Safety-toe boots or shoes
4. A sleeved work shirt is required to cover the upper torso, if required by the client or hazard
5. Full-length trousers (shorts are prohibited)
6. High-visibility vests – when working around heavy/mobile equipment, moving vehicles, or as required by the DSM/client. See Section 3.12 for additional information.

3.4 Hazard Assessment

1. A PPE hazard assessment of the workplace will be conducted to identify the need and type(s) of PPE to be utilized. This hazard assessment will be performed as part of the initial development of project and site health and safety plans.
2. The workplace hazard assessment must be in written form.

3.5 PPE Training

1. In accordance with SH&E 114 - Safety Training Programs, employees will receive training on the proper use, inspection, and maintenance of PPE prior to being required to utilize any assigned equipment. The training will include:
    a. Discussion of when and what PPE is required
    b. How to properly don, doff, adjust, and wear PPE
    c. Limitations of the PPE
    d. Decontamination procedures
    e. Proper care, maintenance, useful life, and disposal of the PPE
2. Employee training must be verified by a written certification. The certification must include the names of the employees trained, signature of instructor and participants, and the date of training. It must also be identified as a certification of training on the use of PPE.
3. Training documentation may include completion of Tailgate Safety Briefings with specific emphasis on PPE use and selection requirements.
4. Training will be repeated whenever the workplace hazards change, specified PPE changes, or when incorrect or incomplete use of PPE is observed, or as required by the re-training frequency.

3.6 Eye and Face Protection

3.6.1 Basic Eye Protection

Eye and face protection prevents injuries due to particulates, splashing, flying objects and certain forms of ultraviolet radiation. Forms of eye protection include safety glasses, coverall goggles (both chipping and chemical splash), face shields, welding goggles and welding shields. Contact lenses do not meet the requirements of eye protection. All eye and face protection shall comply with the provisions of ANSI standard Z87.1 as follows:

1. Eye and face protection purchased prior to July 5, 1994 must comply with Z87.1, 1968;
2. Eye and face protection purchased after July 5, 1994 must comply with Z87.1, 1989.

All non-prescription safety glasses, goggles, and face shields shall be provided at no cost to the employee. Prescription safety glasses are provided at no charge (up to a predetermined amount) through the Earth Tech prescription safety glasses program (See Intranet).

The following are the general use requirements for eye and face protection:

1. Employees who wear prescription lenses shall either obtain prescription safety glasses with side shields, or goggles that completely cover the employees' prescription lenses without disturbing the spectacle adjustment.
2. Face and eye protection shall be comfortable and of the proper size to fit the employee.
3. All equipment shall be kept clean and in good repair by the employee. If the equipment cannot be cleaned (i.e. dried paint), or is damaged, it must be properly discarded and new equipment shall be obtained.
4. Equipment (except prescription glasses) can be used by different employees, as long as the equipment has been cleaned and disinfected between use by each person.
5. Safety glasses shall be worn under welding shields.
6. Prescription safety glasses shall be replaced as necessary (i.e. damaged, change in prescription, lost). The employee will discuss replacement of safety glasses with his/her supervisor.
7. Selection of eye and face protection shall be in accordance with Table 1 and 2 located at the end of this written program.
8. Selection of proper shade number or filter lenses for welding operations shall be in accordance with Table 3 located at the end of this written program.
9. Work around lasers is not anticipated.

3.6.2 Contact Lenses

Wearing contact lenses is prohibited at worksites where the possibility of particles and chemicals getting behind the contact lens exist. Contact lenses do not provide eye protection; contact lens wearers must use the same additional eye protection as non-lens wearers.

3.6.3 Chemical (Splash-Proof) Goggles

Chemical goggles will be used as follows:

1. Approved chemical mono-goggles will be provided to ensure protection from the hazards associated with handling or dispensing liquid chemicals.
2. The appropriate Material Safety Data Sheets (MSDS) will provide specific information for the use of chemical goggles. The MSDSs can be obtained in accordance with SH&E 115 Hazard Communications Program.
3. Basic eye protection and chemical goggles (with the exception of prescriptions glasses) will not be worn at the same time, but a face shield may be worn in conjunction with chemical goggles and may be required for certain operations.

3.6.4 Face Shield

1. An approved full-face shield will be worn to provide protection from flying particles, splashes, or mist, where required.

2. A face shield only provides protection to the face from direct impact objects, and does not provide acceptable eye protection. Additional standard eye protection or goggles must be worn in conjunction with a face shield.

3.6.5 Burning Goggles

Approved burning goggles will be worn to provide employee protection from optical radiation. Burning goggles will be worn whenever an oxy-gas torch is used for cutting or burning.

3.6.6 Welding Hood

A welding hood with either a filtered lens of number 10 shade or darker, or an auto-darkening lens providing the same shade number or darker (see applicable shading requirements), will be used to provide protection from the optical radiation produced during electric arc welding. Approved safety glasses with side shields will be worn in conjunction with the welding hood to ensure protection from popping hot slag when the hood is raised. Welding hoods will meet ANSI standards Z87 (EC;EN 187) .

3.7 Head Protection

3. 7.1 Basic Head Protection

1. Approved hardhats will include only plastic or fiberglass hats that meet ANSI Z89.1.

2. Metal hardhats or bump caps are not considered approved head protection and will not be used on Earth Tech projects.

3. Hardhats must also be worn during all cutting and welding operations; no soft caps are allowed.

4. Metal and "cowboy" style hardhats are prohibited.

5. Approved hardhats will be worn by all employees exposed to hazards that could cause injury to the head (moving equipment, falling objects, protruding objects, etc.).

6. Compliance with state and/or local requirements is mandatory (e.g., chinstrap accessory, etc).

3.7.2 Issuance of Head Protection

An approved hardhat will be issued to all employees exposed to overhead hazards. The decision to charge a fee for replacement hardhats will depend on the requirements of the individual project and will be determined by the Project Manager.

3.7.3 Color Coding

Color coding of hardhats will be at the discretion of the Site Project Manager for each individual project.

3.7.4 General Maintenance Requirements

Hardhats will conform to the approved specifications of ANSI Z89.1. Therefore, it will be forbidden for employees to:

1. Drill holes in the shell of the hardhat.
2. Alter the shape of the hardhat or bill.
3. Remove the suspension straps or cut/alter them in any way.
4. Paint the hat or cover in non-approved decals.

5. Wear hardhats with the brim to the rear; or
6. Alter hardhat in any other manner that may compromise its integrity e.g. pasting stickers other than standard Earth Tech logo.

3.8 Hearing Protection

1. Employees will not be exposed to noise in excess of the Permissible Exposure Limits (PELs) established by OSHA. SH&E 109 - Hearing Conservation Program provides guidance on hearing conservation.
2. The two types of recognized hearing protection available for use in effectively reducing noise exposure are earplugs and earmuffs.
3. In most instances, universal-fit earplugs (expandable foam) will be acceptable hearing protection. Cotton plugs are not acceptable.
4. When using earmuffs for hearing protection, special care will be taken to ensure that the muffs are disinfected before being issued to another employee.
5. The SH&E Department will indicate whether both earplugs and earmuffs must be worn to provide adequate hearing protection.

3.9 Hand Protection

Hand protection serves two purposes:

- Control of physical hazards
- Control of skin contact with hazardous materials

3.9.1 General Purpose Gloves

Where workers are exposed to physical hazards the use of standard leather or cloth work gloves will be employed. These gloves do not need to conform to any ANSI or other standard, however selected gloves should:

- Be of sturdy construction
- Be suitable to protect against the particular hazard(s) associated with the job (e.g., insulated gloves for hot work)
- Properly fit the worker's hands

3.9.2 Special Purpose Gloves

Gloves intended to provide chemical protection must be rated by the manufacturer as effective against the substance(s) expected to be encountered. Specific selection will be made on a task-by-task basis and approved by the SH&E Department. Special purpose gloves may at times be required when employees are performing certain tasks as indicated below:

- Working with solvents or fuels (thinners, degreasers, gasoline, safety solvents, etc.).
- Handling pesticides, herbicides, or any poison.
- Working with insulating materials.
- Assisting welders or handling hot materials.

Special purpose gloves include:

- "Hot" gloves for electrical work.
- Cut-resistant gloves.
- Chemical-resistant gloves.
- Standard rubber gloves.
- Heat-resistant gloves.

Hydrocarbon-resistant rubber gloves will be worn to protect the hands when using petroleum-based cleaning agents.

Barrier creams/moisturizing lotions can provide additional protection from minor exposure to some irritants and will be used as specified:

- Barrier creams will be evaluated to ensure the proper protection is provided for the specific task to be performed. Barrier creams are NOT a substitute for gloves.
- Moisturizing lotions/creams will be utilized to restore the natural oils to the skin removed through frequent hand washing.

3.10 Foot Protection

3.10.1 Basic Foot Protection

Safety footwear will meet the following requirements:

1. Comply with ANSI standard Z41 PT91
2. 100% leather.
3. Minimum height of 6 inches.
4. Safety-toed footwear will be worn at all job sites unless a variance is obtained from the SH&E Department.
5. Sneakers, sandals, tennis shoes, high heels, and leather-soled street or dress shoes will not be considered approved industrial or construction footwear.
6. The safety footwear program, with Red Wing shoe store information and locations, is available on the SH&E homepage under Forms. Please call the SH&E Department with any questions, comments, or concerns.

3.10.2 Special Purpose Footwear

Special footwear may be required to provide maximum protection to the employee.

1. Whenever employees may be exposed to corrosives or irritant chemicals (e.g., pouring concrete, applying form oils), they will wear the appropriate special purpose footwear.
2. Special purpose footwear may include PVC or neoprene boots, preferably with steel shanks.

3.10.3 Foot Protectors

Employees performing tasks that potentially expose them to extreme foot injury hazards (e.g., operating a ground tamper or chipping concrete with jackhammer) will wear metal foot protectors and/or metatarsal protection.

3.11 General Clothing Requirements

1. Employees performing tasks on Earth Tech projects will wear appropriate clothing. Cotton is the best all-around material to wear.

2. Synthetic materials are not recommended because some melt easily and may burn rapidly when exposed to small ignition sources.

3. Clothing will be in good condition. Frayed or tattered clothing can be a hazard to the employee.

4. Pants will fit properly and not have large cuffs or belled or frayed bottoms.

5. Tank tops or sleeveless shirts (less than 4 inches below shoulder) will not be worn.

6. If dictated by the client or the hazards, long-sleeve shirts will be required.

7. Shirts will be worn tucked in at all times. Employees flame cutting or welding must have clothing suitable for that operation (i.e., prevent slag from being caught in cuffs, waist, or pocket openings).

8. Neckties, gauntlet-type gloves, and baggy, loose, or ragged clothing will not be worn when working near or with moving machinery.

9. Jewelry such as rings, watchbands, necklaces, earrings, or the like can cause or contribute to accidents. Loose, dangling jewelry will not be allowed.

10. In situations where an employee may be exposed to hazardous materials, such as corrosives, fire, toxins, irritants, heat, or sensitizers, the task will be evaluated and the employee will wear the appropriate clothing for the hazard identified.

11. All employees or contractors working on site controlled by Earth Tech with a potential to use respiratory protection (for normal as well as emergency escape purposes) must be shaved and shall not have facial hair (long mustache, long side burns, beard) that can affect sealing of respiratory protection equipment.

3.12 High-Visibility Vests – Communication

1. Fluorescent safety vests, or other approved high-visibility clothing made with reflecting orange, white, or yellow materials, are mandatory when working around heavy equipment. The reflecting material must be visible from all angles (360 degrees).

2. Site vehicles must be parked in a safe place, away from heavy equipment traffic.

3. All personnel who leave a site vehicle to conduct work on foot in the vicinity of heavy equipment must wear a high-visibility safety vest and other appropriate PPE (e.g., hardhat, safety glasses, safety shoes).

4. Eye contact must be established with the heavy equipment operator prior to approaching the equipment. Never approach the equipment from a blind spot or blind angle.

5. Before starting any type of activity that involves site vehicles, heavy equipment, and/or ground activities, communication must be established and maintained (radio contact when possible).

6. Ground activities (e.g., soil density testing, surveying, sampling) will take place no closer than approximately 100 feet from moving heavy equipment without an approved, job-specific hazard analysis that identifies any special precautions to be taken.

7. All personnel working, visiting or attending the site shall be made aware of locations where heavy equipment operations are being undertaken.

8. High-visibility vests are also required while working in and near traffic areas and in remote areas (e.g., working near and/or adjacent to hunting grounds).

Exception: Workers may be exempt from wearing high-visibility safety vests if a hazard assessment prepared for a specific task determines that wearing such gear may introduce additional hazards (e.g., loose clothing/polyester materials). Examples of these tasks may include, but are not limited to, work involving rotating tools/equipment and open flame or spark-producing activities such as welding, cutting, or grinding.

3.13 Safety Equipment for Respiratory Protection, Elevated Work, Confined Space Entry, Electrical Safety, Work Over Water, Etc.

Please refer to the respective SH&E SOP(s) to review the PPE requirements.

4.0 STORAGE AND MAINTENANCE

4.1 Personal Items

The following PPE items will be obtained by the individual users, with costs reimbursed based on the condition and safe operating use of PPE. The employee's supervisor will approve new purchases of required PPE by the employee.

- Safety-toed boots (leather)[1]
- Prescription Safety Glasses[2]

Employees are expected to maintain this equipment in a clean, ready-to-use condition, and to perform periodic inspections to ensure that equipment is undamaged and fully functional. Any equipment which becomes unserviceable shall be replaced by the employee, subject to reimbursement in accordance with Earth Tech's PPE Allowance criteria.

4.2 Individually Issued Items

The following PPE items will be issued individually to each worker, or will be obtained by each worker at Earth Tech expense for their personal use:

- Hard hat
- Non-Prescription Safety Glasses

[1] Earth Tech has established a boot purchase program with RED WING Shoes that provides for a 15% price discount and company-direct billing up to a total cost of US$100 (or as approved by Business Unit). Information about this program can be found on the SH&E Intranet website.

[2] Earth Tech has established a prescription safety eyewear program with Wal-Mart that provides for a price discount and company-direct billing up of approved eyewear frames and lenses. Information about this program can be found on the SH&E Intranet website.

- Safety-toed boots (rubber)
- Respiratory Protection
- Ear Muffs/ear plugs
- Cold weather gear (NOTE: All items must be approved for purchase through the employees Section Manager prior to purchase.)

Employees are expected to maintain this equipment in a clean, ready-to-use condition, and to perform periodic inspections to ensure that equipment is undamaged and fully functional. Any problems should be identified to the site safety officer immediately so that replacements can be arranged.

Except for personal issue items, all other PPE will be stored on site and issued to workers as required for use. This includes:

- Work coveralls
- Chemically-protective outer coveralls
- Leather and chemically-protective gloves
- Face shields
- Fall protection equipment
- Specialized safety equipment

All central issue equipment will be maintained in a clean, dry condition.

4.3 Inspection

Prior to use of any safety equipment (individual issue or centrally stored) personnel must inspect each piece to ensure that it is in good working order. Equipment exhibiting any signs of wear or damage will be immediately placed out of service and repaired/replaced.

5.0 REFERENCES

- SH&E 109 - Hearing Conservation Program
- SH&E 112 – Respiratory Protection Program
- SH&E 114 – Safety Training Programs
- SH&E 115 – Hazard Communication Program
- SH&E 120 – Fall Protection Program

6.0 ATTACHMENTS

- Attachment 1 – PPE Hazard Assessment Template
- Attachment 2 - Eye & Face Protection Selection Chart
- Attachment 3 - Eye And Face Protector Selection Guide
- Attachment 4 - Filter Lenses For Protection Against Radiant Energy
- Attachment 5 – Sample PPE Hazard Assessment – Waste Water Plant

Attachment 1

PERSONAL PROTECTIVE EQUIPMENT HAZARD ANALYSIS

1. **Job Title(s):** This hazard analysis describes the tasks and required personal protective equipment for the following job titles:
   -
   -
   -
   -
   -

2. **Description of Tasks:** The tasks performed by personal in the above job titles include:
   -
   -
   -
   -
   -

3. **Potential Hazards and PPE Selection. (See List of Potential Hazards for assistance)**

TASK	POTENTIAL HAZARDS (1)	PPE SELECTION

(1) Refer to attached list for a list of potential hazards to consider.

Signature of certifying Manager that tasks are accurately described.

_____

Signature Date

Print Name:_____

LISTS OF POTENTIAL HAZARDS

	POTENTIAL HAZARDS
HEAD	**Falling overhead objects**
	Spark contact
	Chemical contamination
	Cold/heat
	Electrical (>600 volts)
HANDS	**Cut, puncture, abrasions**
	Burns
	Dermatitis
	Chemical absorption
	Cold
FEET	**Falling or rolling objects**
	Chemical absorption
	Dermatitis
	Burns
	Cold
	Slips, trips
FACE	**Burns (chemical, spark, UV radiation)**
	Chemical splashing
	Flying particulates
	Abrasions, cuts
EYES	**Burns (gas, liquid, spark)**
	Abrasions-flying particulates
	Absorption
	Retinal/corneal damage (UV/IR radiation)
EARS	**Noise**
	Cold
FULL BODY	**Chemical splashing**
	Burns (chemical, UV radiation)
	Absorption
	Spark contact
	cuts/abrasions/punctures
	Heat/cold stress
MISCELLANEOUS	**Insects (ticks, spiders, mosquitoes, bees/wasps**
	Animals (dogs, bears, wild boars, raccoons)
	Reptiles (snakes)
	Poisonous plants (poison ivy, sumac, poison oak)
	Biological (fungus, bacteria, fungus, viral)

Attachment 2

TABLE 1 – EYE & FACE PROTECTION SELECTION CHART

		ASSESSMENT	PROTECTOR TYPE (see Table 2)	PROTECTOR	LIMITATIONS	NOT RECOMMENDED
IMPACT	Chipping, grinding, machining, masonry work, riveting, and sanding.	Flying fragments, objects, large chips, particles, sand, dirt, etc.	B, C, D, E, F, G, H, I, J, K, L, N	Spectacles, goggles, faceshields SEE NOTES (1) (3) (5) (6) (10) For severe exposure Add N	Protective devices do not provide unlimited protection. SEE NOTE (7)	Protectors that do not provide protection from side exposure. SEE NOTE (10) Filter or tinted lenses that restrict light transmittance, unless it is determined that a glare hazard exists. Refer to OPTICAL RADIATION.
HEAT	Furnace operation, pouring, casting, hot dipping, gas cutting, and welding.	Hot sparks	B, C, D, E, F, G, H, I, J, K, L, *N *N N	Faceshields, goggles, spectacles. *For severe exposure, add N SEE NOTE (2) (3) *Faceshields worn over goggles H, K SEE NOTE (2) (3) Screen faceshields. Reflective faceshields. SEE NOTE (2) (3)	Spectacles, cup and cover type goggles do not provide unlimited facial protection. SEE NOTE (2) SEE NOTE (3)	Protectors that do not provide protection from side exposure.
		Splash from molten metals				
		High temperature exposure				
CHEMICAL	Acid and chemicals handling, degreasing, plating	Splash	G, H, K *N	Goggle, eyecup and cover types. *For severe exposure, add N	Ventilation should be adequate but well protected from splash entry	Spectacles, welding helmets, handshields
		Irritating mists	G	Special purpose goggles	SEE NOTE (3)	
DUST	Woodworking, buffing, general dusty conditions.	Nuisance dust	G, H, K	Goggles, eyecup and cover types	Atmospheric conditions and the restricted ventilation of the protector can cause lenses to fog. Frequent cleaning may be required.	

TABLE 1 – EYE & FACE PROTECTION SELECTION CHART (cont.)

	ASSESSMENT	PROTECTOR TYPE	PROTECTOR	LIMITATIONS	NOT RECOMMENDED
OPTICAL RADIATION	WELDING: Electric Arc	O, P, Q	**TECTORS FILTER LENS PRO- SHADE TECTORS** SEE NOTE (9) 10-14 Welding Helmets or Welding Shields	Protection from optical radiation is directly related to filter lens density. SEE NOTE (4). Select the darkest shade that allows adequate task performance.	Protectors that do not provide protection from optical radiation. SEE NOTE (4)
	WELDING: Gas CUTTING TORCH BRAZING	J, K, L, M, N, O, P, Q	SEE NOTE (9) 4-8 Welding Goggles or Welding Faceshield 3-6 3-4	SEE NOTE (3)	
	TORCH SOLDERING	B, C, D, E, F, N	1.5-3 Spectacles or Welding Faceshield		
	GLARE	A, B	Spectacle SEE NOTE (9) (10)	Shaded or Special Purpose lenses, as suitable. SEE NOTE (8)	

NOTES

(1) Care shall be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards must be provided.
(2) Operations involving heat may also involve optical radiation. Protection from both hazards shall be provided.
(3) Faceshields shall only be worn over primary eye protection.
(4) Filter lenses shall meet the requirements for shade designations in Table 9-2.
(5) Persons whose vision requires the use of prescription (Rx) lenses shall wear either protective devices fitted with prescription (Rx) lenses or protective devices designated to be worn over regular prescription (Rx) eyewear.
(6) Wearers of contact lenses shall also be required to wear appropriate covering eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers.
(7) Caution should be exercised in the use of metal frame protection devices in electrical hazard areas.
(8) Refer to Section 6.5, Special Purpose Lenses. (ANSI A87.1-1989)
(9) Welding helmets or handshields shall be used only over primary eye protection.
(10) Non-sideshield spectacles are available for frontal protection only.

Attachment 3

TABLE 2 - EYE AND FACE PROTECTOR SELECTION GUIDE

A. SPECTACLE, No sideshield
B. CUP GOGGLE, Direct ventilation
C. CUP GOGGLE, Indirect ventilation
D. SPECTACLE, Headband temple
E. COVER WELDING-BURNING GOGGLES, Indirect Ventilation
F. FACESHIELD
G. WELDING HELMET, Hand held
H. WELDING HELMET, Stationary window
I. WELDING HELMET, Lift front
J. COVER GOGGLE, Direct ventilation
K. SPECTACLE, Half sideshield
L. SPECTACLE, Full sideshield
M. SPECTACLE, Detachable sideshield
N. SPECTACLE, Non-removable lens
O. SPECTACLE, Lift front
P. COVER GOGGLE, No ventilation
Q. COVER GOGGLE, Indirect ventilation

Attachment 4

TABLE 3. FILTER LENSES FOR PROTECTION AGAINST RADIANT ENERGY

OPERATIONS	ELECTRODE SIZE 1/32 INCH	ARC CURRENT	MINIMUM PROTECTIVE SHADE
Shielded metal-arc welding	Less than 3	Less than 60	7
	More than 3-5	60-160	8
	More than 5-8	161-250	10
	More than 8	251-550	11
Gas metal arc welding and flux cored arc welding		Less than 60	7
		60-160	10
		161-250	10
		251-500	10
Gas tungsten arc welding		Less than 50	8
		50-150	8
		151-500	10
Air carbon	(Light)	Less than 500	10
Air cutting	(Heavy)	500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		101-400	10
		401-800	11
Torch brazing			3
Torch soldering			2
Carbon arc welding			14

OPERATIONS	PLATE THICKNESS (INCHES)	(MM)	MINIMUM* PROTECTIVE SHADE
Gas welding:			
Light	Under 1/8	Under 3.2	4
Medium	1/8 to ½	3.2 to 12.7	5
Heavy	Over 1/2	Over 12.7	6
Oxygen cutting:			
Light	Under 1	Under 25	3
Medium	1 to 6	25 to 150	4
Heavy	Over 6	Over 151	5

Attachment 5

Sample PPE Hazard Assessment - _____ Wastewater Plant

PPE Procedure Number	Individual Task	Potential Hazards Associated with Job	Eye & Face				Head	Hand	Foot		Hearing		Other	
			Safety Glasses with side shields	Goggles	Face Shield	Welding Helmet/ Shield	Class A/B Helmet	Gloves	Safety Shoes/ boots	Specialty Boots	Ear Plugs	Ear Muffs	Fall Protect	
PPE-01	Daily Operations Rounds	Jobsite Conditions, Ergonomics, Falls, Hazardous Chemicals, Contact with Objects and Equipment, Environmental.	X				X		X					
PPE-02	Daily Sampling and Testing	Jobsite Conditions, Ergonomics, Falls, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.	X				X	X latex	X					
PPE-03	Weekly Sampling and Testing	Jobsite Conditions, Ergonomics, Falls, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.	X				X	X latex	X					
PPE-04	Bi-Annual Sampling and Testing	Jobsite Conditions, Ergonomics, Falls, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.	X				X	X latex	X					
PPE-05	Making Lab Reagents	Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment		X	X			X	X					X
PPE-06	Checking Pump Stations	Jobsite Conditions, Confined Spaces, Ergonomics, Falls, Stored Energy, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.	X				X	X leather	X					
PPE-07	Performing Flow Calibrations	Jobsite Conditions, Confined Spaces, Ergonomics, Falls, Stored Energy, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.	X				X		X					

PPE Procedure Number	Individual Task	Potential Hazards Associated with Job	Eye & Face				Head	Hand	Foot		Hearing		Other	
			Safety Glasses with side shields	Goggles	Face Shield	Welding Helmet/ Shield	Class A/B Helmet	Gloves	Safety Shoes/ boots	Specialty Boots	Ear Plugs	Ear Muffs	Fall Protect	
PPE-08	Transferring Sodium Bisulfite	Jobsite Conditions, Confined Spaces, Ergonomics, Falls, Stored Energy, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.		X	X		X	X	X					X
PPE-09	Transferring Sodium Hypochlorite	Jobsite Conditions, Ergonomics, Falls, Stored Energy, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.		X	X		X	X	X					X
PPE-10	Screw Pump Gate Valve Operation	Jobsite Conditions, Ergonomics, Falls, Stored Energy, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.	x				X	X leather	X					
PPE-11	Calcium Nitrate Handling	Jobsite Conditions, Ergonomics, Falls, Stored Energy, Hazardous Chemicals, Hand & Power Tools, Contact with Objects or Equipment, Environmental.		X	X		X	X	X					
PPE-12	Emptying Grit Trailer	Jobsite Conditions, Ergonomics, Falls, Stored Energy, Hand & Power Tools, Contact with Objects or Equipment, Environmental.	X				X	X leather	X					

EarthTech A tyco International Ltd. Company	PROCEDURE NO. SH&E 125
	DATE March 25, 2005
Safety, Health & Environmental Procedure	REVISED March 31, 2006
Cold Stress Prevention Program	PREVIOUSLY ENV 529

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

This procedure is intended to protect workers from the severest effects of cold stress (hypothermia) and cold injury, and to describe exposures to cold working conditions under which it is believed nearly all workers can be repeatedly exposed without adverse health effects. The objective is to prevent the deep body temperature from falling below 96.8°F and to prevent cold injury to body extremities.

2.0 SCOPE

Fatal exposures to cold among workers have almost always resulted from accidental exposures involving failure to escape from low environmental air temperatures or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is the fall in the deep core temperature of the body. Workers should be protected from exposure to cold so that the deep core temperature does not fall below 96.8°F; lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences.

Pain in the extremities may be the first early warning of danger from cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 95°F. This must be taken as a sign of danger to the workers and exposure to cold should be immediately terminated for any workers when severe shivering becomes evident. Useful physical or mental work is limited when severe shivering occurs.

3.0 PROCEDURE

Since prolonged exposure to cold air, or to immersion in cold water, at temperatures even well above freezing can lead to dangerous hypothermia, whole-body protection must be provided.

3.1 General Requirements

- Adequate insulating dry clothing to maintain core temperatures above 96.8°F must be provided to workers if work is performed in air temperatures below 40°F. Wind chill cooling rate and the cooling power of air are critical factors. The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required. An equivalent chill temperature (ECT) chart relating the actual dry bulb air temperature and the wind velocity is presented in Attachment 1.

- Unless there are unusual or extenuating circumstances, cold injury to other than hands, feet, and head is not likely to occur without the development of the initial signs of hypothermia. Superficial or deep local tissue freezing will occur only at temperatures below 32°F regardless of wind speed. However, older workers or workers with circulatory problems require special precautionary protection against cold injury. The use of extra insulating clothing and/or a reduction in the duration of the exposure period are among the special precautions which should be considered.
- For exposed skin, continuous exposure should not be permitted when the air speed and temperature results in an equivalent chill temperature of –25°F or below.
- At air temperatures of 40°F or less, it is imperative that workers who become immersed in water or whose clothing becomes wet be immediately provided a change of clothing and be treated for hypothermia.
- If the air velocity at the job site is increased by wind, draft, or artificial ventilating equipment, the cooling effect of the wind should be reduced by shielding the work area or by wearing an easily removable windbreak garment.
- If the available clothing does not give adequate protection to prevent hypothermia or frostbite, work should be modified or suspended until adequate clothing is made available or until weather conditions improve.

A recommended work/warm-up schedule is discussed in Section 5.0.

4.0 HANDS

Special protection of the hands is required to maintain manual dexterity for the prevention of accidents:

- If fine work is to be performed with bare hands for more than 10 to 20 minutes in an environment below 60°F, special provisions should be established for keeping the workers' hands warm. For this purpose, warm air jets, radiant heaters (fuel burner or electric radiator), or contact warm plates may be utilized. Metal handles of tools and control bars should be covered by thermal insulating material at temperatures below 30°F.
- If the air temperature falls below 60°F for sedentary work, 40°F for light work, or 20°F for moderate work, and fine manual dexterity is not required, then gloves should be used by the workers.
- To prevent contact frostbite, the workers should wear anti-contact gloves:
    - When cold surfaces below 20°F are within reach, a warning should be given to each worker to prevent inadvertent contact by bare skin.
    - If the air temperature is 0°F or less, the hands should be protected by mittens. Machine controls and tools for use in cold conditions should be designed so that they can be handled without removing the mittens.
- Provisions for additional total body protection are required if work is performed in an environment at or below 40°F. The workers should wear cold protective clothing appropriate for the level of cold and physical activity:

5.0 WORK WARMING REGIMEN

If work is performed continuously in the cold at an equivalent chill temperature (ECT) at or below –15°F, heated warming shelters (tents, cabins, rest rooms, etc.) should be made available nearby. The workers should be encouraged to use these shelters at regular intervals, the frequency depending on the severity of the environmental exposure. The onset of heavy shivering, minor frostbite (frostnip), the feeling of excessive fatigue, drowsiness, irritability, or euphoria are indications for immediate return to the shelter. When entering the heated shelter, the outer layer of clothing should be removed and the remainder of the clothing loosened to permit sweat evaporation or a change of dry work clothing provided. A change of dry work clothing should be provided as necessary to prevent workers from returning to work with wet clothing.

Attachment 2 provides guidelines for a work/warm-up schedule.

6.0 OTHER WORK PRACTICES

For work practices at or below 10°F ECT (see Attachment 1), the following should apply:

- The worker should be under constant protective observation (buddy system or supervision).
- The work rate should not be so high as to cause heavy sweating that will result in wet clothing; if heavy work must be done, rest periods should be taken in heated shelters and opportunity for changing into dry clothing should be provided.
- New employees should not be required to work fulltime in the cold during the first days of employment until they become accustomed to the working conditions and required protective clothing.
- The weight and bulkiness of clothing should be included in estimating the required work performance and weights to be lifted by the worker.
- The work should be arranged in such a way that sitting still or standing still for long periods is minimized. Unprotected metal chair seats should not be used. The worker should be protected from drafts to the greatest extent possible.
- The workers should be instructed in safety and health procedures, which should address:
    - Proper re-warming procedures and appropriate first aid treatment.
    - Proper clothing practices.
    - Proper eating and drinking habits.
    - Recognition of impending frostbite.
    - Recognition of signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur.
    - Safe work practices.
- Eye protection for workers employed outdoors in a snow and/or ice-covered terrain should be supplied. Special safety goggles to protect against ultraviolet light and glare (which can produce temporary conjunctivitis and/or temporary loss of vision) and blowing ice crystals should be required when there is an expanse of snow coverage causing a potential eye exposure hazard.
- Workers handling evaporative liquid (gasoline, alcohol or cleaning fluids) at air temperatures below 40°F should take special precautions to avoid soaking of clothing or gloves with the liquids because of the added danger of cold injury due to evaporative cooling. Special note should be taken of the particularly acute effects of splashes of

"cryogenic fluids" or those liquids with a boiling point that is just above ambient temperature.

- Trauma sustained in freezing or subzero conditions requires special attention because an injured worker is predisposed to cold injury. Special provisions should be made to prevent hypothermia and freezing of damaged tissue in addition to providing for first aid treatment.

7.0 COLD RELATED ILLNESS AND TREATMENT

7.1 Frostbite

If exposure occurs in temperatures that are below freezing (30 degrees F or below), frostbite or trench foot (immersion foot) may accompany or complicate the symptoms of hypothermia. Frostbite is the freezing of living tissues with a resultant breakdown of cell structure. Injury due to frostbite may range from superficial redness of the skin, slight numbness, and blisters, to the obstruction of blood flow (ischemia), blood clots (thrombosis), or skin discoloration due to insufficient oxygen in the blood (cyanosis). Frostbite may occur if the skin comes into contact with objects with a surface temperature below freezing, such as metal tool handles. Trench foot is caused by continuous exposure to cold combined with persistent dampness or immersion in water. Injuries in this case include permanent tissue damage due to oxygen deficiency, damage to capillary walls, severe pain, blistering, tissue death, and ulceration. Additionally, cold exposures may either induce or intensify vascular abnormalities. These include chilblain (a swelling or sore), Raynaud's disease, acrocyanosis (blueness of hands and feet) and thromboangiitis (inflammation of the innermost walls of blood vessels with accompanying clot formation). Workers suffering from these ailments should take particular precautions to avoid chilling.

Treatment

1. Wrap the victim in woolen cloth and keep dry until he or she can be brought inside.
2. Do not rub, chafe, or manipulate frozen parts.
3. Bring the victim indoors.
4. Place the victim in warm water (102 degrees to 105 degrees F) and make sure the water remains warm. Test the water by pouring it on the inner surface of your forearm. Never thaw affected body parts if the victim has to go back out into the cold. The affected area may be refrozen.
5. Do not use hot water bottles or a heat lamp, and do not place the victim near a hot stove.
6. Do not allow the victim to walk if his or her feet are affected.
7. Have the victim gently exercise the affected parts once they are thawed.
8. Seek medical aid for thawing of serious frostbite.

7.2 Hypothermia

Hypothermia damages both the body's internal temperature mechanisms (hypothalamus) and the peripheral mechanisms to prevent heat loss (vasoconstriction and perspiration.) These effects may last up to three years.

Treatment

1. Give artificial respiration and stop any bleeding, if necessary.
2. Bring the victim into a warm room or shelter as quickly as possible.
3. If the victim cannot be moved (spinal injury, etc.), carefully place newspapers, blankets or some other insulation between the victim and the ground.
4. Remove all wet clothing.
5. Provide an external heat source since the body cannot generate its own heat. Wrap the victim in prewarmed blankets, place him or her in the liner of a portable hypothermia treatment unit, put the torso (not the extremities) into a tub of warm water or use body-to-body contact to rewarm the body core. These measures will slowly reopen the peripheral circulation, minimizing the possibility of after-shock or after-drop (the flowing of cooled, stagnated blood from the limbs to the heart), which may cause ventricular fibrillation, cardiac arrest, or death.
6. Do not allow the victim to sleep.
7. Give warm, sweet drinks, no alcohol or pain relievers.
8. Keep the victim still. Do not try to walk.
9. Do not rub numb skin.
10. Get medical help as soon as possible.

8.0 REFERENCES

SH&E 113 – Personal Protective Equipment

9.0 ATTACHMENTS

Attachment 1 – Estimation of Equivalent Chill Temperature
Attachment 2 – Work/Warm-up Schedule Guidelines

Attachment 1

Estimation of Equivalent Chill Temperature

Estimated Wind Speed (mph)	Actual Temperature Reading (°F)									
	50	**40**	**30**	**20**	**10**	**0**	**-10**	**-20**	**-30**	**-40**
	Equivalent Chill Temperature (°F)									
Calm	50	40	30	20	10	0	-10	-20	-30	-20
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-24	-33	-46	-58	-70
15	36	22	9	-5	18	-32	-45	-58	-72	-85
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-75	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	35	-51	-67	-82	-98	-113
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116
Wind speeds above 40 mph have little additional effect	**LITTLE DANGER**				**INCREASING DANGER**			**GREAT DANGER**		
	Trenchfoot and immersion foot may occur at any point on this chart.									

Attachment 2
Work/Warm-up Schedule Guidelines

Air Temp. (Sunny Sky) °F	No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind		25 mph Wind	
	Max. Work Period	Breaks	Max. Work Period	Breaks	Max. Work Period	Breaks	Max. Work Period	Breaks	Max. Work Period	Breaks	Max. Work Period	Breaks
above 5°	Normal Work Sched.		Normal Work Sched.		Normal Work Sched.		Normal Work Sched.		Normal Work Sched.		Normal Work Sched.	
5° to –1°											100 min	2
0° to –4°									100 min	2	75 min	2
-5° to –9°							100 min	2	75 min	2	55 min	3
-10° to –14°					100 min	2	75 min	2	55 min	3	40 min	4
-15° to –19°			100 min	2	75 min	2	55 min	3	40 min	4	30 min	5
-20° to –24°	100 min	2	75 min	2	55 min	3	40 min	4	30 min	5	Cease Work	
-25° to –29°	75 min	2	55 min	3	40 min	4	30 min	5	Cease Work			
-30° to –34°	55 min	3	40 min	4	30 min	5	Cease Work					
-35° to –39°	40 min	4	30 min	5	Cease Work							
-40° to –44°	30 min	5	Cease Work									
-44° & below	Cease Work											

Modified from ACGIH's 2002 Threshold Limit Values for Chemical Substances and Physical Agents.

Note 1: Schedule describes the maximum continuous duration of work and number of 10-15 minute breaks to be observed during any 4-hour work period, and assumes that period will be followed by an extended warm-up period (e.g., lunch). Allowed breaks should be taken in a warm environment.

Note 2: Schedule applies to moderate to heavy work performed by acclimated workers wearing appropriate layered clothing. For light to moderate work apply the schedule for conditions 1 step lower. For unacclimated workers apply the schedule for conditions 2 steps lower. These modifications are additive.

Note 3: For work under 25% - 50% overcast/clouds apply the schedule for conditions 1 step lower. For work at night or under greater then 50% overcast/clouds apply the schedule for conditions 2 steps lower. These modifications are additive with any applicable modifications from Note 2.

Note 4: For wind speeds in excess of 25 mph cease all non-emergency work when temperatures fall below 5°F.

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 204 DATE March 25, 2005 REVISED
Task Hazard Analyses	PREVIOUSLY CP 104

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

This procedure establishes the minimum requirements and process for personnel and organizations assigned to Earth Tech-controlled project sites to perform a Task Hazard Analysis (THA) for each identified task that may present a significant risk to worker health and safety.

2.0 SCOPE

This procedure applies in its entirety to all Earth Tech projects and operations unless a variance from its requirements is granted by the SH&E Department.

3.0 DEFINITIONS

THA: Evaluation of the component parts of any method or procedure for the following purposes:

1. To determine the hazards connected therewith and the requirements or qualifications of those who are to perform the work.
2. To identify hazard control methods that may feasibly be applied.
3. To implement solutions to eliminate, nullify, or reduce to a minimum the consequences of such hazards.
4. Evaluate established means and methods and controls to ensure effectiveness – make modifications as needed.

4.0 PROCEDURE

4.1 General Requirements

4.1.1 THA

THAs will be prepared by the supervision directly responsible for the work and reviewed by the Site Safety Officer (SSO) and / or Project Manager (PM) prior to commencing work activities. The Earth Tech subcontractors will prepare their own THA's and submit to the Earth Tech SSO and / or PM for review and accept prior to starting their activity. These reviews do not relieve the subcontractor of their safety responsibilities.

4.1.2 Signatures

All affected personnel are responsible for signing the THA Sign-off Form (attached) indicating that they understand and will comply with the provisions of the THA. The THA Log will be maintained in a conspicuous location at the workplace by supervision (HASP, wall posting, etc.).

4.2 THA Applicability

THAs are required when the Earth Tech PM, Site Supervision, the SSO, or Safety Professional through pre-job planning, determine that the process, equipment, or procedure indicates potential for injury and/or property damage involving one or more of the following hazards:

- Potential for collapse (e.g., trenching, tunneling, demolition, etc.)
- Potential for the release of stored energy (e.g., electrical, mechanical, explosive, etc.)
- Potential exposure to uncontrolled hazardous materials or wastes
- Potential injury from burns, both chemical and thermal
- Potential exposure to oxygen-deficient environments
- Potential of entanglement in, on, or between objects

Activities that require a separate written control plan (e.g., confined space entry, hot work, etc.) may satisfy the requirement for a THA through correct application of those alternate control plans and respective procedures.

4.3 Completion of THA

- The THA Form (attached) will:
    - Identify the THA author
    - List the key activities in the sequence in which they occur.
    - Determine the hazard(s) and/or hazardous materials involved for each step.
    - Be specific in designation of required protective devices, equipment, or clothing.
    - Apply specific effective safety measures to eliminate or control the hazard(s).
- All THAs will be developed in sufficient detail to preclude confusion and misunderstanding.
- Consideration will be given to movement, work area, specific hazards, safety rules, and recognition of abnormal or unexpected problems.
- Each THA final draft will be submitted to the Project Manager / SSO for review and acceptance/signature.

4.4 Posting and Filing THA

A completed copy of the THA will be available for review by the employees at the work location prior to the start of work. A copy of the THA will be retained as part of the project files. Copies will be forwarded to the project SH&E Professional for review.

4.5 THA Training

In accordance with SH&E 203 – Accident Prevention Program – Requirements for SH&E Documentation, the PM will ensure that all personnel and subcontractors responsible for the performance of THAs have been trained in the proper procedures to accomplish them. The SH&E Professional will assist the SSO in performing the training as necessary.

5.0 ATTACHMENT

Task Hazard Analysis and Sign-off Form

6.0 REFERENCES

SH&E 203 – Accident Prevention Program

Task Hazard Analysis Form

EarthTech
A Tyco International Ltd. Company

Administrative Information

Task Name:

Project Name:	**Project Location:**
Project Manager:	**Analysis Performed By:**
Date Task to be Performed:	**Type of Task:** ☐ One time ☐ Routine task

Specific Task Event Sequence

List one step of the task for each line. If more than 10 steps, split task into additional task(s).

1.	2.
3.	4.
5.	6.
7.	8.
9.	10.

Physical Hazards

- ☐ Bees, snakes, or spiders
- ☐ Cold stress
- ☐ Compressed gas
- ☐ Electrical equipment
- ☐ Elevated work areas
- ☐ Eye hazards (impact, light, etc.)
- ☐ Explosions
- ☐ Fire
- ☐ Hand tool use
- ☐ Hazardous noise exposure
- ☐ Heat stress
- ☐ Heavy equipment operations
- ☐ Holes, pits, trenches
- ☐ Impalement
- ☐ Laser radiation
- ☐ Leading edge work
- ☐ Overhead hazards
- ☐ Portable power tool use
- ☐ Powder-actuated tools
- ☐ Self-starting equipment
- ☐ Slippery surfaces
- ☐ Uneven terrain
- ☐ Unguarded moving parts/equip.
- ☐ Vehicle traffic

Chemical Hazards

- ☐ Adhesives
- ☐ Asbestos
- ☐ Cleaning solvents
- ☐ Concrete or concrete dust
- ☐ Form oils
- ☐ Gasoline or diesel Fuel
- ☐ Lead
- ☐ Lubricating oils & greases
- ☐ PCBs
- ☐ Sand blasting products
- ☐ Silica
- ☐ Smokes & dusts
- ☐ Solvents
- ☐ Surfacing materials
- ☐ Welding fume
- ☐ **None**

Other: _____

Other Physical/Chemical Hazards: _____

Personal Protective Equipment (PPE) Required

Boots:
- ☐ Leather
- ☐ Rubber
- ☐ Safety-toe

Gloves
- ☐ Chemical-resistant:
- ☐ Cut-resistant
- ☐ Leather
- ☐ Welder's

Eye Protection:
- ☐ Faceshield
- ☐ Safety glasses
- ☐ Welder's helmet

General:
- ☐ Coveralls:
- ☐ Hearing protection
- ☐ Respirator:
- ☐ Safety harness & lanyard

Other PPE: _____

Other Safety Equipment/Considerations

- ☐ Fire extinguisher
- ☐ First-aid kit
- ☐ Dust control measures
- ☐ Portable eyewash
- ☐ Fire watch

Other Equipment: _____

Applicable Safety Procedures (See HASP and SOPs)

Exposure Control Requirements

☐ Not applicable ☐ Requirements: _____

Task Hazard Analysis Form

EarthTech
A Tyco International Ltd. Company

Approval Signatures	
Supervisor:	Safety Representative:

I have read or been briefed on the hazards and protective measures identified for the above-listed task and fully understand the task-specific requirements that have been established for it.

Date	Employee Name	Employee Signature	Employer Name

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 205 DATE March 25, 2005 REVISED January 12, 2006
Emergency Action Planning and Prevention	PREVIOUSLY ENV 102

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

This procedure provides minimum guidelines for the development of Emergency Action Plan (EAP) and Fire Protection Plan (FPP) for each Earth Tech office. This assigns responsibilities, accountability, and procedures to be followed by all employees in the event of fire or other emergencies.

2.0 SCOPE

This procedure applies to all Earth Tech offices. The EAP describes the potential emergencies at offices and details what procedures will be followed to minimize risk. The FPP identifies potential fire sources and the plans to control them. For development of EAP/FPP at project sites, please refer to your respective Health and Safety Plan (HASP). Emergencies are defined as uncontrolled circumstances that can result in damage to personnel or property.

3.0 RESPONSIBILITIES

3.1 Section/Office Manager

- Responsible for the implementation and enforcement of the EAP/FPP.
- Coordinates the development of the EAP/FPP for their office with review by the SH&E Department.
- Identifies specific municipality or other local regulations/requirements for the EAP/FPP and ensures those requirements are incorporated into the EAP/FPP.
- Establishes the working relationships with regulatory and local agencies that may respond to an emergency.
- Designates an Emergency Coordinator or Supervisor to implement the EAP/FPP.

3.2 Emergency Coordinator/Supervisor

- Responsible for directing all actions in emergency situations, until relieved by outside emergency response units (i.e., Fire Department).
- Responsible for ensuring all Earth Tech employees on site are trained in the provisions of this plan, and the required actions.

In the event of a fire, Earth Tech employees shall notify the local Fire Department and will not attempt to extinguish the fire unless the appropriate fire-extinguishing systems are present, and the employees using the equipment have been specifically trained in their use. If fire-extinguishing systems are to be maintained on site, then these systems shall be inspected monthly to ensure they are ready for operation. These inspections shall be recorded on tags attached to each system.

For Earth Tech-owned equipment that presents a potential fire source, specific preventive maintenance procedures shall be developed (e.g., manufacturer's recommendations) and strictly enforced to minimize the chance of fire. In addition, combustible materials shall be kept away from spark sources. This includes keeping paper away from transformers and motors, and keeping sparks away from flammable materials. Also, make sure that systems are not overloaded, such as trying to draw too much power from an electrical system.

5.0 FIELD / PROJECT LOCATIONS

PMs will coordinate with the respective Safety Professionals to develop a site-specific EAP/FPP to be included in the HASP. Elements of the EAP/FPP as noted above will apply (designating EC's, drilling, etc.).

In the event of any emergency incident, the following general requirements apply:

- Work activities will cease and all personnel will be evacuated from the work location. The evacuation will proceed in a direction opposite the critically affected area, with all personnel assembling in a pre-designated location outside of the site proper.
- A headcount will be taken of the assembled employees and any injured individuals shall be administered first aid.
- If not present at the work location, the Site Safety Officer (SSO) and Emergency Coordinator will be contacted immediately.
- In the event of a chemical spill, send someone to meet the responders outside the area to direct them to the scene and provide information about the conditions that may exist, including appropriate Material Safety Data Sheets (MSDSs) for hazardous material. The Fire Department may have spill containment dikes, absorbents, neutralizing chemicals and other means of mitigating spills or leaks.
- Without endangering personnel, make a quick assessment of the situation. Call the emergency services agency (Fire Department, etc.) immediately and, if there are injuries, ask for medical assistance. Next, contact an Emergency Coordinator. When calling in the emergency, give your location, describe the nature of the emergency, and provide your name.

Any alterations mandated by changing conditions shall be determined by the Emergency Coordinator and communicated to workers during the tailgate safety briefing.

6.0 PROGRAM REVIEW

The EAP / FPP Program will be reviewed on an annual basis or when changes occur that affect the EAP (e.g., office location change, personnel change, new work practice or process, etc.).

7.0 ATTACHMENTS

Attachment 1: EAP Template

Attachment 2: FPP Template

8.0 REFERENCES

SH&E – 203 – Accident Prevention Program - Requirements for SH&E Documentation
SH&E – 302 – Office Safety
SH&E – 508 – Fire Extinguishers
SH&E – 606 – Flammable and Combustible Materials

OSHA SPECIFIC

29 CFR 1910.38 – Employee Emergency Plans and Fire Prevention Plans

29 CFR 1910.35-.37 – Means of Egress

29 CFR 1910.151 – Medical and First Aid

29 CFR 1910.155 – Fire Protection

29 CFR 1910.157 – Fire Extinguishers

29 CFR 1910.165 – Employee Alarm System

Attachment 1

EMERGENCY ACTION PLAN
FOR
[insert office or project name/location]

---

1. **Emergency Coordinator:**_____

2. **Emergency Numbers:**

	Name	Number
Fire Department		
Police Department		
Ambulance		
Hospital		
Poison Control Center		(800) 222-1222
HAZMAT Spill Response		

3. **Numbers for Key Personnel:**

		Number
Office Manager	Work	
	Home	
	Pager	
		Number
Emergency Coordinator/ Supervisor	Work	
	Home	
	Pager	
		Number
Alternate	Work	
	Home	
	Pager	

4. **Specific Muster Locations in Case of Evacuation:**

Primary Muster Point: _____
_____
_____

Secondary Muster Point: _____
_____
_____

5. Potential Emergencies

A. ***Severe Weather*** - Severe weather includes hurricanes, tornadoes, lightning and flooding. Some of these conditions, such as tornadoes, can come upon the office site suddenly, with little to no warning. The following actions shall be implemented for each situation:

a) Tornadoes - Radio stations will provide continual updates when conditions are right for potential tornado formation. The Office Manager/Emergency Coordinator/Supervisor will listen to the continual updates, and if conditions worsen, personnel will either be sent to their primary residence (if time and conditions allow), or to pre-designated shelters. In the event of being outside when a tornado forms, personnel shall lie flat in the nearest low point in the ground (unless time permits evacuation to the designated shelter). Designated shelters will be identified in the EAP.

b) Lightning - In the event of lightning, all equipment shall be shut off, and personnel shall enter the nearest structure. UNDER NO CIRCUMSTANCES stand under a solitary tree. If a structure is not nearby, either remain in an enclosed vehicle, or lie flat at a low point on the ground.

c) Flooding - When flooding is expected, proceed to the highest available point (i.e., multi-story building).

B. ***Fire/Explosion*** - In the event of a fire or explosion, the procedures found in the Fire Prevention Plan shall be implemented. In the event an evacuation is necessary, all personnel shall proceed to the primary muster location, unless the primary location is downwind from the emergency, in which case the secondary muster location shall be used. Contact the local Fire Department, either through use of emergency pull stations if available, or using the phone.

C. ***Medical Emergencies*** - Medical emergencies can be the result of work-related accidents (e.g., broken bones, serious cuts) or occurrences. In the event of a medical emergency:

1. Ensure the injured worker is in no immediate danger (e.g., lying face down in water).
2. Touch or move the injured employee ONLY if an immediate danger exists, and then only to alleviate the life-threatening situation.
3. After alleviating the life-threatening situation, send someone to contact the ambulance and notify the Office Manager/Supervisor.
4. The person initially finding the emergency should stay at the scene, unless no one else is available to call the ambulance.
5. Once the ambulance is contacted, the Office Manager/Supervisor shall designate someone to meet the ambulance at the entrance to the office site to direct the responders to the emergency.

D. ***Hazardous Chemical Spills/Releases:***

1. ***Small Spills*** - Spills or releases of hazardous chemicals in quantities that do not present an immediate risk to personnel can be corrected and cleaned up by the employee.

2. ***Large Spills*** - If the spill or release presents a hazard to either personnel or the environment, the immediate area shall be evacuated, and the Office Manager/Supervisor contacted. Do not attempt to remediate the spill/release unless you have received specific Spill Response Training. The Office Manager/Supervisor will contact the appropriate HAZMAT response team for stopping the leak and performing the cleanup.

E. ***Structural Collapse*** - In the event of the collapse of a structure, all personnel shall muster at the primary muster location to ensure no one is trapped in the collapsed building. If everyone is not accounted for, the Fire Department and ambulance service shall be contacted. The Office Manager/Supervisor shall designate someone to remain at the site entrance to direct emergency responders to the emergency site.

F. ***Bomb Threat:***

1. The receipt of a bomb threat at the office/project requires a quick assessment as to whether the threat is an actual warning, harassment, or a hoax, and to determine the appropriate call to action.
2. An advance provision will be made for the immediate communication of any bomb threat to the office.
3. Upon reaching a decision after consideration and assessment, the prearranged procedure is to be placed into action.
4. Clear-cut levels of authority will be established to minimize risk to persons and property. Particular characteristics and conditions existing at each location will require that each area develop specific emergency procedures.

6. Communications

Emergency alarm methods must be communicated to ensure all office employees are knowledgeable of protocol. When developing the alarm methods, consideration must also be given as to how the employees who hear/see the alarm respond. *For example, some offices sound a long, steady whistle to signify a fire, whereas two short alarm bursts, followed by a pause, followed by two short bursts, can signify that equipment shall be shut down and all personnel shall immediately proceed to the designated shelter(s).*

In addition, personnel must be able to contact outside emergency units as needed. Therefore, communications must be available at the storm shelters and muster points to allow for contact. Emergency numbers are posted at all phone systems.

The following communication systems are implemented at this location:

Tornado: _____

Lightning: _____

Flood: _____

Medical emergency: _____

Fire/Explosion/Bomb Threat: _____

Hazardous Material Spill/Release: _____

Structural Collapse: _____

Note: The emergency communications selected for the above situations can be the same for similar expected actions (i.e., tornado and lightning can have the same signal, since all require proceeding to the designated shelter, or seeking low points on the ground). Also, if the emergency is localized, and does not impact the entire office, verbal warnings are appropriate. Phones are found at the following locations:

_____

_____

_____

_____

In addition to the above communications associated with notifying personnel of an emergency, means of communicating during emergencies shall also be developed. *For example, if the primary evacuation route cannot be used, a means to notify employees to use secondary routes must be developed.* To accomplish this, specific people are designated on each floor to receive additional information on the nature of the emergency, and what evacuation routes can be used. These people will verbally communicate the information as necessary to ensure safe evacuation. If applicable, the following people are designated:

First Floor: _____

Second Floor: _____

Third Floor: _____

Fourth Floor: _____

Other (specify): _____

_____

_____

Attachment 2

FIRE PROTECTION PLAN
FOR

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1. Emergency Coordinator, Key Personnel and Emergency Numbers

Refer to the first page of the Emergency Action Plan.

2. List of Potential Fire Sources, Their Location, and Specific Fire Prevention Methods

Example:
Source/Location: Electrical circuits and an electrical heater are located in the break area.
Fire Prevention Method(s): Sufficient plugs are present so as not to overload the system. The electric heater is the type that automatically shuts off if it tips over. Papers, trash and other combustible materials are kept away from the electric heater. The electric heater is placed on insulated material to prevent contact with the combustible carpet. A Class 2A:10B:C extinguisher is located in the break area. The electrical wires and plugs are periodically checked to ensure they are not worn and frayed.

A.

B.

C.

D.

E.

F.

G.

H.

3. Fire Prevention

In addition to the specific prevention methods described for each fire source above, the following methods are also used:

Preventive maintenance for each piece of equipment is performed in accordance with manufacturer's directions.
Housekeeping is enforced to ensure combustible materials are not left near spark sources. Each work site is cleaned at the end of each work shift. At no times will material block emergency egress routes or exits. The Office Manager/Supervisor will inspect to ensure all egress routes remain clear.

Flammable materials are stored and used away from spark sources and are used in the minimum quantities needed. Flammable materials stored inside shall be placed in flammable storage cabinets specifically constructed for that purpose. The cabinet shall be labeled "Flammable-Keep Fire Away".
Potential fire sources are shut down when not in use.
Personnel are not allowed to smoke within 25 feet of flammable and combustible materials.
Signs will be posted as needed to alert personnel to the presence of flammable of combustible materials. The signs shall say "No Smoking or Open Flame".
Bonding and grounding systems are used when transferring flammable liquids between containers.
Flammable materials shall be stored only in approved containers (See SH&E 606, *Flammable & Combustible Materials*).

4. Fire Protection Systems

Fire extinguishers are located throughout the office where potential fire sources are located (See SH&E 508, *Fire Extinguishers*). The fire extinguishers are selected as follows:

Class A-for combustible materials
Class B- for flammable liquid, gas or grease
Class C- electrical equipment
Class D- combustible metal

Water shall be available for fire-fighting purposes. Hydrants shall be kept free of obstructions.

As required in the Emergency Action Plan, emergency egress routes and exits shall be established. When the means of egress is not obvious, directional signs and floor plans shall be used to show the means of egress. Emergency exits shall be conspicuously labeled, unlocked (e.g., panic bar), and visible during work hours.

5. Training

All personnel shall be trained in the provisions of this plan, and the fire prevention procedures to be used in the performance of their jobs. In addition, personnel assigned or authorized to operate portable fire extinguishers shall be trained initially, and annually thereafter, in the operation and use of the extinguishers, and the hazards involved in fire fighting.

6. Communications/Alarms

Refer to the Emergency Action Plan for required communication and alarm methods.

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 206 DATE March 25, 2005 REVISED January 18, 2006
Stop Work Authority	PREVIOUSLY CP 011

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

To establish the minimum requirements for the personnel assigned to Earth Tech projects to stop work if they believe there is an imminent SH&E risks as described below that will affect them or their co-workers.

2.0 SCOPE

This procedure applies in its entirety to all Earth Tech related office, projects and operations and affiliated personnel.unless a variance from its requirements is granted by the SH&E Department.

3.0 DEFINITIONS

Discrepancy/Deficiency: An omission or commission, a condition, or a situation that is in conflict with the procedures, standards, and the requirements of safety and health standards.

Imminent Danger: An impending or threatening situation, which, if left uncorrected, is likely to result in serious injury/property damage.

Potentially Dangerous: Minor violations that present a low potential for serious injury/property damage.

Stop Work Order: A directive to cease work issued for failure to follow procedures, imminent danger situations/conditions, accumulation of safety violations, etc.

4.0 PROCEDURE

4.1 Authority

Earth Tech's stop-work authority applies to all work locations, employees and subcontractorsto be performed at its project sites. All personnel assigned to Earth Tech personnel sites are authorized to stop work if there is an identified unsafe condition. If the responsible organization fails to provide resolution or if at any time their acts, or failure to act, cause substantial harm or imminent danger to health and safety of project employees or the public or the environment, Earth Tech may issue an order stopping work in whole or in part. Any stop work order issued by Earth Tech under this clause will be without prejudice to any other legal or contractual rights of

Earth Tech. In the event that Earth Tech issues a stop work order, an order issued by Earth Tech authorizing the resumption of work must be in place prior to restarting work. The responsible organization will not be entitled to an extension of time or additional fee or damages by reason of, or in connection with, any work stoppage ordered in accordance with this clause.

In most cases, a stop-work order affects only those areas immediately involved in the hazardous situation. Earth Tech may issue a stop-work order for a portion of the work area(s) or an entire work area when, in its opinion, the work area or work practices are not managed or maintained according to SH&E submittals reviewed and accepted by Earth Tech. The stop work order will remain in effect until the responsible organization resolves the problem(s) and brings the work area(s) to satisfactory conformance with established SH&E requirements. Work will not resume until appropriate corrective actions have been completed, ensuring that the condition has been corrected.

4.2 Severity of Hazards

4.2.1 Imminent Danger Situations

Any employee (not only members of SH&E organizations) may stop activities imminently dangerous to workers or the public. "Stopping work" includes stabilizing an imminent danger situation to the extent that it can be left unattended for a prolonged period of time until the issue is resolved. The person requesting the work stoppage will notify the organization responsible for the work. The responsible organization will notify Earth Tech immediately of any "stop work" action(s). Personnel performing the work who disagree with the work stoppage will not refuse to stop work, but are advised to contact their management. Failure to comply with any Stop Work Order, in whole or in part, will result in immediate dismissal from the project.

4.2.2 Potentially Dangerous Situations

Informal stop work interventions to correct minor conditions (e.g., to remind workers to put on their hard hats, safety glasses, etc.) do not require formal notification.

4.3 Documentation

Where formal stop work actions are warranted, The District Manager, Section Manager, PM, and/or SH&E Department Department and the PM or theirhis authorized representative will result in issue a formal stop-work order in the following situations:

- Imminent danger exists involving the public or employees' safety and health, the environment, facilities, or property.
- Continuing work or equipment usage will result in significant repair, rework, or removal.
- A project, or any segment of the project, is executed improperly or is out of compliance.

Documentation of stop work actions will be provided to the affected organization. Additional requirements associated with Corrective Action Request FormRequest Form (SH&E 104- See Audits, Inspections, and Corrective Actions - Attachment 2 - Corrective Action Request Form) will also be met.

4.4 Resuming Work

Work associated with the affected area or operation will not resume unless all corrective actions identified in the applicable stop work order or corrective action request (CAR) have been completed and closed.

In accordance with SH&E 202 – Safety Meetings, all personnel affected by the stop work order and its associated CARs will be instructed on the corrective actions and preventative measures taken.

5.0 RECORDS

The completed stop work order and any CARs generated as a result of it will be maintained at the project site. Supporting documentation will be transmitted to and retained by the PM.

6.0 ATTACHMENTS

Attachment 1 – Stop Work Order

7.0 REFERENCES

SH&E 104– Inspections, Audits, and Corrective Actions
SH&E 202 – Safety Meetings

Stop Work Order

EarthTech
A Tyco International Ltd. Company

This Form must be completed if any of the Following Criteria are met per SH&E 206 – Stop Work Order:

1. Imminent danger exists involving the public or employees' safety and health, the environment, facilities, or property.
2. Continuing work or equipment usage will result in significant repair, rework, or removal.
3. A project, or any segment of the project, is executed improperly or is out of compliance.

Project Information		
Project Name:	**Project No:**	**Date:**
Project Manager:		**Time:**
Reported By:		
Stop Work Order is the result of the following:		
☐ **Inspection/Audit:**	☐ **Environmental Release**	☐ **Injury/Incident:**
☐ **Unsafe Condition(s)**	☐ **Unsafe Behavior**	☐ **Improper Scope of Work**
☐ **Other Safety Concern/Issue:**		
Summary of Stop Work Order (Describe)		

Return to Work

The above Stop Work Order issues / concerns have been corrected and documented with the accompanying Corrective Action Request Form (CAR). By signing below, I certify that the above Stop Work scenario was corrected and work is safe to resume.

Title:	Print Name:	Signature:
Project Manager:		
Party Issuing Stop Work Order:		
Sub-Contractor Supervisor: **(If Applicable)**		

*****All Stop Work Orders will be sent to the SH&E Department for review*****

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 207 DATE March 25, 2005 REVISED January 12, 2006
Contractor and Subcontractor SH&E Requirements	PREVIOUSLY ENV 104

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

This procedure has been developed to assist the Earth Tech Project Manager (PM) and the Procurement Department with the evaluation of potential subcontractors' SH&E performance and commitment. Prior to entering into a contractual arrangement with an organization, it is Earth Tech's intent to ensure the organization meets the Safety, Health and Environmental standards established by Earth Tech. Only safe and qualified subcontractors will be contracted for work on Earth Tech projects.

2.0 RESPONSIBILITIES

2.1 Procurement Department

The Procurement Department is responsible for:

- Maintaining the database where all subcontractor SH&E performance data is maintained
- Entering subcontractor's SH&E performance data into the database
- Communicating changes in the operation or function of the database to the SH&E Department

2.2 Safety, Health, & Environmental Department

The SH&E Department is responsible for:

- Updating the *Subcontractor Safety Criteria Questionnaire*, *Subcontractor Safety Criteria Questionnaire Scoring Key*, and communicating those changes to Earth Tech
- Evaluating the Subcontractor Safety Criteria Questionnaire, as required
- Supporting operations in the completion of client/potential-client safety questionnaires

2.3 Project Managers

Project Managers are responsible for that all subcontractor organizations scoped to perform field-activities either for or in support of Earth Tech operations has been properly qualified for SH&E. This includes:

- Ensuring that the requirements identified in Section 3.0 are completed for all organizations subcontracted to perform field-based activities for Earth Tech
- Providing a copy of the completed *Subcontractor Safety Criteria Questionnaire* to the Procurement Department for upload into their database (Attachment 1)
- Verifying a contract company's minimum level of insurance coverage as stipulated by Earth Tech's Legal and Procurement Departments (Workers' Compensation, Auto Insurance, General Liability, etc.).

3.0 SUBCONTRACTOR SELECTION REQUIREMENTS

For all subcontractor organizations used to provide non-administrative activities at Earth Tech work sites, the selection process will include consideration of the candidate firms' SH&E management and performance indicators. This will be accomplished using a subcontractor instruction and evaluation process that includes the following requirements:

- All *Purchase Requisition* forms (or similar purchasing documents) related to the procurement of subcontractors for performance of field-based activities must be approved by the SH&E Department before execution. Any associated solicitation documents provided to bidders (e.g., scope of work, specification, Master Service Agreement, teaming agreement, etc.) will include an SH&E Department-approved section stating the SH&E information and performance requirements applicable to the subcontractor's work, including:
    - Subcontract specifications must state that the subcontractor is solely responsible for all non-operational costs associated with SH&E compliance (e.g., employee medical monitoring procedures, personal protective equipment, etc.), and
    - that any cost or schedule impacts resulting from a subcontractors' non-compliance with applicable Safety and Health regulations or Earth Tech operational procedures are the responsibility of that subcontractor.
- Except where waived by the SH&E Department, subcontractor bids/submittals must include a completed *Subcontractor Safety Criteria Questionnaire* form (available on the Earth Tech Intranet at http://corp/healthsafety/hsforms.htm). Each questionnaire will be evaluated by the PM or Procurement Department Subcontract's Administrator, and the SH&E Department as necessary, during the subcontractor selection process to identify any organizations whose past SH&E performance may disqualify them from selection.
- Selected subcontractor firms are required to provide copies of any SH&E documentation (e.g., operational safety procedures, employee training/medical monitoring certifications) to the Project Manager prior to the start of their on-site operations.
- The evaluation of a subcontractor's SH&E performance will be measured against the *Subcontractor Safety Criteria Questionnaire Scoring Key* (See Attachment 2).The criteria used to evaluate a contractor is based on federal OSHA, United States Bureau of Labor Statistics (BLS), and United States insurance data. Offshore locations should replace benchmark data with comparable meaningful data used in that country.
- Although the questionnaire is to be used as a guideline to determine whether a bidder's safety and health record is acceptable, there are no simple pass/fail criteria. The guidance outlines the standards Earth Tech's SH&E Department has established to reflect performance acceptability. Marginal performance (e.g., Score is determined to be Weak (2)) will require evaluation for final approval of a subcontractor by the SH&E Department.

4.0 SUBCONTRACTOR SH&E REQUIREMENTS

Subcontractor organizations are responsible for safely performing their assigned work activities in accordance with all applicable federal and state occupational safety and health regulations. Subcontractors will also be provided with Earth Tech's project-specific SH&E documentation for the specification of minimum acceptable on-site SH&E performance. If at any time the subcontractor obtains the services of a subcontractor, consultant, or second tier subcontractor for any portion of the work to be performed, a copy of the Statement of Work and the approved project-specific SH&E documentation shall be provided as part of the package submitted to each respective subcontractor, consultant, or second tier subcontractor. The subcontractor shall submit in writing, prior to the start of work, the names of any second-tier subcontractors that may be used in the project for approval by Earth Tech. Subcontractors are responsible for ensuring that their employees are provided the appropriate equipment, training, and medical surveillance to perform the work safely.

Prior to starting fieldwork, each subcontractor organization shall provide Earth Tech with at least one of the following for review and acceptance:

- Site-specific SH&E documentation addressing specific performance requirements for the subcontractor's on-site work activities; or
- A written statement of adoption of the provisions in Earth Tech's project SH&E documentation as the subcontractor's own procedures while working on the job site. This documentation must be in letter format (company letterhead), and must include the following information:
    - Site location.
    - Anticipated scope of work activities to be performed by the subcontractor.
    - Name of the subcontractor's Site Safety Officer, with contact phone numbers.
    - Name of the subcontractor's Health and Safety Manager (HSM), with contact phone numbers.
    - Statement adopting the Earth Tech project SH&E documentation as the subcontractor's own requirements for the project.
    - Statement requiring that only qualified and trained personnel (to the level of assigned responsibilities) will perform assigned work activities on the site.
    - Designation of required personal protective equipment (PPE) anticipated for the subcontractor's assigned work activities.
    - Copies of supplemental or additional subcontractor-specific provisions, policies, procedures and/or protocols that will be implemented by the subcontractor during site activities.

5.0 ATTACHMENTS

Attachment 1 – Subcontractor Safety Criteria Questionnaire
Attachment 2 – Subcontractor Safety Criteria Questionnaire Scoring Key

Instructions to Contractor/Subcontractor/Organization Completing the Earth Tech Subcontractor Safety Criteria Questionnaire

1. Complete the administrative information related to your organization (*Company name, address, etc.*)
2. List the service(s) to be performed for Earth Tech by your organization. Examples include (*but are not limited to*):
   a. Subsurface drilling
   b. Excavation operations
   c. Surveying
   d. Construction/renovation/clean-construction operations
   e. Demolition
   f. Well abandonment
   g. Electrical system installation
3. List the Experience Modification Rate (EMR) for your organization (entire company, not a local office, division, subsidiary, joint venture) from the past three years. This information can be obtained from your organization's Worker's Compensation Insurance Carrier. If your organization's EMR is greater than **1.10**, an explanation must be provided in the appropriate space provided. NOTE: *EMR is separate from the Experience Modification Factor (EMF) also provided by your Worker Compensation Insurance Carrier. EMR is a whole number, while EMF is a percentage.*
4. Provide the applicable injury and illness data for your organization from the past three years in the table provided. Using the formulas included in the table, calculate the requested Recordable Case Frequency Rate (e.g., Recordable Incident Rate or RIR). If your company has less than 10 employees, you are not required to maintain this information according to Title 29 of the Code of Federal Regulations (CFR) Part 1904, Section 1, Subsection (a)(1) [29 CFR 1904.1(a)(1)]; however, if your organization does have less than 10 employees, Earth Tech still requires that you provide the information for rows d) *Total Recordable Cases* and e) *Total Corporate Hours Worked.*
5. List any fatalities your organization has incurred during the past three years and for each occurrence please provide the following information (*Supplemental material may be attached to this questionnaire*):
   a. Location where the fatality occurred
   b. Cause of the fatality
   c. What corrective action(s) your organization has taken as a result of the fatality
6. List and describe any REPEAT, WILLFUL, or CRIMINAL citations issued to your organization by the U.S. Occupational Safety and Health Administration (OSHA) or a State with a federally-approved OSHA Plan (*Supplemental information related to the specific citation(s) may be attached to the questionnaire*). The list of States with a federally approved OSHA Plan is available at http://www.osha.gov/fso/osp/index.html.
7. After reading the Compliance Statement on page 3, list the name and phone number of the representative from your organization who completed the questionnaire, sign the questionnaire, and write in the date the questionnaire was completed. By signing the questionnaire, the representative states that they have truthfully answered all questions, that all of the information provided is accurate, and that if selected by Earth Tech, your organization shall adhere to the requirements identified in the Compliance Statement.

Should your organization have any questions regarding this questionnaire, please contact your Earth Tech Point-of-Contact or one of the following:

Tom Atwood	(719) 473-5252	Bob Poll, CIH, CSP	(518) 951-2242
Patrick Timbes	(303) 804-2359	Ron Partilla, CSP	(843) 572-5600
James Overly	(562) 951-2106	Dale Prokopchak, CIH, CSP	(804) 515-8556
Lisa Stone	(864) 234-3298	Bart Dawson, CIH	(210) 271-0925
Deanna Jew	(562) 951-2017	Chad Ross, ASP	(859) 442-2300
Amy Harrington	(713) 706-0532	Joe Bermudez, CSP	(562) 951-2242

Company Name:	Date:
Address:	
City:	State:
List Service(s) to be provided:	

1. Experience Modification Rates

   a) List your firm's Experience Modification Rate (EMR) for the three (3) most recent years. (*Information is available from your Workers' Compensation Insurance Carrier*)

Year	Interstate

   b) If your organization does not have an EMR or your EMR is greater than 1.10, please explain why.

_____

_____

2. Please consolidate your firm's OSHA Form 300 injury and illness data for the last three (3) years and complete the following:

	Data	Year	Year	Year
a)	Number of Lost Workday Cases (not days lost)			
b)	Number of Restricted Workday Cases (not restricted days)			
c)	Number of Medical Treatment Cases* (not including first aid)			
d)	Total Recordable Cases (a + b + c)			
e)	Total Corporate Hours Worked (hourly and salaried employees)			
f)	Recordable Case Frequency Rate (RCFR) ([d x 200,000] / e)			

*__Medical Treatment Case__ is a case in which an on-the-job injury requires *other* than first aid treatment (and is not considered a restricted or lost workday) as defined by the U.S. Bureau of Labor Statistics recordability criteria (i.e., prescribed medication, physical therapy - more than one visit, fractures, imbedded foreign body, etc.). First aid injury treatment cases are *not* required to be added to the OSHA Form 300 log.

   a) Does your organization have fewer than 10 employees? ☐ Yes ☐ No

   Note: If you check Yes, you are required to only complete rows d) and e) in the above table.

3. List any fatalities your firm has had in the last three (3) years. Include location, cause, and corrective actions. (*Attach supplemental information as required*)

_____

_____

4. List any OSHA *REPEAT*, *WILLFUL*, or *CRIMINAL* citations your firm has had in the last three (3) years. Please describe. (*Attach supplemental information as required*)

_____

_____

Compliance Statement:
As a Contractor/Subcontractor to Earth Tech, it is understood that your organization understands and maintains the highest standards possible for compliance with all state, federal, and other regulatory agency/client requirements, as they apply to your organization. Additionally, it is also understood that any subcontractors that your organization may employ, acquire, obtain, or use during the course of your contractual agreement(s) with Earth Tech are selected using the same methods and policies which you enforce upon your own organization, employees, and other affiliated organizations and subcontractors.

I certify that my organization, its personnel, and subcontractors will not compromise the integrity of safety systems or devices at any time without proper authorization from Earth Tech. At no time will employees or subcontractor personnel willfully violate any state or federally mandated regulatory requirements.

Completed by (Print):	Completed by (Signature):
Phone Number:	Date Completed:

Procurement/Safety/Management Use Only

Evaluated by:	Evaluated by (Signature):	Employee No.:	Date:

EMR Rating	Incident Rating	OSHA Comp. Rating	OVERALL RATING*

*The lowest of the three individual criteria ratings.

Evaluator Note: If the organization checked YES to 2.a), they only need to provide the applicable data for rows d) and e) in the table in Section 2, and the evaluator will calculate the RCFRs by applying the formula found in row f). the organization checked NO, then they must provide **all** requested data to be considered compliant.

Revision 1
November 2005

Subcontractor Safety Criteria Questionnaire Scoring Key

EMR[1]	Incident Rate (RCFR)[2]	OSHA Compliance	Scores and Ratings	
< 1.1	< 5.0	No *REPEAT*, *WILLFUL*, or *CRIMINAL* citations	**3**	***Acceptable*** - Meets Earth Tech requirements.
1.1 - 1.5	5.0 – 7.5	1 *REPEAT*, *WILLFUL*, or *CRIMINAL* citation	**2**	***Weak*** - Acceptable only with concurrence from the Safety Dept.
> 1.5	> 7.5	2 or more *REPEAT*, *WILLFUL*, or *CRIMINAL* citations	**1**	***Not Recommended*** - Not recommended that the company receive subcontracts at this time.
No data	No Data[3]	No Data	**0**	***Non-responsive*** - Cannot receive subcontracts at this time.

[1] – Use the greater of: (a) The most current year, or (b) The 3-year average value.
[2] – If there are any job-related fatalities in the last 3 years then the highest possible score is 2, regardless of reported RCFR.
[3] – If Question 2.a) is checked **YES** then the RCFR must be calculated by the evaluator using the formula found in row f) and the information reported in rows d) and e). If this data is not supplied to Earth Tech, then the score is 0.

Revision 2
November 2005

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 208 DATE March 25, 2005 REVISED January 18, 2006
General Housekeeping/Accountability	PREVIOUSLY NEW

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

This procedure outlines the personal hygiene, work site sanitation, and work site housekeeping requirements for Earth Tech's operations and projects.

2.0 SCOPE

This procedure applies in its entirety to all Earth Tech projects and operations unless a variance from its requirements is granted by the SH&E Department.

3.0 PROCEDURE

3.1 Personal Hygiene

3.1.1 Smoking, Eating and Drinking

Eating and drinking will be permitted only in designated areas at Earth Tech project sites. Smoking will be permitted only in areas designated by Field Supervision and situated in locations that are not in the immediate vicinity of activities associated with work site activities. Additionally, Field Supervision will designate each smoking area giving primary consideration to those personnel who do not smoke.

Personnel actively involved in the performance of certain activities will not be permitted to smoke, eat, drink, or use smokeless tobacco, except during breaks (e.g., HAZWOPER Controlled work areas).

Site personnel will first wash hands and face after completing work activities and prior to eating or drinking.

3.1.2 Water Supply

Water supplies will be available for use on site and will comply with the following requirements:

Potable Water

An adequate supply of drinking water will be available for site personnel consumption. Potable water can be provided in the form of approved well or city water, bottled, or drinking fountains. Where drinking fountains are not available, individual use cups will be provided as well as

adequate disposal containers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

Non-Potable Water

Non-potable water may be used for hand washing and cleaning activities. Non-potable water will not be used for drinking purposes. All containers/supplies of non-potable water used will be properly identified/labeled as such.

3.1.3 Toilet Facilities

Toilet facilities will be available for site personnel and visitors. Should subcontractor personnel be located on-site for extended periods, it may become necessary to obtain temporary toilet facilities. Exceptions to this requirement will apply to mobile crews where work activities and locations permit transportation to nearby toilet facilities.

A minimum of one toilet will be provided for every 20 site personnel, with separate toilets maintained for each sex, except where there are less than five total personnel on site. For mobile crews where work activities and locations permit transportation to nearby toilet facilities (e.g., gas station, or rest stop), on site facilities are not required

3.1.4 Washing Facilities

Hand and Face

Site personnel will wash hands and face after completing work activities and prior to breaks, lunch, or completion of workday.

Personal Cleaning Supplies

Cleaning supplies at Earth Tech project sites will consist of soap, water, and disposable paper towels or items of equal use/application (e.g., anti-bacterial gels, wipes, etc.).

3.1.5 Clothing and Personal Protective Equipment

All personal protective equipment will be kept clean at all times and maintained in accordance with the manufacturer's requirements.

3.2 Sanitation

3.2.1 General Work Areas

At all times work areas will be kept free of dirt and debris that may impact the safety of site personnel and visitors. All trash receptacles will be routinely emptied.

3.2.2 Break Areas and Lunchrooms

Site personnel will observe the following requirements when using break areas and lunchrooms at Earth Tech project sites:

- All food and drink items will be properly stored when not in use.
- Food items will not be stored in personal lockers for extended periods in order to prevent the potential for vermin infestation.
- All waste food containers will be discarded in trash receptacles.

- All tables, chairs, counters, sinks, and similar surfaces will be kept clean and free of dirt, waste food, and food containers at all times.
- Refrigerators used to store food items will be emptied of all unclaimed food items weekly.
- Routine cleaning of refrigerators will also be performed on a regular basis.

3.3 Housekeeping

- All work areas shall be kept clean to the extent that the nature of the work allows.
- Every work area shall be maintained, so far as practicable, in a dry condition. Where wet processes are used, drainage shall be maintained and platforms, mats, or other dry standing places shall be provided, where practicable, or appropriate waterproof footgear shall be provided.
- Hazards from protruding objects or placement of materials on paths or foot traffic areas present a problem with regard to slips, trips, falls, and puncture wounds. Personnel will use a reasonable amount of effort to keep slip, trip and fall hazards to a minimum.
- Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal.
- At no time will debris or trash be intermingled with waste PPE or contaminated materials.

3.4 Additional Requirements

The PM will ensure that weekly evaluations of work area cleanliness and sanitation are performed and documented as part of their weekly self-inspections in accordance with the Earth Tech Weekly Housekeeping Checklist. Based on project-specific activities associated with the asset removal process, additional safety precautions may be required.

4.0 ATTACHMENTS

Attachment 1 - Weekly Housekeeping Checklist

5.0 REFERENCES

- SH&E 201 –General Safety Rules

EARTH TECH WEEKLY HOUSEKEEPING, HYGIENE & SANITATION CHECKLIST

Inspector Name (please print): _____ Date: _____
Inspector signature: _____
Company name: _____
Area Inspected: _____
Supervisor signature:

Item	Inspection Question	Yes	No	NA	Correct By:
1.	Are there adequate toilet and washing facilities?				
2.	Is potable water provided for all employees?				
3.	Are non-potable water sources labeled?				
4.	Is smoking/eating/drinking permitted only in designated areas?				
5.	Is designated PPE worn while handling impacted materials?				
6.	Are decontamination washes and rinses changed out daily?				
7.	Is trash/PPE placed into appropriate receptacles				
8.	Are trash receptacles routinely emptied?				
9.	Is smoking prohibited in flammable storage areas?				
10.	Are proper receptacles available for storage of flammables?				
11.	Are flammables and combustibles stored in non-smoking areas?				
12.	Are oxygen and fuel gas cylinders stored upright and secured?				
13.	Are oxygen and fuel gas cylinders stored a minimum of 20 feet apart?				
14.	Are materials stacked and stored as to prevent sliding or collapsing?				
15.	Are materials and supplies stored outside of designated paths of travel?				
16.	Are areas of foot and vehicle traffic clear of debris?				
17.	Are tripping hazards labeled or marked?				
18.	Are electrical / extension cords kept out of wet areas?				
19.	Is trash picked up and placed into appropriate receptacles at the end of each shift?				
20.	Are area personnel using designated paths of travel?				
21.	Are aisles and walkways marked as appropriate?				
22.	Are holes in the floor, sidewalks, or other walking surface repaired properly, covered or otherwise made safe?				
23.	Are aisles or walkways that pass near moving or operating machinery, welding operations or similar operations arranged so employees will not be subjected to potential hazards?				
24.	Are work surfaces kept dry or is appropriate means taken to assure the surfaces are slip-resistant?				
25.	Are all spilled hazardous materials or liquids, including blood and other potentially infectious materials, cleaned up immediately and according to proper procedures?				

Additional Comments:

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 403 DATE March 11, 2005 REVISED June 30, 2006
Drilling	PREVIOUSLY ENV 521

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

All drilling operations must conform to the procedures outlined below. Drilling operations include, but are not limited to, rotary, hollow-stem, and direct-push drilling.

2.0 GENERAL SAFETY GUIDELINES

- Use common sense, while maintaining a "safety-first" attitude at all times.
- Know the location of underground and overhead utilities.
- Use required personal protective equipment (PPE); do not wear loose-fitting clothing or jewelry. Keep hair tied back and tucked into hardhat.
- Do not touch or go near moving parts.
- Be aware of the location of "Emergency Shut Off" switches.
- Be aware of potential contaminants. Always wear required PPE and follow appropriate decontamination procedures.
- In the event of an accident, allow properly equipped and protected personnel to respond. Immediately leave the area.
- Do not smoke or use spark-producing equipment around drilling operations.
- No food will be consumed or stored in the work area.
- Do not work around a drill rig during a thunderstorm or rain.
- Maintain orderly housekeeping on and around the drill rig. Store tools, materials, and supplies to allow safe handling by drill crewmembers. Proper storage on racks or sills will prevent spreading, rolling, or sliding. Avoid storage or transportation of tools, materials, or supplies within or on the drill rig derrick.
- Maintain working surfaces free of obstructions or potentially hazardous substances.
- Store gasoline only in containers specifically designed or approved for such use.
- Fire fighting equipment should not be tampered with and should not be removed for other than the intended fire fighting purposes or for servicing.
- The departing driller should inform the oncoming driller of any special hazards or ongoing work that may affect the safety of the crew.

- Rigging material equipment for material handling should be checked prior to use on each shift and as often as necessary to ensure it is safe. Defective rigging should be removed from service.
- Work areas and walkways should not be obstructed. The area around the derrick ladder should be kept clear to provide unimpeded access to the ladder. The rotary table of the rig floor shall be kept free of obstructions and free of undue accumulation of oil, water, ice, or circulating fluids.
- Passengers shall only be allowed in vehicles designed for passenger use. Do not ride on the outside of drill rigs, trailers, or other equipment.

3.0 PRE-OPERATIONAL PROCEDURES

The following procedures shall be take place prior to performing drilling operations.

3.1 Utility Clearance

Earth Tech and/or its subcontractors will determine the location of all underground/overhead utilities before drilling operations take place. Project management shall contact the One-Call Center for the state in which drilling is to be performed to obtain written clearance. For drilling operations outside of the United States, contact the local utility companies for clearance. For areas that are not covered by One-Call Centers or local utility companies (i.e., client specific utilities), clearance must be obtained from the client. In addition to obtaining utility clearances, the appropriate party will make a utility survey of each drilling point. The utility survey shall include both magnetometer and ground-penetrating radar survey. Documentation that nearby utilities have been marked on the ground and that the drill site has been cleared shall be kept in the project trailer/support vehicle and communicated to the drilling subcontractor. All utilities shall be identified on a job hazard analysis and communicated to all drilling and drill support personnel.

3.2 Drill Rig Inspection

Prior to the start of site work each day, the drilling subcontractor will inspect all drilling equipment. The inspection will be documented in the field records, and the records will be maintained at the site. If the drill rig owner or operator does not have a company-specific inspection form, use or reference the attached "Drill Rig Safety Inspection Checklist" form. The drilling equipment inspection must be repeated on a daily basis. Defective equipment shall be repaired prior to use.

3.3 Maintenance

The following are minimum specifications for performing maintenance on drilling equipment:

- Safety glasses shall be worn, at a minimum, when performing maintenance on a drill rig or on the drilling tools.
- Follow all manufacturers' recommendations for maintenance on drilling equipment.
- The drill rig engine shall be shut down before making repairs or adjustments to a drill rig or lubricating fittings (except repairs or adjustments that can only be made with the engine running). The operator shall remove keys and tag out the ignition. All systems (i.e., drill rotor, engine, pressurized lines, etc.) shall be at a "zero energy state" before performing maintenance.
- The leveling jacks shall be lowered, the wheels chocked, and the hand/parking brakes set before working under a drill rig.

4.0 OPERATING PROCEDURES

The following procedures shall be recognized during the operation of drilling equipment.

4.1 Moving Drilling Equipment

- Lower drilling mast before moving rig.
- Secure all loads to rig prior to off-road mobilization.
- Inspect the route of travel prior to moving the drill rig off-road. Be aware of holes, rocks, trees, erosion, and uneven surfaces.
- Remove all passengers from the cab before moving drill rig onto rough or sloped terrain.
- Engage multiple drive power trains (when available) on rig vehicle when mobilizing off-road.
- Travel directly up or down grade on slopes when feasible. Avoid off-camber traverse approaches to drill sites.
- Approach changes in grade squarely to avoid shifting loads or unexpected unweighting.
- Use a spotter (person at grade) to provide guidance when vertical and lateral clearance is questionable.
- Use parking brake and chock wheels when grades are steep.

4.2 Raising The Derrick (Mast)

- Locate visually, overhead utilities prior to raising the mast.
- Treat overhead electrical lines as if they were energized and maintain at least a 40-foot clearance.
- Earth Tech will contact appropriate utilities agency to manipulate and deactivate overhead service in areas that interfere with drilling operations. Do not attempt to handle utilities.
- Stabilize and level each work site prior to drill rig setup. Do not drill on slopes near powerlines, including drainage ditches, trenches, excavations, and other holes. Drill rig could tip over, resulting in contact with power lines.
- The derrick must not be raised until the rig has been blocked, leveled (leveling jacks down), and chocked.
- Secure and lock mast according to manufacturer's recommendations prior to drilling.
- If required to perform work on the mast at heights above six feet, a full body safety harness and lanyard shall be worn accordingly.
- Note wind speed and direction to prevent overhead utility lines from contacting rig derrick. Allow at least a 40-foot clearance between rig mast and utility lines, unless authorized by the SH&E department to operate at a shorter clearance distance.

4.3 Drilling

- If Earth Tech personnel perform drilling (i.e., direct push, Geoprobe®), follow the manufacturer's operational or field manual's safety guidelines/specifications.
- Only authorized and trained drill rig operators shall operate a drill rig. Drill rigs shall be setup and operated according to manufacturer's specifications.
- Set up and delineate appropriate work zones. This may include an exclusion zone, contamination-reduction zone, and a support zone. When feasible, work zones shall be cleared of obstructions and leveled to provide a safe working area.

- Establish a communication system between driller, helpers, and other field support personnel for responsibilities during drilling operations.
- All personnel shall be instructed to "stand clear" prior to and during startup. Personnel shall stay as far away as possible from operating equipment, especially if rig is located on unstable terrain (drilling operations shall not proceed on unstable ground).
- Begin auger borings slowly with the drive engine operating at low speed.
- Keep hands and feet clear of rotating augers and direct push equipment.
- Prevent placing hands or feet under auger sections during hoisting over hard surfaces.
- Avoid the removal of spoil cuttings with hands or feet.
- Assure drill rig is in neutral and the augers are not rotating before cleaning augers.
- Wear hearing protection as required.

4.4 Subcontractor Guidelines

Subcontractors shall discuss company-specific standard operating procedures (SOPs) for health and safety with Earth Tech field supervisors prior to the start of drilling operations. Subcontractor SOPs may include procedures for hoisting operations, cat line operations, pipe handling, derrick operations, making and breaking joints, etc.

5.0 ATTACHMENT

Attachment 1 - Drill Rig Safety Inspection Checklist

6.0 REFERENCES

SH&E 112 – Respiratory Protection Program

SH&E 113 – Personal Protective Equipment

SH&E 301 – Hazardous Waste Operations (HAZWOPER)

SH&E 310 – Overhead Electrical Lines

SH&E 604 – Decontamination

Drill Rig Inspection Checklist

Date	Equipment Model/Type:
Project Name:	Serial or License #
Project #	Location Owner/Operator:
Project Manger:	Inspector:

Place a (✓) in the "Yes" column if the requirement has been met. If a "No" is encountered, equipment must be removed from operation until the deficiency has been corrected. Describe deficiencies on page two of this form. Use the Comment column to note any additional information needed to certify the equipment. If a checklist item is found to be "Not Applicable," check "NA" and provide a comment in the appropriate box.

Item Name	Requirement	Yes	No	NA	Comment
Hydraulic systems controls and levers	No leak fittings or connections. Levers are in good operating condition. Fluid levels are full.				
Fuel, oil, water, and coolant lines	No leaks.				
Hoses	No leaks in hoses or connections. No signs of excessive wear, kinked or bent hoses.				
Gauges	Operational and visible to operator.				
Emergency kill switch and life line	Operational and accessible to operator.				
Shear pins	In place.				
Drive chains	No signs of excessive wear, broken or defective links.				
Parking brakes	Set and operational.				
Outriggers	No leaks. Set on pads (as necessary to avoid damage).				
Windshield Wipers	Operational.				
Lights (head, tail and running lights)	Operational and without cracked lenses.				
Back-up alarm	Operational, spotter used.				
Cables and ropes	No fraying, birdnesting, flattening, stretching. Must be braided or properly clamped at connections.				
Pulleys, drums and spools	No excessive wear or cracking.				
Derrick/Mast	Locked in position. Frame is not cracked or bent.				
Hoists	Properly spooled cable, rated to lift loads.				

Item Name	Requirement	Yes	No	NA	Comment
Safety equipment	Safety harness, fire extinguisher, flares, safety reflectors, first aid kit, grounding wire for fueling, and spill response equipment (for fueling and repairs).				
Guards	Power take-offs (PTOs) and all rotating parts designed with guards. Guards must have warning labels.				
Miscellaneous (as applicable)	Diverter systems; auger and head seals; cyclones; grout plant guards; etc. (list): • • •				

DEFICIENCIES (Explain all negative response and list corrective actions; all deficiencies must be corrected before the rig is entered into service):

1.
2.
3.
4.
5.

Other Repairs, Routine Maintenance and/or Comments:

Inspection Conducted and Certified by:

	Print Name:	Signature	Date:
Owner / Operator			

Checklist Reviewed by:

	Print Name:	Signature	Date:
Earth Tech PM or SSO			

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 404 DATE March 11, 2005 REVISED
Manual Lifting	PREVIOUSLY ENV 501

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

Earth Tech personnel will observe the procedures below when performing manual handling in excess of 10 pounds. No person shall lift more than 49 pounds without the use of mechanical aid or assistance from other personnel.

2.0 INTRODUCTION

Manual materials handling (MMH) means moving or handling things by lifting, lowering, pushing, pulling, carrying, holding, or restraining. Improper MMH can result in cuts, pinches, crushing, and serious back, abdomen, arm, and leg muscle and joint injury. Even "light" objects, lifted improperly, can contribute to injury, causing cuts and muscle injuries.

The level of hazard associated with MMH work depends on what is being handled, what the task is, and what the conditions are at the workplace. Specific considerations include:

- Is the load too heavy for the task that you are doing?
- Is the load located too high or low for a safe lift?
- Is the load too big or may have a shape that makes it difficult to handle?
- Is the load wet, slippery, or have sharp edges that make it difficult to grasp?
- Is the load unstable or can shift its center of gravity because contains items that can move or flow (e.g., a partially filled drum or concrete in a wheelbarrow)?
- Is the load too big to let you see where you are putting your feet?

The task can make MMH hazardous if a worker:

- Uses poor lifting techniques (lifting too fast, too often or too long; lifting with back bent or while twisting or reaching too far; lifting while sitting or kneeling, etc.),
- Has to move material over long distances,
- Will not take appropriate rest breaks; insufficient recovery time, and
- Performs a combination of different handling tasks together (e.g. lifting, carrying and lowering).

The site conditions can also contribute to hazards of MMH if:

- Walking surfaces are uneven, sloping, wet, icy, slippery, unsteady, etc.
- There are differences in floor levels or walking surfaces.
- There is poor housekeeping that causes slip, trip and fall hazards.
- There is inadequate lighting.
- Work is performed at a fast pace.
- Movement is restricted because of clothing or personal protective equipment, or because the space is small or posture is constrained.

3.0 GENERAL REQUIREMENTS

Mechanical equipment or assistance such as dollies, carts, come-alongs, or rollers are to be used whenever possible. Mechanical assistance must be of proper size, have wheels sized for the terrain, and be designed to prevent pinching or undue stress on wrists. Objects to be moved must be secured to prevent falling and properly balanced to prevent tipping.

The following guidance will be observed:

- Before performing the lift:
    - Check to see if mechanical aids such as hoists, lift trucks dollies or wheelbarrows are available.
    - Be sure that you can lift the load without over-exertion, and get help with heavy or awkward loads. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
    - Be sure that the load is "free" to move.
    - Check that the planned location of the load is free of obstacles and debris.
    - Be sure that the path to the planned location of the load is clear. Grease, oil, water, litter and debris can cause slips and falls.
    - Particular handling and lifting techniques are needed for different kinds of loads or materials being handled (for example, compact loads, small bags, large sacks, drums, barrels, cylinders, sheet materials like metal or glass). See Section 2.0 for additional guidance.
    - Do not lift if you are not sure that you can handle the load safely.
- General tips for lifting:
    - Prepare for the lift by warming up the muscles.
    - Stand close to the load and face the way you intend to move.
    - Use a wide stance to gain balance.
    - Be sure you have a good grip on the load.
    - Keep arms straight.
    - Tighten abdominal muscles.
    - Tuck chin into the chest.
    - Initiate the lift with body weight.
    - Lift the load as close to the body as possible.

- Lift smoothly without jerking.
- Avoid twisting and side bending while lifting.

- Engineering Controls:
  - Material handling tasks should be designed to minimize the weight, range of motion, and frequency of the activity.
  - Alter the task to eliminate the hazardous motion and/or change the position of the object in relation to the employee's body -- such as adjusting the height of a pallet or shelf.
  - Work methods and stations should be designed to minimize the distance between the person and the object being handled.
  - High-strength push-pull requirements are undesirable, but pushing is better than pulling. Material handling equipment should be easy to move, with handles that can be easily grasped in an upright posture.
  - Workbench or workstation configurations can force people to bend over. Corrections should emphasize adjustments necessary for the employee to remain in a relaxed upright stance or fully supported, seated posture. Bending the upper body and spine to reach into a bin or container is highly undesirable. The bins should be elevated, tilted or equipped with collapsible sides to improve access.
  - Repetitive or sustained twisting, stretching, or leaning to one side are undesirable. Corrections could include repositioning bins and moving employees closer to parts and conveyors.
  - Store heavy objects at waist level.
- Whenever possible, utilize hand holds or other lifting attachments on objects being handled:
  - Use the "hook grip" on loads with cut-out handholds.
  - Curl your fingers around the edge.
  - Do not hold the load with fingertips.
  - Use containers with handles located more than halfway up the side of the container.
  - Use the "ledge grip" to handle regularly shaped objects without handles.
  - Use vacuum lifters to handle sheet materials or plates.
  - Hold the object with hands placed diagonally.
  - Wear gloves where practical.
- When significant, sustained lifting work is required it is desirable to rotate employees to spread the work load among several people and avoid fatigue. Rotation is not simply performing a different job, but must be a job that utilizes a completely different muscle group from the ones that have been over-exerted.

4.0 SPECIFIC HANDLING TECHNIQUES

The following guidance will be used when performing MMH for various types of materials.

4.1 Square or Rectangular Objects

To lift square or rectangular objects:

- Place one foot slightly in front of the other.
- Squat as close to the object as possible.
- Grasp one of the top corners away from the body and the opposite bottom corner closest to the body.
- Tilt the object slightly away from the body, tilt forward at the hips, keep the back straight, and tuck in the chin.
- Test to be sure the object is loose from floor and shall lift without snagging.
- Straighten the legs, keeping the backbone straight, pull the object into the body, and stand up slowly and evenly without jerking or twisting.
- If turning or change of direction is required, turn with feet without twisting the torso and step in the direction to travel.
- To set an object down, reverse the sequence, being sure not to trap the bottom hand between the object and the surface on which the object is set.

4.2 Cylindrical Objects

When lifting/moving round or cylindrical objects, the objects should be rolled wherever possible. Rolling must be controlled by chute, tagline, or other means of limiting acceleration. Workers must not be positioned downhill from rolled objects. Use of the legs for pushing and tagline control of rolled objects must be stressed.

Cylindrical objects, such as drums that must remain upright, are to be handled manually by slightly tilting the object, using the legs for control, and balancing the object on the bottom edge. The handler then walks besides the object, with the object tilted toward the body, positioning the hands on the top edge away from the body and moving so they do not cross, thus, maintaining the balance and a steady controlled forward motion. Motion must be controlled so that stopping walking and moving the hands shall stop forward motion.

Use carts or tracks to transport cylinders. Make sure that two people transport a cylinder if carts cannot be used, use lifting straps to improve grip.

Technique for one person lifting a cylinder onto a platform:

- Roll the cylinder to within 3 feet of the platform.
- Position the forward foot around the cylinder, the back foot about 1 foot behind the cylinder.
- Bend knees slightly.
- Place one hand on the valve protective cap, the other hand underneath the cylinder about 1 foot from the ground.
- Tilt the cylinder onto the thigh of the back leg.

- Balance the cylinder on the thigh by pressing down with the back hand while lifting the cylinder with the forward hand.
- Extend both knees to initiate and forward movement of the cylinder and continue by pushing up and forward with the arms until the cylinder is located on the platform.
- Climb on the platform.
- Straddle the cylinder at the valve end.
- Grasp the valve protective cap of the cylinder with both hands between the thighs.
- Lean forward and straighten the knees to set the cylinder upright.

4.3 Bags and Sacks

The best way to handle a bag depends on its size, weight and how far it is to be carried. When lifting, remember to:

- Straddle the end of the bag.
- Bend the hips and knees.
- Keep the back straight.
- Grasp the bag with both hands under the closer end. Keep elbows inside the thighs.
- Lean forward, straightening the knees to set the bag upright.
- Readjust the straddle position moving feet closer to the bag.
- Readjust the grasp, with one hand clasping the bag against the body and the other under it.
- Stand up by thrusting off with the back leg and continuing in an upward and forward direction.
- Thrust the bag up with the knee while straightening the body.
- Put the bag on the shoulder opposite the knee used to thrust the bag up.
- Stabilize the bag on the shoulder.
- Move off without bending sideways.

Avoid unloading a bag from the shoulder directly to floor level. Use an intermediate platform or get help from a coworker.

1. Stand close to the platform.
2. Place one foot in front of the platform.
3. Bend hips and knees.
4. Keep the back straight.
5. Ease the bag off the shoulder and put it upright on the platform.
6. Pull the bag slightly over the edge of the platform.
7. Stand close to the platform with the bag touching the chest.
8. Clasp the bag against the body with one hand, the other hand holding bottom of the bag.
9. Step back.

10. Bend hips and knees, keeping back straight.
11. Ease the bag on the floor.

Bulkier sacks are easier to carry on your back. Lift the sack onto your back from a platform:

1. Move the sack to the edge of the platform.
2. Put your back against the sack.
3. Grasp with both hands on the upper corners of the sack.
4. Ease the sack onto the back, bending hips and knees before taking the weight.
5. Keep the back straight.
6. Stand up and straighten the hips and knees.
7. Stabilize the sack.
8. Move away without bending sideways.

Two-person handling of a sack:

1. Position one person on either side of the sack.
2. Squat with one foot balancing behind the sack.
3. Keep back straight.
4. Grasp with the outer and on the upper corner, the other holding the bottom of the sack.
5. On one person's command:
   a. Stand up and straighten the hips and knees.
   b. Move towards the stack.
   c. Put the sack on the stack.

4.4 Sheet Materials

When lifting sheet materials:

1. Stand close to the pile of sheets in a walking stance.
2. Grasp sheet firmly at the mid-point of its long side with the closer hand.
3. Pull sheet up and toward the body.
4. Change grip using your other hand and put your fingers on top of the sheet.
5. Pull sheet up to the vertical position and to the side until one half is off the pile.
6. Grasp the lower edge of the sheet with the free hand and support the hand by placing it on your knee.
7. Stand up without bending and twisting body.

To carry sheets:

- Use drywall carts to carry sheet materials.
- Get help from another person where carts are not available.

- Apply carrying handles for manual carrying.
- Always use gloves and carrying handle for glass and other materials with sharp edges.

Team Handling - Team handling occurs when more than one person is involved during the lift.

Use team lifting and carrying where other solutions are inappropriate.

- Remember that the combined strength of the team is less than the sum of individual strength.
- Select team members of similar height and strength.
- Assign a leader to the team.
- Determine a set of commands to be used such as "lift", "walk", "stop", "down". Make sure that everyone knows what to do when they hear the command.
- Follow the commands given by the team leader.
- Practice team lifting and carrying together before attempting the task.

5.0 MATERIALS STORAGE

When storing materials on site

- Store materials at a convenient height.
- Leave the lowest shelf unused if necessary.
- Use vertically mobile shelves to avoid bending and overhead reaching.
- Use bin racks for storing small items.
- Store heavy and frequently used materials at waist height.
- Do not store materials at floor level.
- Use hand trucks with elevating devices in storage and loading areas.
- Use trucks with a tilting device to avoid bending.
- Use elevating platforms to avoid overhead reaching.

6.0 REFERENCES

SH&E 211 – Walking - Working Surfaces Protection

SH&E 405 – Handling Drums and Large Containers

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 517 DATE March 11, 2005 REVISED October 2005
Traffic Safety	PREVIOUSLY ENV 532

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

This procedure will outline the guidelines to protect Earth Tech employees working on or near roadways.

2.0 SCOPE

The following requirements can be implemented for simple work operations occurring on or near roadways. More complex tasks will require the development of a specific traffic control plan, approved by the EH&S Department.

3.0 PROCEDURE

Whenever possible, place a work vehicle between your worksite and oncoming traffic. Not only is it a large, visible warning sign, but also if an oncoming car should fail to yield or deviate, the parked vehicle rather than your body would absorb the first impact of a crash. Turn the vehicle wheels so that if it was struck, it would swing away from the worksite. In addition, proper PPE is to be worn during traffic operations, to include hardhat and high-visibility vests.

When in traffic, place the work vehicle facing oncoming traffic and set the parking brake. If subsurface work is contemplated (e.g., manhole entry) park downwind whenever possible to prevent exhaust from entering the work zone. Turn off the engine when possible. Always leave some room between the rear of the vehicle and the work zone. Even though the vehicle would protect you in a crash, it might be knocked several feet backwards. Turn the headlights on (night or day).

Use of Signs and Cones to Direct Traffic. Traffic signs and cones are used to direct traffic away from and around you. Cones and signs are effective only if they give oncoming drivers enough time to react and make it clear how traffic should react.

Signs and Traffic Control Devices. Signs are required in addition to cones in almost all traffic control situations. The only time a sign wouldn't be absolutely necessary is in rural areas with very little traffic. The most commonly required signs are listed below.

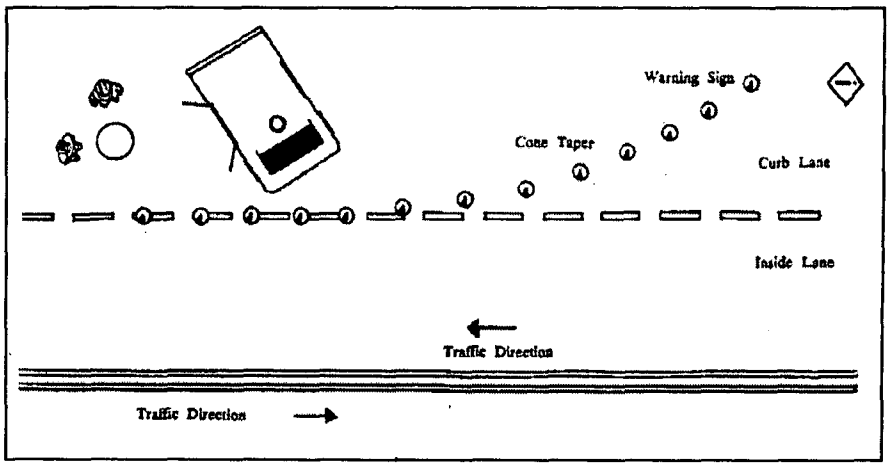
"Road Work Ahead" or **"Men Working"** are the basic warning signs. They are orange, a minimum of 48"x48" square, and equipped with a self-supporting base. In general, advanced signs should be placed well ahead of the cone taper to warn traffic of the upcoming controls. If required by law, they can be placed on the roadside in advance of the cone taper.

Directional Arrow signs should be placed ahead of the cone taper to clearly indicate which direction traffic should flow.

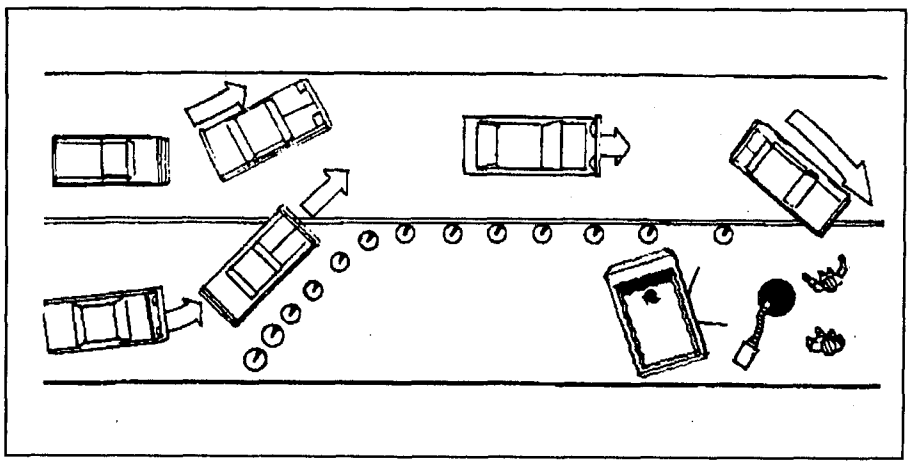
Warning Flags are often put in cones at the leading edge of a taper to make the taper more prominent. They have no legal status and are not recommended. Use a **"Road Work Ahead"** sign instead.

Note: Always remember that signs and cones cannot protect you; they can only guide traffic. Do not assume that it is safe to work behind the van or to walk beside the van inside a line of cones. Parking the van in a slight angle (as shown in the next example) allows safer access to the side doors and completely blocks the entire lane.

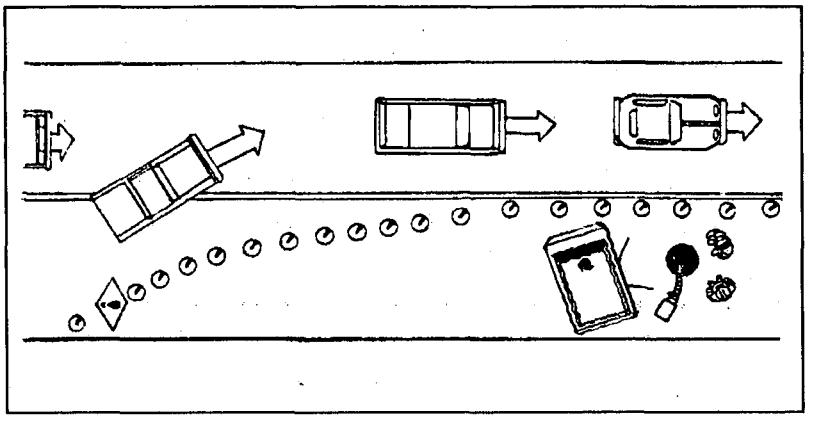
Cone Positioning. The most common coning situation is setting a taper of cones that creates a visual barrier for oncoming motorists and gradually closes a lane.
The position of the taper depends on the road width, position and size of the work area, and also on the characteristics of the traffic.



The basic curb lane setup. Note the warning sign, cone taper, and van placement.



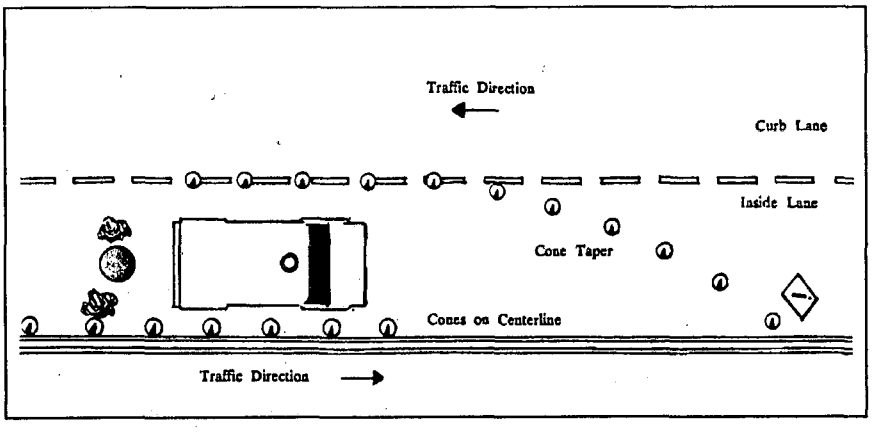
Wrong! The cone taper is too short. Traffic must change lanes abruptly, causing disruption.



Right! Cones are tapered gradually, allowing cars to change lanes and merge easier. Note that cones are extended past the worksite.

It is critical not only that vehicles avoid the workers and equipment in the road, but that they have a safe, clearly understood place to go once you have diverted them.

Never divert vehicles into oncoming lanes. Such diversions often are unsafe without flaggers to control the flow of the opposing vehicles. Often there is room for a van to straddle the centerline, taking up only part of the lane in each direction and leaving room for traffic to pass by on each side. Two cone tapers, one for each direction of traffic, must be set. Only work off the back of the van with this setup.
When diverting traffic out of part of a lane, divert vehicles toward the center of the road if there is room between the cone taper and the centerline of the road. This is less risky than diverting them close to parked cars.



Coming off the inside lane. The line of cones on the centerline alerts traffic coming from the opposite direction.

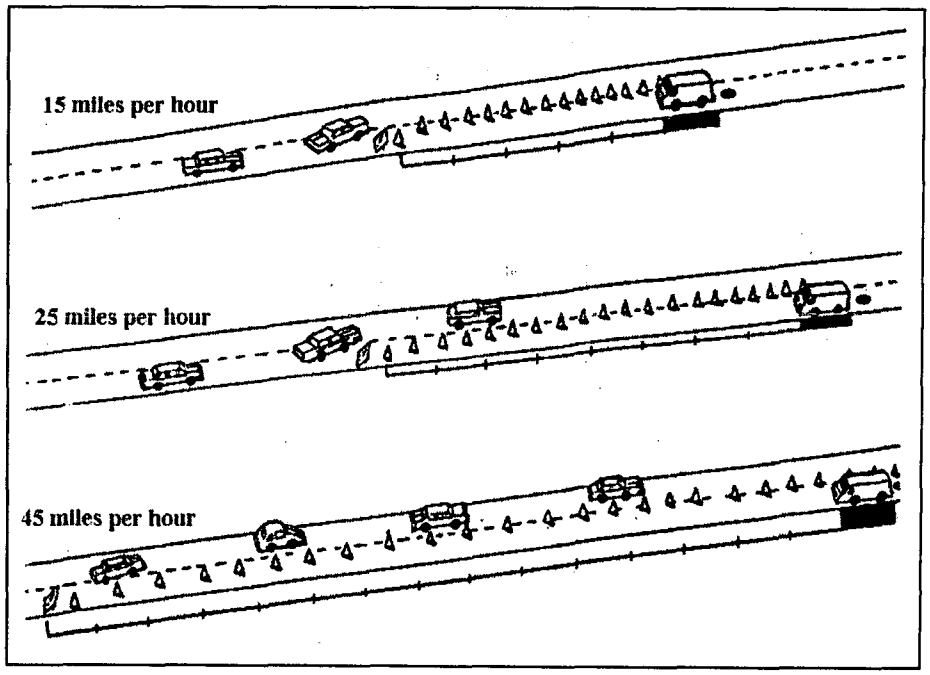
- Always try to provide drivers with the best line of sight to see the hazards and solutions. At low traffic speeds, drivers can often sort out their own right-of-way solutions, but only if they can see the other key vehicles.

- Cone off a whole lane where there is more than one in each direction. Cars may try to squeeze by two abreast if it is not clear that one lane is completely occupied and the open lane is single width.

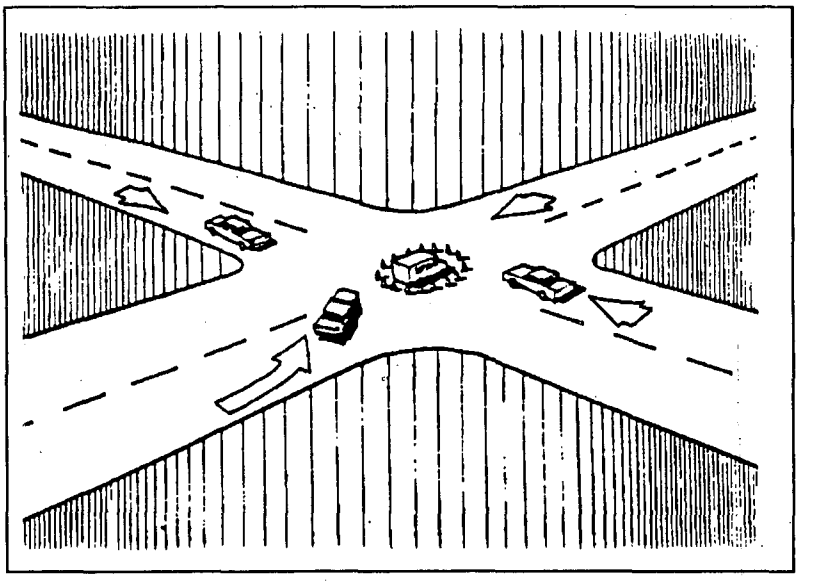
Cone Taper Length. The length of the cone taper depends on the type of traffic and the approach speed of the traffic. On state and major highways with speeds above 35 mph, the dimensions are often regulated by law. It is possible, however, to decide on the size and position of the cone taper based on a few practical guidelines.

Traffic Speed		Distance of Initial Sign		Cone Spacing	
mph	kmh	feet	meters	Feet	meters
15	24	50 – 90	15.2 – 27.4	3 – 15	.914 – 4.57
25	40	90 – 150	27.4 – 45.7	3 – 25	.914 – 7.62
30	48	135 – 200	41.1 – 60.9	3 – 30	.914 – 9.14
35	56	150 – 240	45.7 – 73.2	3 – 35	.914 – 10.7
40	64	190 – 300	57.9 – 91.4	3 – 40	.914 – 12.2
45	72	240 – 360	73.2 – 109.7	3 – 45	.914 – 13.7

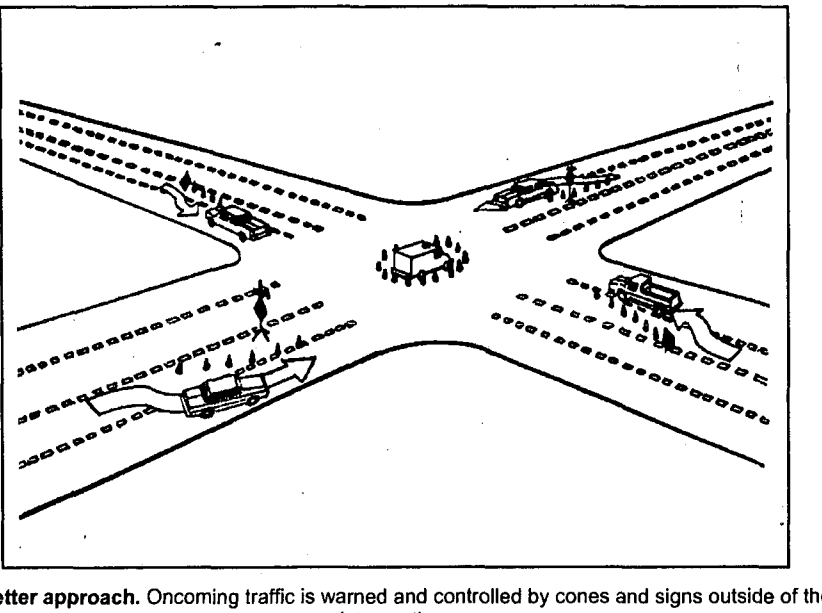
These distances are based on dry, rough surfaces. Distances should be greater for wet or slick surfaces. Verify these with your local and state regulations.



Traffic speed and cone taper length. The faster the oncoming traffic speed, the longer the cone taper must be. Although local regulations vary, above is an illustration of the general rule at 15 mph, 25 mph, and 45 mph. Note how the spacing between the cones increases as oncoming traffic speed increases.



"Fort Apache" - the wrong approach. The single ring of cones gives oncoming traffic little warning, and no clue of how to react.



A better approach. Oncoming traffic is warned and controlled by cones and signs outside of the intersection.

There are additional guidelines that apply to setting a cone taper.

- Carry the taper of cones past the van the manhole work area and behind the van. Otherwise, vehicles may turn back into the lane once past the van and injure someone.

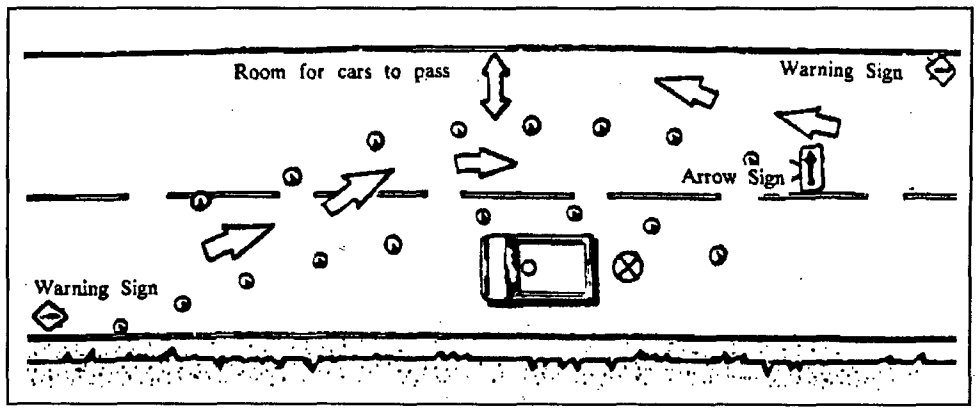
- Intersections, side streets, and side entrances (and the amount of traffic to and from them) affect the length and shape of cone tapers.

    1. At major intersections, sometimes it is necessary to put a lead taper of cones even further away, beyond an intersection. Drivers approaching an intersection typically focus on that intersection and tend not to notice traffic control just beyond it. They also typically speed up to make a light. By placing your first taper of cones on the far

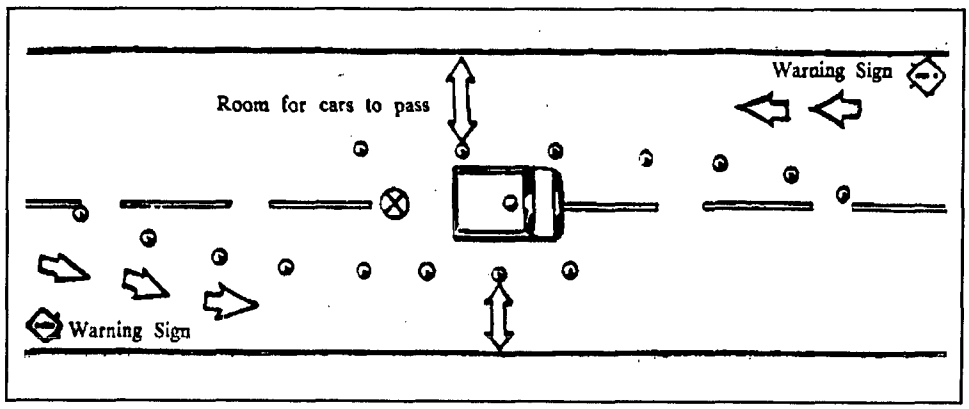
side of an intersection, you focus their attention on the traffic control and adjust them to your presence with sufficient warning.

2. Side street or building entrances that bring traffic through the normal protected zone of a cone taper may require a second taper to prevent that traffic from turning directly into the protected lane.

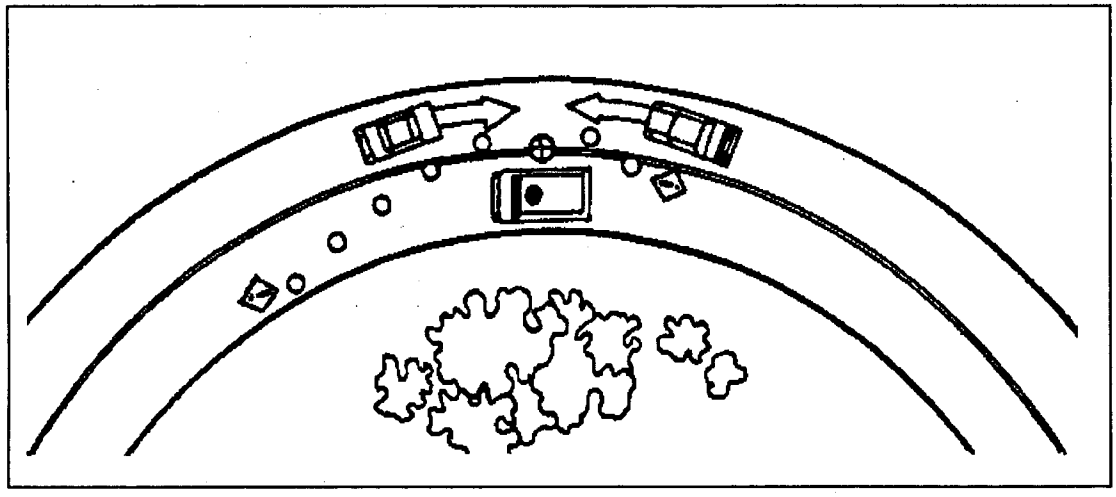
- In lightly traveled residential streets and crowded urban side streets where traffic speeds are low, it may be most practical to shorten the cone taper. Typically this would occur where it is best to minimize the risk to vehicles which are diverted around you and exposed to oncoming cars.
- The maximum spacing between channeling cones in a taper should be approximately equal in feet to the speed limit in mph. For example, the cones on a road with a 55-mph speed limit, should be spaced about 55 feet apart. Cones placed on a tangent to keep traffic out of a closed lane should be spaced in accordance with the extent and type of activity, the speed limit of the road, and the vertical and horizontal alignment of the road so that it is obvious that the road is closed to traffic.

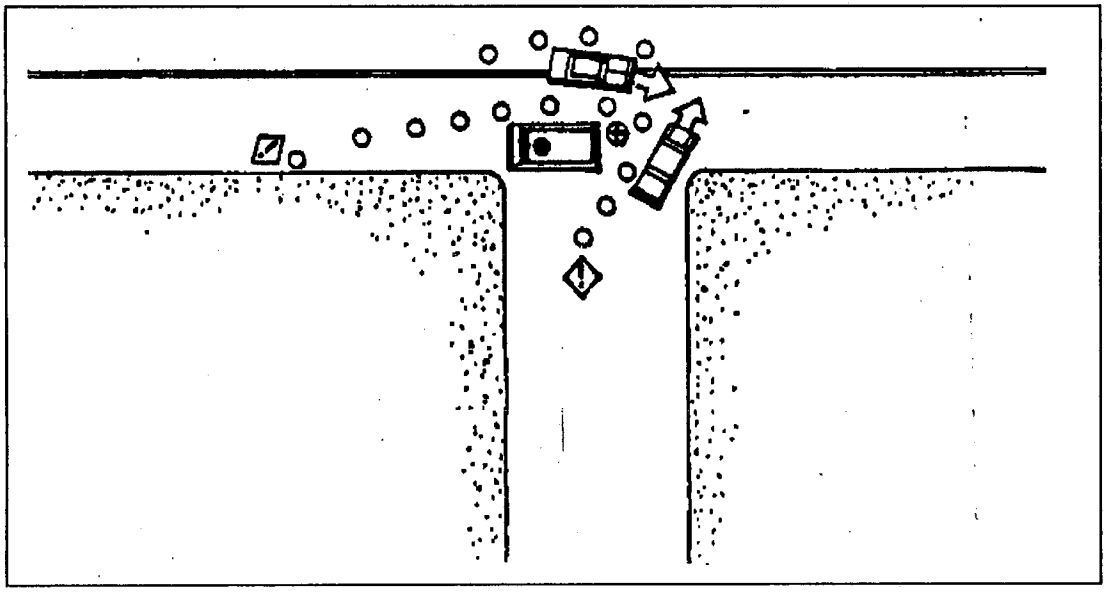


Diverting traffic into oncoming lane. Traffic may be diverted into oncoming lanes without flagger control only if traffic is light, there is room for cars to pass in both directions, and proper control moving cars into artificial passing lanes exists. Note the warning signs in both directions, the use of the arrow sign, and the creation of two lanes using cones.



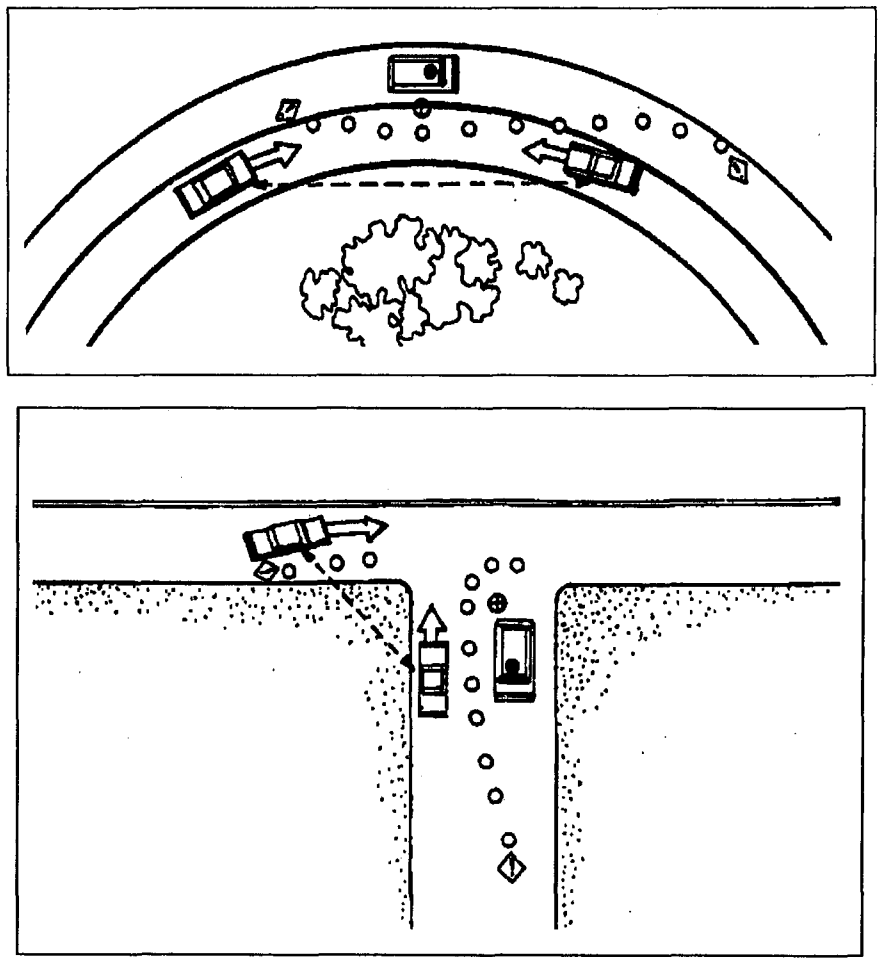
Working on the road centerline. Traffic must be controlled and diverted in both directions if the worksite is on the road centerline. Traffic must be moved to the outside of the road. Leaveroom for cars to pass between the cones and the curbs of both lanes.





Poor lines of sight.

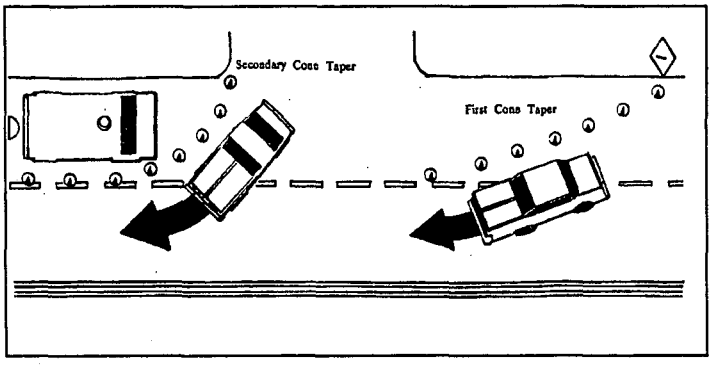
These illustrations show how poor planning can increase risks. On both the curve and the side street, placement of the van blocks the drivers' lines of sight. They cannot see oncoming cars until it is too late.



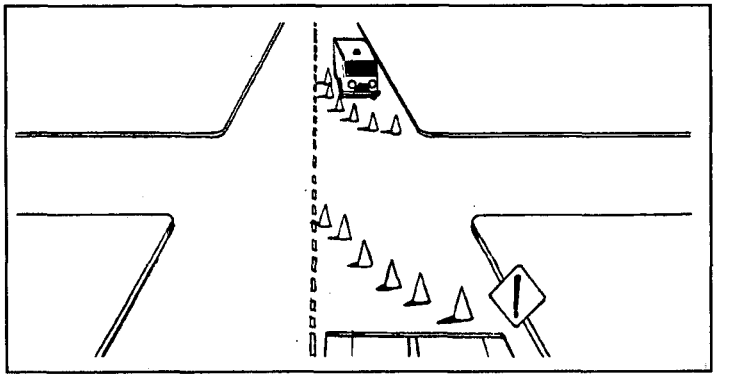
Better lines of sight. In these illustrations, repositioning the van and cones allows cars to see each other (black dotted lines). Note that only very light traffic should be allowed to sort itself out.

Note:

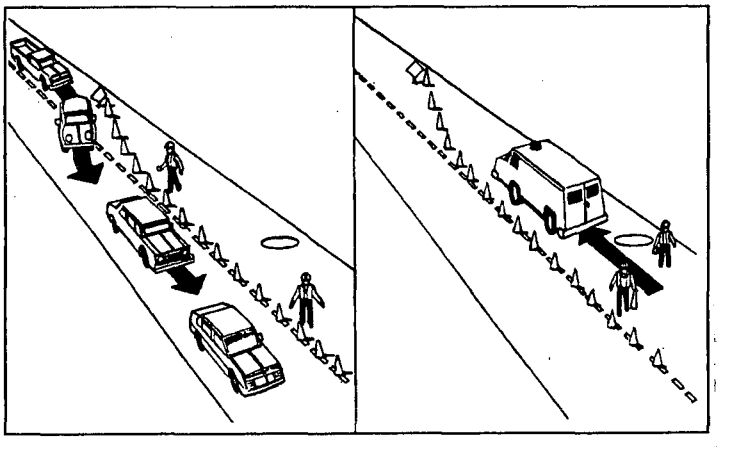
In the figure above, there is a potential for a head-on collision. The traffic on the curve requires flagger control.



Side entrances. When a cone taper blocks a side street or side entrance, make sure cars are still able move in and out of these areas. Do not just shorten the cone taper. Set two tapers: the first to move traffic out of the lane, the second to warn and control drivers using the side entrance.



Warning before an intersection. When drivers go through an intersection they tend to focus on the intersection itself, not beyond it. Placing a warning sign across the intersection near oncoming drivers alerts them and lets them take corrective action before it is too late.



Test traffic controls. Sometimes it is very dangerous to stop a van in traffic and then set out traffic controls. In these situations, park the van by the side of the road, then place the traffic controls. Observe how traffic follows the controls. When it looks safe to do so, drive the van into the space created by the pre-placed traffic controls.

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 604 DATE March 11, 2005 REVISED
Decontamination	PREVIOUSLY ENV 535

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

Decontamination of contaminated personnel and equipment will comply with the requirements specified below, as well as any additional site-specific procedures that may be required by the Health and Safety Plan (HASP).

2.0 DEFINITIONS

Contamination Reduction Zone (CRZ) - the transition area between the contaminated area and the clean area where decontamination activities occur.

Decontamination – the process of removing or neutralizing contaminants that have accumulated on personnel or equipment.

Exclusion Zone (EZ) – the area where primary activities occur, such as sampling, remediation operations, installation of wells, cleanup work, etc.

LOP – Level of Protection (Personal Protective Equipment or PPE).

Support Zone (SZ) - an uncontaminated zone where administrative and other support functions, such as first aid, equipment supply, emergency information, etc., are located.

3.0 GENERAL REQUIREMENTS

When possible, all necessary steps shall be taken to reduce or minimize contact with chemicals and impacted materials while performing field activities (e.g., avoid sitting or leaning on, walking through, dragging equipment over, tracking, or splashing potential or known impacted materials).

All personal decontamination activities shall be performed with an attendant (buddy) to provide assistance to personnel that are performing decontamination activities. Depending on specific site hazards, attendants may be required to wear a level of protection that is equal to the required level in the exclusion zone.

All persons and equipment entering the EZ shall be considered contaminated, and thus, must be properly decontaminated prior to entering the SZ.

Decontamination procedures may vary based on site conditions and nature of the contaminant. If chemicals or decontamination solutions are used, care should be taken to minimize reactions between the solutions and contaminated materials. In addition, personnel must assess the potential exposures created by the decontamination chemical(s) or solutions. The Material Safety Data Sheet (MSDS) must be reviewed, implemented, and filed by personnel contacting the chemicals/solutions.

All contaminated personal protective equipment (PPE) and decontamination materials shall be stored and disposed of in accordance with site-specific requirements determined by site management.

4.0 DECONTAMINATION EQUIPMENT

The equipment required to perform decontamination may vary based on site-specific conditions and nature of the contaminant(s). The following equipment is commonly used for decontamination purposes:

- Soft-bristle scrub brushes or long-handled brushes to remove contaminants;
- Hoses, buckets of water or garden sprayers for rinsing;
- Large plastic/galvanized wash tubs or children's wading pools for washing and rinsing solutions;
- Large plastic garbage cans or similar containers lined with plastic bags for the storage of contaminated clothing and equipment;
- Metal or plastic cans or drums for the temporary storage of contaminated liquids; and
- Paper or cloth towels for drying protective clothing and equipment.

5.0 PERSONAL DECONTAMINATION STEPS

Modified Level D

In the Exclusion Zone:

1. Equipment drop on plastic sheet
2. Remove the majority of gross contamination
3. Wash boot covers and outer gloves
4. Rinse boot covers and outer gloves
5. Remove tape
6. Remove boot covers and outer gloves

In the Contamination Reduction Zone (keep the most contaminated equipment near the EZ boundary):

1. Wash protective suits and safety boots
2. Rinse protective suits and safety boots
3. Safety boot removal
4. Remove protective suit
5. Wash inner gloves
6. Rinse inner gloves
7. Remove inner gloves.

8. Remove inner clothing (if necessary)

In the Support Zone:

1. Finish with personal decon/hygiene wash procedures
2. Redress (if necessary).

Level C

In Exclusion Zone (near boundary of CRZ):

1. Equipment drop on plastic sheet
2. Remove the majority of gross contamination
3. Wash boot covers and outer gloves
4. Rinse boot covers and outer gloves
5. Remove tape
6. Remove boot covers and outer gloves

In the Contamination Reduction Zone (keep the most contaminated equipment near the EZ boundary):

1. Wash protective suits and safety boots
2. Rinse protective suits and safety boots
3. Change out (if required): Filter/mask change and redress (boot covers and outer gloves)
4. Safety boot removal
5. Remove protective suit
6. Wash inner gloves
7. Rinse inner gloves
8. Remove respirator/mask and decontaminate
9. Remove inner gloves
10. Remove inner clothing (if necessary)

In the Support Zone:

1. Finish with personal decon/hygiene wash procedures
2. Redress (if necessary)

Level B

In the Exclusion Zone (near boundary of CRZ):

1. Equipment drop on plastic sheet
2. Remove the majority of gross contamination
3. Wash boot covers and outer gloves
4. Rinse boot covers and outer gloves
5. Remove tape
6. Remove boot covers and outer gloves

In the Contamination Reduction Zone (keep the most contaminated equipment near the EZ boundary):

1. Wash SCBA/airline equipment, protective suits and safety boots
2. Rinse SCBA/airline equipment, protective suits and safety boots
3. Change out (if required): Tank change and redress (boot covers and outer gloves)

4. Safety boot removal
5. SCBA backpack or airline equipment removal
6. Remove protective suit and/or splash suit
7. Wash inner gloves
8. Rinse inner gloves
9. Remove face piece/mask
10. Remove inner gloves
11. Remove inner clothing (if necessary)

In the Support Zone:

1. Finish with personal decon/hygiene wash procedures
2. Redress (if necessary)

Level A

In the Exclusion Zone (near boundary of CRZ):

1. Equipment drop on plastic sheet
2. Remove the majority of gross contamination
3. Wash boot covers and outer gloves (if applicable to ensemble)
4. Rinse boot covers and outer gloves (if applicable to ensemble)
5. Remove tape (if applicable to ensemble)
6. Remove boot covers and outer gloves (if applicable to ensemble)

In the Contamination Reduction Zone (keep the most contaminated equipment near the EZ boundary):

1. Wash protective suite and safety boots
2. Rinse protective suits and safety boots
3. Change out (if required): Tank change and redress (boot covers and outer gloves)
4. Safety boot removal
5. Remove fully encapsulating suit and hard hat
6. Remove SCBA backpack
7. Wash inner gloves
8. Rinse inner gloves
9. Remove face piece/mask and decontaminate
10. Remove inner gloves
11. Remove inner clothing (if necessary)

In the Support Zone:

1. Finish with personal decon/hygiene wash procedures
2. Redress (if necessary)

6.0 Equipment Decontamination

All equipment leaving the EZ shall be considered contaminated and must be properly decontaminated to minimize the potential for exposure and off-site migration of impacted

materials. Such equipment may include, but is not limited to: sampling tools, heavy equipment, vehicles, PPE (hoses, cylinders, etc.), and various handheld tools.

All employees performing equipment decontamination shall wear the appropriate PPE to protect against exposure to contaminated materials. The level of PPE may be equivalent to the LOP required in the EZ. Other PPE may include splash protection, such as face-shields and splash suits, and knee protectors. Following equipment decontamination, employees may be required to follow the proper personal decontamination procedures above.

For larger equipment, a high-pressure washer may need to be used. Some contaminants require the use of a detergent or chemical solution and scrub brushes to ensure proper decontamination.

For smaller equipment, use the following steps for decontamination:

1. Remove majority of visible gross contamination in EZ.
2. Wash equipment in decontamination solution with a scrub brush and/or power wash heavy equipment.
3. Rinse equipment.
4. Visually inspect for remaining contamination.
5. Follow appropriate personal decontamination steps outlined above.

All decontaminated equipment shall be visually inspected for contamination prior to leaving the CRZ . Signs of visible contamination may include an oily sheen, residue or contaminated soils left on the equipment. All equipment with visible signs of contamination shall be discarded or re-decontaminated until clean. Depending on the nature of the contaminant, equipment may have to be analyzed using a wipe method or other means.

5.0 REFERENCES

SH&E 301 - HAZWOPER

B

ADMINISTRATIVE INFORMATION

Job/Task Name: **AQUIFER TEST – CARNEY STREET WELLFIELD – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

An aquifer test will be conducted on Well No. 21 of the Carney Street Well Field. The pump test will be conducted for up to 48 hours and the well will be pumped at the maximum practical pumping rate at a constant rate. Water level measurements will be collected from the production well and selected nearby monitoring wells. Water levels will be measured and recorded during the recovery period. The recovery period will be considered complete when the water level has returned to 90 percent of pre-test levels. The water levels will be collected manually using an electronic water level indicator and electronically by transducers with data logging capacity. The wells requiring transducers will be selected after review of the data from the first round of groundwater sampling. Samples will be collected at the beginning of the pump test and at 12-hour intervals thereafter, including a sample when the test is terminated. These samples will be analyzed for TCL VOCs.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____ (*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____ (*cartridges*)
- ☐ ½-face APR _____ (*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile _____ (*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____ (*volts*)

Other (*List*): _____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*): _____

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **AQUIFER TEST – CARNEY STREET WELLFIELD – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **AQUIFER TEST – CARNEY STREET WELLFIELD – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **DIRECT PUSH GROUNDWATER SAMPLING – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

A limited direct push sampling investigation will be conducted near previous Geoprobe groundwater sampling point 31-GW-04B on the Photocircuits site. At two locations direct push borings will be advanced to a depth of approximately 160 ft bgs for the purpose of collecting stratified groundwater samples. Groundwater samples will be collected at 10 foot intervals from approximately 160 ft bgs to the groundwater table using a hydropunch-type device such as a Geoprobe S-15 sampler. The hydropunch device will be advanced to the targeted depth and retracted to expose the stainless steel screened interval. A peristaltic pump will be used to purge groundwater from the hydropunch with the goal of obtaining clear water prior to sampling. Water quality parameters will be recorded during purging. After several minutes of purging, a groundwater sample will be collected using the peristaltic pump. The sample will be submitted to the laboratory for VOC analysis. Once sampling is complete, the hydropunch will be lifted to the next interval and purged for several minutes to clear water from both the screen and the tubing.

CHEMICAL HAZARDS (*SELECT*) ☒ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____ (*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☒ Hearing protection (plugs/muffs)
- ☐ FF APR _____ (*cartridges*)
- ☐ ½-face APR _____ (*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile _____ (*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____ (*volts*)

Other (*List*): _____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*): _____

INSPECT/PERMIT REQUIREMENTS

None

EQUIPMENT TO BE USED

None

ADMINISTRATIVE INFORMATION

Job/Task Name: **DIRECT PUSH GROUNDWATER SAMPLING – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

Background monitoring for VOCs using PID. Greater than 25 ppm will lead to stop work, engineering controls and monitoring at site perimeter.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **DIRECT PUSH GROUNDWATER SAMPLING – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **DRILLING/MONITORING WELL INSTALLATION – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Several groundwater monitoring wells will need to be installed for groundwater monitoring activities at the subject site. This will be accomplished using hollow-stem auger (HSA) techniques and mud-rotary techniques, as necessary. In HSA, screwed auger bits are advance downhole by mechanical means (a drill rig); additional auger can be attached to the auger "flight" as depths are advanced. Soils removed by the auger collect at the surface as spoils, which must be collected and disposed of. This technique allows for the collection of subsurface soil and groundwater samples by the downhole insertion of sampling tools, and auger holes can be converted for long-term groundwater sampling through the construction of a groundwater monitoring well.

The removal of significant spoils, and the vapor migration space provided by the hollow auger stem can allow significant emissions of vapor-phase contaminants.

An Earth Tech geologist will be screening and sampling soils, as well as overseeing monitoring well construction.

CHEMICAL HAZARDS (*SELECT*) ☒ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☒ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☒ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☒ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☒ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☒ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____(*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☒ Hearing protection (plugs/muffs)
- ☐ FF APR _____(*cartridges*)
- ☐ ½-face APR _____(*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile_____(*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____(*volts*)

Other (*List*):

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **DRILLING/MONITORING WELL INSTALLATION – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Hearing Conservation (SH&E 109)
- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)
- Drilling (SH&E 403)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

Background monitoring for VOCs using PID. Greater than 25 ppm will lead to stop work, engineering controls and monitoring at site perimeter.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **DRILLING/MONITORING WELL INSTALLATION – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **EQUIPMENT DECONTAMINATION – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Drilling equipment will be decontaminated before the first use during this project, between boreholes and prior to demobilization using high-pressure steam. Decontamination will be conducted at a dedicated decontamination pad constructed for this project on the Pall property. Decontamination fluids will be contained for subsequent discharge to the City of Glen Cove sewer system (pending approvals). The subcontractor will be responsible for decontamination of drill rigs. Wash buckets and potable water will be set up at the decontamination pad on the Pall Corp property for personal use. Small equipment (transducers, pumps, manual tools, etc.) will be decontaminated using detergent and deionized water. Pumps will be set up to circulate soapy water and rinse water and, if applicable, will be taken apart and cleaned. More specific procedures are outlined in the Field Activities Plan.

CHEMICAL HAZARDS (*SELECT*) ☒ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☒ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____ (*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____ (*cartridges*)
- ☐ ½-face APR _____ (*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile _____ (*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____ (*volts*)

Other (*List*): _____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*): _____

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

Administrative Information

Job/Task Name: **EQUIPMENT DECONTAMINATION – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

Applicable SOPs (See HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

Training Requirements

- Review site specific Health and Safety Plan, THA, and sign off.

Additional Safety Considerations

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

Monitoring Procedures

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **EQUIPMENT DECONTAMINATION – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	*Job Supervisor: Paul Kareth*

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **ESTABLISHING SITE CONTROL SYSTEMS – non-HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Site control, including identifying and labeling restricted or prohibited areas, must be done before site work can begin, in conjunction with the establishment of HAZWOPER controlled work areas. This work will not be intrusive and should not result in exposure to environmental contaminants. Standard physical hazards associated with site walks do apply.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☐ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☐ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☐ Manual materials handling/Back
- ☐ OE/UXO
- ☐ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☐ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____(*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____(*cartridges*)
- ☐ ½-face APR _____(*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☐ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☐ Chemically-protective nitrile_____(*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____(*volts*)

Other (*List*):

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):

INSPECT/PERMIT REQUIREMENTS

None

EQUIPMENT TO BE USED

None

ADMINISTRATIVE INFORMATION

Job/Task Name: **ESTABLISHING SITE CONTROL SYSTEMS – non-HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **ESTABLISHING SITE CONTROL SYSTEMS – non-HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **FIELD SCREENING OF SOIL CUTTINGS – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Soil cuttings generated from the boreholes will be logged and documented by a geologist. In addition, a subset (six) of the new wells (MW-GD2; MW-2AD2; MW-4PD2; MW-16PD2; MW-GW-4D; and MW-19D) will be logged by collecting split spoon samples at 5-ft intervals. The Unified Soil Classification System (USCS) will be used to describe the soil. Cuttings will also be screened for VOCs using an organic vapor analyzer equipped with a photoionization detector (PID).

CHEMICAL HAZARDS (*SELECT*) ☒ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (*JP-4, JP-5, JP-8*)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☒ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____(*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☒ Hearing protection (plugs/muffs)
- ☐ FF APR _____(*cartridges*)
- ☐ ½-face APR _____(*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile_____(*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____(*volts*)

Other (*List*):_____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):_____

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **FIELD SCREENING OF SOIL CUTTINGS – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)	TRAINING REQUIREMENTS
• Personal Protective Equipment (SH&E 113) • General House Keeping, Hygiene, and Sanitation (SH&E 208) • Slips, Trips, Falls, and Protruding Objects (SH&E 210) • Manual Lifting (SH&E 404) • Traffic Safety (SH&E 517) • Drilling (SH&E 403)	• Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

Background monitoring for VOCs using PID. Greater than 25 ppm will lead to stop work, engineering controls, and monitoring at site perimeter.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **FIELD SCREENING OF SOIL CUTTINGS – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **INVESTIGATION-DERIVED WASTE MANAGEMENT – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Personal protective equipment and disposable sampling equipment will be placed in plastic garbage bags for disposal as a solid waste. The types of waste to be generated include: soil cuttings from monitoring well installation; development and purge water from the wells; and decontamination water from the drill rigs, Geoprobe rig and equipment. Monitoring well purge water, and decontamination water will be disposed into the on-site sanitary sewers. Methods for characterization of the waste as hazardous or non-hazardous will be specific to the waste generated.

CHEMICAL HAZARDS (*SELECT*) ☒ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____(*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☒ Hearing protection (plugs/muffs)
- ☐ FF APR _____(*cartridges*)
- ☐ ½-face APR _____(*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile_____(*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____(*volts*)

Other (*List*):

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **INVESTIGATION-DERIVED WASTE MANAGEMENT – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPS (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **INVESTIGATION-DERIVED WASTE MANAGEMENT – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth
ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **MOBILIZATION/DEMOBILIZATION – NON-HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Although representatives of Pall Corp and Photocircuits have indicated a willingness to be cooperative with the field efforts associated with this RI, provision is made for providing all necessary facilities and material independent of the site owners/occupants. Therefore, mobilization will include establishing a Site trailer, temporary sanitary facilities and the construction of a temporary decontamination pad that will remain in place during the field effort. A drum storage area will be established for the temporary storage of investigation derived waste, including soil cuttings, monitoring well development water, decontamination fluids and purge water from groundwater sampling. Soil cuttings may be temporarily stored in roll-off containers.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☐ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____(*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____(*cartridges*)
- ☐ ½-face APR _____(*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☐ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☐ Chemically-protective nitrile_____(*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____(*volts*)

Other (*List*):_____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):_____

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **MOBILIZATION/DEMOBILIZATION – NON-HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **MOBILIZATION/DEMOBILIZATION – NON-HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **MONITORING WELL CONDITION SURVEY – HAZWOPER**

Project Name: Photocircuits	Project Location: *Glen Cove, NY*
Project Manager: *Allen Burton*	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

A survey will be completed of all wells on-site. Wells will be identified with marking and their condition recorded.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ *Chlorinated hydrocarbons (TCE)*
- ☐ Lead
- ☐ *Gasoline or diesel fuel*
- ☐ BTEX
- ☐ Jet fuel (*JP-4, JP-5, JP-8*)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ *Dioxins*
- ☐ Pesticides/Herbicides
- ☐ *MTBE*
- ☐ Methylene chloride
- ☐ *Waste oil*
- ☐ Hydraulic fluid
- ☐ *Petroleum hydrocarbons*

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☐ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ *Power tool usage*
- ☐ Heavy equipment operations
- ☐ *Drill rig (HSA, DP, Air Rotary)*
- ☐ Excavations (engulfment/collapse)
- ☐ *Confined space entry*
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____(*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____(*cartridges*)
- ☐ ½-face APR _____(*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile_____(*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____(*volts*)

Other (*List*):_____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):_____

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **MONITORING WELL CONDITION SURVEY – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **MONITORING WELL CONDITION SURVEY – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **MONITORING WELL DEVELOPMENT– HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Each new monitoring well will be developed to achieve hydraulic connection between the formation and the well screen. A suitable pump will be selected for development at each well. Each well will be developed for a minimum of one hour. During development, periodic readings (every five to ten minutes) will be collected to monitor stabilization of water quality parameters.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____(*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____(*cartridges*)
- ☐ ½-face APR _____(*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile_____(*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____(*volts*)

Other (*List*):

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **MONITORING WELL DEVELOPMENT– HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None. Limited exposure anticipated.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **MONITORING WELL DEVELOPMENT– HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **MONITORING WELL SAMPLING – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Groundwater samples will be collected from pre-existing and newly-installed monitoring wells using a bladder pump. Sampling will consist of purging, followed by sample collection in containers with appropriate preservatives. Purge water will be containerized as IDW. Pumps will be decontaminated between wells. The samples will subsequently be packed in an ice-filled cooler using and shipped to appropriate laboratory facilities. Water level measurements and other physical measurements (i.e. water quality parameters) will also be taken at each well prior to sample collection.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING. ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____ (*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____ (*cartridges*)
- ☐ ½-face APR _____ (*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile _____ (*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____ (*volts*)

Other (*List*): _____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*): _____

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

Administrative Information

Job/Task Name: **MONITORING WELL SAMPLING – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

Applicable SOPs (See HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

Training Requirements

- Review site specific Health and Safety Plan, THA, and sign off.

Additional Safety Considerations

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

Monitoring Procedures

None. Limited exposure anticipated.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **MONITORING WELL SAMPLING – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **SAMPLE PACKAGING AND TRANSPORT – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Groundwater samples will be collected from pre-existing and new wells, and temporary direct-push borings. Samples will be placed in laboratory provided, pre-preserved containers, properly labeled and placed on ice in a cooler. The samples will be properly wrapped to prevent breakage during transport. On a daily basis, Earth Tech personnel will transport coolers to an overnight courier location (i.e. Fedex) for drop-off. Samples will be shipped overnight to an accredited laboratory for analysis, under standard chain-of-custody procedures. Individuals responsible for packaging coolers for transport will have Earth Tech DOT Level 2 Shipper Training and Earth Tech Driver Awareness Training.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☒ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☒ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☐ OE/UXO
- ☐ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____ (*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____ (*cartridges*)
- ☐ ½-face APR _____ (*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile _____ (*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____ (*volts*)

Other (*List*): _____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*): _____

INSPECT/PERMIT REQUIREMENTS

None

EQUIPMENT TO BE USED

None

ADMINISTRATIVE INFORMATION

Job/Task Name: **SAMPLE PACKAGING AND TRANSPORT – HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **SAMPLE PACKAGING AND TRANSPORT – HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **TRAFFIC CONTROL – NON HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Earth Tech will implement a traffic control strategy for material transport trucks entering and leaving the site. Earth Tech will utilize temporary traffic work signs, barricades, and cones to divert traffic away from entrance of job site or to close road completely. As necessary, traffic control permits and/or assistance will be requested from local agencies.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☐ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☐ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☒ Manual materials handling/Back
- ☒ OE/UXO
- ☒ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☒ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☒ Hazardous noise
- ☒ Heat or cold stress
- ☐ Oxygen-deficient atmosphere
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): No chemical hazards

Biological hazards (i.e. insect bits).

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____ (*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____ (*cartridges*)
- ☐ ½-face APR _____ (*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☐ Chemically-protective _____ (*type*)
- ☒ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____ (*volts*)

Other (*List*): _____

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*): _____

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **TRAFFIC CONTROL – NON HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPs (SEE HASP/SSHP/APP)

- Hearing Conservation (SH&E 109)
- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Manual Lifting (SH&E 404)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.

MONITORING PROCEDURES

No occupational Exposure Monitoring required. Non-HAZWOPER work.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **TRAFFIC CONTROL – NON HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☐ One time ☒ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

ADMINISTRATIVE INFORMATION

Job/Task Name: **UTILITY LOCATION – non-HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ *One time* ☐ *Routine job/task*
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

JOB DESCRIPTION

Locations of all utilities entering the site will be marked out by an independent company (UFPO/DIGSAFE). When all utility locations have been identified Earth Tech and the Utility Companies will review the locations and determine if any utilities will be in conflict with the proposed construction plans. If any utility conflicts are identified, Earth Tech and the appropriate utility company will discuss what actions will need to be taken. Locations of on-site utilities will be verified using a private locating service and marked out. If any utility conflicts are identified, the Site Supervisor will adjust the work scope accordingly.

CHEMICAL HAZARDS (*SELECT*) ☐ INH ☐ ING ☐ SKIN CONT.

- ☐ Asbestos
- ☐ Acids
- ☐ Caustics
- ☐ Chlorinated hydrocarbons (TCE)
- ☐ Lead
- ☐ Gasoline or diesel fuel
- ☐ BTEX
- ☐ Jet fuel (JP-4, JP-5, JP-8)
- ☐ PCBs
- ☐ Cadmium
- ☐ Compressed gases/asphyxiants
- ☐ PAHs
- ☐ Welding fumes
- ☐ Hydrogen sulfide
- ☐ Other metals
- ☐ Bunker fuel/oil
- ☐ Explosives (TNT)
- ☐ Dust
- ☐ Dioxins
- ☐ Pesticides/Herbicides
- ☐ MTBE
- ☐ Methylene chloride
- ☐ Waste oil
- ☐ Hydraulic fluid
- ☐ Petroleum hydrocarbons

PHYSICAL HAZARDS

- ☐ Electricity/High voltage
- ☐ Elevated work areas (fall hazard)
- ☐ Manual materials handling/Back
- ☐ OE/UXO
- ☐ Hand tool usage
- ☐ Power tool usage
- ☐ Heavy equipment operations
- ☐ Drill rig (HSA, DP, Air Rotary)
- ☐ Excavations (engulfment/collapse)
- ☐ Confined space entry
- ☐ Pinch and crushing hazards
- ☐ Ionizing radiation
- ☒ Eye hazards (impact, flying debris, light, etc.)
- ☒ Slips, trips, and falls
- ☐ *Hazardous noise*
- ☒ Heat or cold stress
- ☐ *Oxygen-deficient atmosphere*
- ☐ Oxygen-enriched atmosphere
- ☐ Explosive atmosphere
- ☐ Powder-actuated tools
- ☒ Vehicular traffic

Other Chemical/Physical Hazards (*List*): None

Biological hazards (i.e. insect bites)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

Boots:
- ☐ Rubber (ANSI safety-toe)
- ☒ Leather (ANSI safety-toe)

General:
- ☐ Coveralls _____ (*type*)
- ☒ Full Length Pants
- ☒ Reflective Safety Vest
- ☐ Hearing protection (plugs/muffs)
- ☐ FF APR _____ (*cartridges*)
- ☐ ½-face APR _____ (*cartridges*)
- ☐ Safety harness & lanyard
- ☒ ANSI-approved Hard hat

Eye Protection:
- ☐ Faceshield
- ☒ Safety glasses or goggles (ANSI)
- ☐ Welder's helmet/goggles

Gloves:
- ☒ Chemically-protective nitrile _____ (*type*)
- ☐ Leather/cloth
- ☐ Welder's
- ☐ Electrical safety _____ (*volts*)

Other (*List*):

OTHER SAFETY EQUIPMENT/CONSIDERATIONS

- ☒ Fire ext. 1A:10B:C (*rating*)
- ☒ First-aid kit
- ☒ Insect repellent
- ☐ Dust control/mitigation
- ☒ Portable eyewash
- ☐ Fire watch
- ☒ Traffic control measures

Other (*List*):

INSPECT/PERMIT REQUIREMENTS	EQUIPMENT TO BE USED
None	None

ADMINISTRATIVE INFORMATION

Job/Task Name: **UTILITY LOCATION – non-HAZWOPER**

Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

APPLICABLE SOPS (SEE HASP/SSHP/APP)

- Personal Protective Equipment (SH&E 113)
- General House Keeping, Hygiene, and Sanitation (SH&E 208)
- Slips, Trips, Falls, and Protruding Objects (SH&E 210)
- Traffic Safety (SH&E 517)

TRAINING REQUIREMENTS

- Review site specific Health and Safety Plan, THA, and sign off.

ADDITIONAL SAFETY CONSIDERATIONS

1. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
2. Keep fire extinguisher within work area and within heavy equipment.
3. Earth Tech Tick Policy – July 2006

MONITORING PROCEDURES

None.

ADMINISTRATIVE INFORMATION	
Job/Task Name: **UTILITY LOCATION – *non*-HAZWOPER**	
Project Name: Photocircuits	Project Location: Glen Cove, NY
Project Manager: Allen Burton	Analysis Performed By: Caroline Benedict
Date Job/Task to be performed: TBD	Type of Job/Task: ☒ One time ☐ Routine job/task
Responsible Organization: Earth Tech	Job Supervisor: Paul Kareth

ACCEPTED SIGNATURES	
Site/Field Supervisor:	**SSO/SH&E:**

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED JOB/TASK AND FULLY UNDERSTAND THE JOB/TASK-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED FOR IT.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME

C

EarthTech A tyco International Ltd. Company	PROCEDURE NO. SH&E 104
	DATE March 25, 2005
Safety, Health & Environmental Procedure	REVISED March 31, 2006
Inspections, Audits, and Corrective Actions	PREVIOUSLY - ENV 105 / EHS 110

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

To establish the protocol for Earth Tech to perform inspections, audits, and implement appropriate corrective actions to minimize risk to employees and the Company.

2.0 SCOPE

Earth Tech projects and offices will be inspected and audited by upper management, project management, site personnel and the SH&E Department to ensure compliance and maintain a safe workforce.

3.0 PROCEDURE

3.1 Inspections

The Project Manager (PM) and supervisory personnel will ensure that protection of employees, property and the environment is their first and primary concern. The PM and supervisory personnel will provide for the correction of unsafe conditions and actions and ensure continuous observance of established safety practices. To ensure project safety and compliance, the project supervisors, managers, or designated SH&E professional will:

1. Conduct, at a minimum, weekly self-inspections of their operations or facilities. Depending on the scope of work and potential severity of hazard agents, the self-inspections will be conducted on a daily basis. Additional unscheduled audits or inspections may be requested at the discretion of the SH&E Department in response to regulatory agency inspections or a significant on-site accident/injury. A self-inspection checklist will be developed prior to site activities to document compliance. The SH&E Department can provide examples of a compliance checklist (see attached).

2. Site Supervisors will conduct daily walkthrough inspections of their work areas to assess safety and health problems, deficiencies, or adverse conditions. Corrective action will be taken when violations and/or deficiencies are observed.

3. Participate in all compliance inspections, with subcontractor supervisors being involved in all compliance inspections of their work areas.

4. The responsible individual will attempt to eliminate the hazard or violation on the spot or as soon as possible after completion of the inspection.

5. For all non-compliance items, the violation, abatement efforts, and time period will be discussed among the site safety and health representative and the responsible supervisor/manager; agreement should be reached on issues to be resolved.

6. Imminent dangers and/or serious conditions will be corrected immediately and work stopped until corrective action has been taken and accepted. These conditions, when they occur, will be promptly reported to the SH&E Department.

3.2 Audits—Self Assessment

Based on the type and duration of identified projects, the SH&E Department will develop a formal audit process to meet the requirements of Corporate SH&E and Tyco initiatives. If a project is designated as high risk and/or is longer than nine months in duration, a self assessment audit program will be formalized and scheduled with the Project Management Team.

3.3 Tracking

The tracking, maintenance, and supporting documentation generated during the corrective action process will be the responsibility of Project Management.

4.0 FOLLOW UP / CORRECTIVE ACTION IMPLEMENTATION & CLOSURE

The PM is responsible for implementing corrective actions for every identified item, and will utilize the listing to track the status of each item. Requirements for implementation of corrective actions are as follows:

- Whenever possible, on-the-spot correction of items will be accomplished. For these cases, information regarding the corrective action can be provided to the SH&E Department when reporting the results of the audit/inspection.
- For items which cannot be corrected immediately, the PM will identify appropriate corrective actions to the SH&E Department for concurrence.
- If implementation of the final corrective action will require more than 30 calendar days to accomplish, an "interim action" must also be implemented to prevent accident/injury from occurring until the final corrective action is implemented.
- As each corrective action is implemented, the PM will provide written notification to the SH&E Department, but will continue to track the item as open. Close of each identified item will occur only after the SH&E Department approves the implemented corrective action(s).

5.0 REFERENCES

SH&E 131 Safety Assessment Program

6.0 ATTACHMENTS:

Attachment 1 – SH&E Inspection Form
Attachment 2 – Corrective Action Plan Form

PROJECT SITE SH&E INSPECTION FORM

Project Name: **Date of Inspection:**

Project Number: **SH&E Inspector:**

Project Manager: **Client POC:**

Site Safety Plan	YES	NO	NA
1. Is a site safety plan posted on site or accessible to all employees?	☐	☐	☐
2. Have potential hazards been described to employees on site?	☐	☐	☐
3. Are material safety data sheets available for review by employees on site?	☐	☐	☐
4. Is there a designated safety official on site?	☐	☐	☐
5. Are employees aware and knowledgeable of the results of exposure?	☐	☐	☐
Site Posters			
Are the following documents posted in a prominent and accessible area?			
6. Minimum Wage	☐	☐	☐
7. OSHA Job Safety and Health Protection (or state equivalent)	☐	☐	☐
8. Equal Employment Opportunity	☐	☐	☐
Medical And First Aid			
9. Are first aid kits accessible and identified?	☐	☐	☐
10. Are emergency eye wash and safety showers available?	☐	☐	☐
11. Are daily logs for first aid present and up to date?	☐	☐	☐
12. Are first aid kits inspected weekly?	☐	☐	☐
Site Set Up			
13. Are work zones clearly defined?	☐	☐	☐
14. Are support trailers located to minimize exposure from a potential release?	☐	☐	☐
15. Is general housekeeping up to Earth Tech standards?	☐	☐	☐
Personal Protective Equipment			
16. Have levels of personal protection been established?	☐	☐	☐
17. Do all employees know their level of protection?	☐	☐	☐
18. Are respirators used, decontaminated, inspected, and stored according to standard procedures?	☐	☐	☐
19. Have employees been fit-tested?	☐	☐	☐
20. Is defective personal protective equipment tagged?	☐	☐	☐
21. Does compressed breathing air meet CGA grade "D" minimum?	☐	☐	☐
22. Are there sufficient quantities of safety equipment and repair parts?	☐	☐	☐

Fire Prevention	YES	NO	NA
23. Is smoking prohibited in flammable storage areas?	☐	☐	☐
24. Are fire lanes established and maintained (where applicable?)	☐	☐	☐
25. Are flammable dispensing systems grounded and bonded?	☐	☐	☐
26. Are proper receptacles available for storage of flammables?	☐	☐	☐
27. Has the local fire department been contacted to inform of work ops?	☐	☐	☐
Welding and Cutting			
28. Are fire extinguishers present at welding and cutting operations?	☐	☐	☐
29. Are confined spaces, such as, tanks, pipelines, and trenches, tested prior to cutting and welding operations?	☐	☐	☐
30. Are hot work permits available?	☐	☐	☐
31. Are proper helmets, aprons and gloves available for welding and cutting operations?	☐	☐	☐
32. Are welding and machines properly grounded?	☐	☐	☐
33. Are oxygen and fuel gas cylinders stored a minimum of 20 feet apart?	☐	☐	☐
34. Are only trained personnel permitted to operate welding and cutting equipment?	☐	☐	☐
Hand And Power Tools			
35. Are defective hand and power tools tagged and taken out of service?	☐	☐	☐
36. Is eye protection available and used when operating power tools?	☐	☐	☐
37. Are guards and safety devices in place on power tools?	☐	☐	☐
38. Are power tools inspected before each use?	☐	☐	☐
39. Are non-sparking tools available?	☐	☐	☐
Motor Vehicles			
40. Are vehicles inspected before each use?	☐	☐	☐
41. Are personnel licensed for the equipment they operate?	☐	☐	☐
42. Are unsafe vehicles tagged and reported to supervision?	☐	☐	☐
43. Are vehicles shut down before fueling?	☐	☐	☐
44. When backing vehicles, are spotters provided (*when necessary*)?	☐	☐	☐
45. Is safety equipment on vehicles?	☐	☐	☐
46. Are loads secure on vehicles?	☐	☐	☐

PROJECT SITE SH&E INSPECTION FORM

Project Name: **Date of Inspection:**
Project Number: **SH&E Inspector:**
Project Manager: **Client POC:**

Emergency Plans	YES	NO	NA
47. Are emergency telephone numbers **current and posted**?	☐	☐	☐
48. Have emergency escape routes been designated?	☐	☐	☐
49. Are employees familiar with site-specific emergency signals?	☐	☐	☐
Materials Handling			
50. Are materials stacked and stored as to prevent sliding or collapsing?	☐	☐	☐
51. Are flammables and combustibles stored in non-smoking areas?	☐	☐	☐
52. Is machinery braced when personnel are performing maintenance?	☐	☐	☐
53. Are tripping hazards labeled?	☐	☐	☐
54. Are semi-trailers chocked?	☐	☐	☐
55. Are fixed jacks used under semi-trailers?	☐	☐	☐
56. Are riders prohibited on materials handling equipment?	☐	☐	☐
57. Are cranes inspected as prescribed and logged?	☐	☐	☐
58. Are OSHA-approved manlifts provided for the lifting of personnel?	☐	☐	☐
59. Are all containers labeled as to contents?	☐	☐	☐
60. Are flammable liquids stored in approved safety cans?	☐	☐	☐
Hazardous Waste Compliance			
61. Are hazardous wastes stored in DOT approved containers?	☐	☐	☐
62. Is hazardous waste stored in a secure area?	☐	☐	☐
63. Are hazardous waste containers labeled and dated?	☐	☐	☐
64. Are waste container dates outdated?	☐	☐	☐
65. Is a contingency plan on file?	☐	☐	☐
66. Is there a preparedness and prevention plan in effect?	☐	☐	☐
67. Are warning signs posted where required?	☐	☐	☐
Fire Protection			
68. Has a fire warning system been established?	☐	☐	☐
69. Do employees know the location and use of all fire extinguishers?	☐	☐	☐
70. Are fire extinguishers marked and inspected weekly?	☐	☐	☐
71. Are combustible materials segregated from open flames?	☐	☐	☐

Electrical	YES	NO	NA
72. Are warning signs exhibited on high voltage equipment (≥250 V)?	☐	☐	☐
73. Is electrical equipment and wiring properly guarded?	☐	☐	☐
74. Are electrical lines, extension cords, and cables guarded and maintained in good condition?	☐	☐	☐
75. Are extension cords kept out of wet areas?	☐	☐	☐
76. Is damaged electrical equipment tagged and taken out of service?	☐	☐	☐
77. Have underground electrical lines been identified by proper authorities?	☐	☐	☐
78. Has positive lock-out system been established by project electrician?	☐	☐	☐
Slings And Chains			
79. Are damaged slings/chains/rigging tagged and taken out of service?	☐	☐	☐
80. Are slings inspected before each use?	☐	☐	☐
81. Are slings padded or protected from sharp corners?	☐	☐	☐
82. Do employees keep clear of suspended loads?	☐	☐	☐
Compressed Gas Cylinders			
83. Are breathing air cylinders charged only to prescribed pressures?	☐	☐	☐
84. Are like cylinders segregated in well ventilated areas?	☐	☐	☐
85. Is smoking prohibited in cylinder storage areas?	☐	☐	☐
86. Are cylinders stored secure and upright?	☐	☐	☐
87. Are cylinders protected from snow, rain, etc.?	☐	☐	☐
88. Are cylinder caps in place before cylinders are moved?	☐	☐	☐
89. Are fuel gas and 0_2 cylinders stored a minimum of 20 feet apart?	☐	☐	☐
Ladders and Scaffolding			
90. Are ladders/scaffolds placed on a flat, firm surface?	☐	☐	☐
91. Are ladders/scaffolds planks free of mud, ice, grease, etc.?	☐	☐	☐
92. Are ladders/scaffolding inspected before each use?	☐	☐	☐
93. Are defective ladders or scaffold parts taken out of service?	☐	☐	☐
94. Does scaffold height exceed 4 times the width or base dimension?	☐	☐	☐
95. Does scaffold planking overlap a minimum of 12 inches?	☐	☐	☐
96. Does scaffold planking extend over end supports between 6" to 18"?	☐	☐	☐

PROJECT SITE SH&E INSPECTION FORM

Project Name: **Date of Inspection:**

Project Number: **SH&E Inspector:**

Project Manager: **Client POC:**

Walking And Working Surfaces	YES	NO	NA
97. Are accessways, stairways, ramps, and ladders clean of ice, mud snow or debris?	☐	☐	☐
98. Do ladders exceed maximum lengths?	☐	☐	☐
99. Are ladders used in passageways, doors, or driveways?	☐	☐	☐
100. Are broken or damaged ladders tagged and taken out of service?	☐	☐	☐
101. Are metal ladders prohibited in electrical service?	☐	☐	☐
102. Are stairways and floor openings guarded?	☐	☐	☐
103. Are safety feet installed on straight and extension ladders?	☐	☐	☐
104. Is general housekeeping up to Earth Tech standards?	☐	☐	☐
105. Are support trailers accessible for approach by emergency vehicles?	☐	☐	☐
106. Is the site properly secured during and after work hours?	☐	☐	☐
Heavy Equipment			
107. Is heavy equipment inspected as recommended by the manufacturer?	☐	☐	☐
108. Is defective heavy equipment tagged and taken out of service?	☐	☐	☐
109. Are project roads and structures inspected for load capacities and proper clearances?	☐	☐	☐
110. Is heavy equipment shut down for fueling and maintenance?	☐	☐	☐
Excavation			
111. Are the sides of excavations sloped or shored to prevent caving in on employees?	☐	☐	☐
112. Are guardrails or fences placed around excavations, near pedestrian or vehicle thoroughfares?	☐	☐	☐
113. Prior to opening excavations, are utilities located and marked?	☐	☐	☐
114. Are ladders used in trenches over 4 feet deep (when entered)?	☐	☐	☐
115. Is material excavated placed a minimum of 24 inches from the trench?	☐	☐	☐
Confined Spaces			
116. Have employees scheduled to be part of the confined space entry team been trained to the level of their responsibilities?	☐	☐	☐
117. Are confined space permits available on project site?	☐	☐	☐
118. Is a confined space entry procedure on the project site?	☐	☐	☐

Personnel Decontamination	YES	NO	NA
119. Are decontamination stations set up in the site contamination reduction zone(s)?	☐	☐	☐
120. Are waste receptacles available for contaminated clothing / PPE?	☐	☐	☐
121. Are steps taken to contain liquids used for decontamination?	☐	☐	☐
122. Have decontamination steps and procedures been covered by the site supervisor or acting site safety officer?	☐	☐	☐
123. Are personnel using utility knives or equivalent equipment to doff PPE?	☐	☐	☐
124. Is all personal protective equipment and respiratory equipment being cleaned on a daily basis (when applicable)?	☐	☐	☐

Inspection Summary:

I have reviewed this inspection checklist with the safety inspector, fully understand the recommendations and will make every attempt to immediately implement the appropriate corrective actions.

Project/Response Manager _____ Date _____

Safety Inspector (or designated alternate) _____ Date _____

Site Inspection Form (rev010703)

Corrective Action Plan Form

EarthTech
A Tyco International Ltd. Company

Please complete the following form and include in the applicable project or office files. Please contact the SH&E Department to discuss any problems before filing this form.

General		
Action Plan is the result of the following:		
☐ **Inspection/Audit Type:**	☐ **Injury/Incident:**	
☐ **Unsafe Condition(s)** ☐ **Unsafe Behavior**	☐ **Other Safety Concern/Issue:**	
Project Name/Office Location:	**Project/Section No.:**	**Date:**
Project/Section Manager:	**Supervisor:**	
Phone Number:	**Phone Number:**	

Inspection/Audit Summary (if performed)
Date of Findings:
Auditor/Inspector Name:
Overall Audit/Inspection Score (if applicable):
Positive Findings:
Areas of Deficiency: List items below with corrective actions.
Overall Action Plan: (i.e., Improve audit score (x) points/percent, Implement Specific Safety Program Element(s), etc.)

Item Summary
Item Number (from inspection form, if applicable):
Summary of Finding(s):
Corrective Action(s):
Lead Person(s):
Anticipated Corrective Action Date
Actual Corrective Action Completion Date:

Item Summary
Item Number (from inspection form, if applicable):
Summary of Finding(s):
Corrective Action(s):
Lead Person:
Anticipated Corrective Action Date
Actual Corrective Action Completion Date:

Item Summary
Item Number (from inspection form, if applicable):
Summary of Finding(s):
Corrective Action(s):
Lead Person:
Anticipated Corrective Action Date
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Lead Person:
Anticipated Corrective Action Date
Actual Corrective Action Completion Date:

Item Summary
Item Number (from inspection form, if applicable):
Summary of Finding(s):
Corrective Action(s):
Lead Person:
Anticipated Corrective Action Date
Actual Corrective Action Completion Date:

Item Summary
Item Number (from inspection form, if applicable):
Summary of Finding(s):
Corrective Action(s):
Lead Person:
Anticipated Corrective Action Date
Actual Corrective Action Completion Date:

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 108 DATE March 25, 2005 REVISED March 31, 2006
Medical Monitoring and Surveillance Program	PREVIOUSLY EHS 501

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

All Earth Tech employees whose work assignments involve potential exposure to harmful agents must participate in the medical surveillance program. In addition, you may be required to participate in the medical surveillance program if you perform a task that requires an assessment for fitness for duty (e.g. lifting, climbing, etc.). The District/Business Unit Manager and Safety Manager will identify activities/tasks that will require fit-for-duty assessments. The program ensures that employees are physically fit to perform their assigned duties and that exposure to chemical and physical agents has not compromised their health. Earth Tech's medical surveillance program is designed to monitor the effectiveness of health and safety programs.

The medical surveillance program consists of the following types of examinations: baseline (initial), periodic (annual or biennial), special exposure-specific, contractual requirement, exit/termination, and fit-for-duty. In addition to ensuring the fitness of workers for demanding assignments and tracking the effects of exposure, the medical surveillance program satisfies regulatory requirements.

2.0 DEFINITIONS

Light Duty – Light duty work is defined as a temporary alternate job assignment other than the employee's normal essential duties, in response to physical activity restrictions established by Earth Tech's Medical Director or a designated clinical physician.

Medical Director – The Medical Director is a physician, board-certified in occupational medicine, employed by the Medical Services Contractor. The Medical Director manages the services provided by the Medical Services Contractor and provides to Earth Tech guidance on medical matters.

Medical Services Contractor – The Medical Services Contractor manages all occupational medical services, including medical surveillance programs, substance abuse prevention programs, and care for workers with occupational injuries or illness.

PEL – Permissible exposure limit

Physical Activity Restriction – To prevent aggravation of an existing condition, the Medical Director recommends a physical activity restriction to limit exposure to a chemical or class of chemicals (such as benzene); a physical agent (such as noise); or an activity (such as lifting more than 40 pounds).

PPE – Personal protective equipment

Safety-Critical – A task or position is designated as safety-critical when the task or position is such that incompetence would endanger the lives of others. Examples, but not a complete list, of positions that have been designated safety-critical by federal and state regulations include:

- Drivers of commercial vehicles
- Workers on pipelines carrying fuels or toxic or corrosive substances
- Workers at nuclear power plants
- Operators of cranes of more than 6,000-pound capacity.

3.0 RESPONSIBILITIES

3.1 Employees – Mandatory Participation

All employees designated to participate in the medical surveillance program are required to do so as a condition of employment. Employees whose duties fall within the categories listed in Section 4.2.1 will be included in the medical surveillance program. Each employee is individually responsible for ensuring that he/she maintains a current medical clearance as required for the performance of assigned work duties.

3.2 Managers

All managers must evaluate the duties of each employee and prospective employee reporting to him or her. If the employee's position meets the criteria for required participation in the medical surveillance program (see Section 4.2), the manager is responsible for ensuring that the employee is enrolled in the program.

Candidates for positions that require medical surveillance may not be hired until they have satisfactorily completed the baseline (pre-employment) medical examination.

3.3 EHSA

The EHSA provides the following administrative activities for the medical surveillance program relative to the employees they support:

1. The primary point of contact between the employee, employee's manager, the Medical Surveillance Contractor, and the SH&E Department.
2. Provides information regarding medical surveillance documentation, forms, and scheduling of services.
3. Maintain the database within e-Tracking and other associated documents.
4. Schedule examinations with approved clinics and/or assist employees and Medical Surveillance Contractor with the scheduling process.
5. Participate in initial EHSA training and subsequent reviews and updates that will provide guidance on exam protocols.

3.4 SH&E Manager

The SH&E Manager reviews employee assignments with managers in his or her line of business to ensure that all employees who should be participating in the medical surveillance program have been enrolled. The SH&E Manager provides all assistance necessary to ensure all required information is provided to the Medical Director.

3.5 Corporate SH&E Director (Director)

The Director is responsible for the issuance, revision, and maintenance of this procedure. To ensure the appropriate medical examination and testing protocol, the Director will provide the Medical Services Contractor with appropriate references (e.g., a copy of Earth Tech's Medical Surveillance Policy,

OSHA/state regulations). After consultation with the Medical Director, the Director may also designate other employees to participate in certain parameters of the medical surveillance program.

4.0 PROCEDURE

4.1 Classes of Medical Examinations

4.1.1 Baseline/Pre-Placement/Pre-Employment

The baseline medical examination is used to identify physical capabilities and medical limitations that may have an impact on the candidate's ability to perform in the position for which he/she is being considered and to provide a baseline against which periodic or project-specific monitoring can be compared. The baseline medical examination is used to determine the suitability of an existing employee for a new assignment (pre-placement) or a candidate's suitability to be hired (pre-employment).

4.1.2 Periodic/Annual/Biennial

The periodic medical examination is used to evaluate an employee's continued fitness for duty and to assess any impact occupational exposures may have on his/her health status. The periodic examination includes an update to the medical and work history, results of any occupational exposure assessments, and a detailed medical examination tailored to the job description.

The Medical Director determines the frequency of the periodic medical examinations based on regulatory requirements, the position held by the employee, and the level of exposure to physical, chemical, and biological agents.

4.1.3 Exposure/Activity/Project-Specific

The exposure-specific examination consists of medical tests to assess the impact of occupational exposures associated with a particular activity or project. The Medical Director will require an exposure-specific examination when he/she has reason to believe occupational exposures are impacting or may be impacting the health of an employee, or when he/she receives a recommendation from the SH&E Manager. Clients may recommend exposure-specific examinations for persons working on their projects. A client recommendation for an exposure-specific examination will be forwarded to the SH&E Manager who will evaluate the request, and if appropriate, forward the recommendation to the Medical Director. The Medical Director will determine the frequency of the exposure-specific medical examinations for each employee designated to participate based on sound medical practice and regulatory requirements.

4.1.4 Exit/Termination

An exit medical examination is given when an employee leaves the medical surveillance program, either because of termination of employment with Earth Tech or because of reassignment to a position not designated to participate in the medical surveillance program. This optional exit examination assesses any impact occupational exposures may have had on the employee's health status (see Section 4.5.1).

4.2 Participating Employees

4.2.1 Required Participation

Participation in the medical surveillance program is required for employees who are or may be:

- Exposed to substances at or above the PEL for 30 or more days per year and/or required to participate by regulatory provisions (e.g., asbestos, lead OSHA standards).

- Fit-tested for or wearing a respirator in the field
- Exposed above PELs in accidents or emergency situations
- Working on sites/projects with specific state or federal medical surveillance requirements
- Driving a commercial vehicle (see SH&E 117)
- Performing safety-critical tasks

Employees may be required to participate in a fit-for-duty examination under the following scenarios:

- Perform extensive physical activities (e.g. bending, lifting, climbing, pulling/pushing, etc.)
- Experience a non-work related injury or illness
- Return work after extended absence

Those employees required to participate will be identified by the District/Business Unit Manager and Safety Manager.

4.2.2 Employee

When designated to participate in the medical surveillance program, the employee completes and signs the following documents:

- Medical and Work History Questionnaire
- Medical records release form for medical records from previous examinations
- Medical records release authorizing Earth Tech to receive the results of the examination.

4.2.3 EHSA

The EHSA is responsible for providing the Medical Services Contractor with the following services:

- Facilitate the management and exchange of documentation regarding the medical surveillance program between Earth Tech (typically employee's manager) and the Medical Services Contractor.
- Schedule the initial exam for newly hired or re-assigned employees.
- Assist employees with scheduling examinations as necessary.
- Coordinate medical surveillance program information exchange between Human Resources and the Medical Resource Contractor as necessary.
- Provide information from previous examinations that may not be readily available.

4.2 Scheduling Pre-Employment Medical Examination

4.3.1 EHSA

The EHSA coordinating medical examinations will:

- Provide the candidate or Human Resource Representative with a baseline medical and work history questionnaire to include the job offer package.
- Work with the employee to identify the clinic location that is convenient for the candidate's medical examination.
- Contact the Medical Services Contractor to obtain the name, address, telephone number, and contact person for the contract medical clinic in that geographical location.

- Coordinate the scheduling of the examination and ensure the scheduling information is provided to the Medical Services Contractor.
- Notify the employee's manager and Human Resources Representative upon receipt of the temporary medical clearance certificate.

4.3.2 Hiring Manager

The Hiring Manager/Human Resources Representative informs the candidate that the offer of employment is contingent on the candidate being physically and medically capable of performing the duties of the position for which he/she is being hired. The Manager/Human Resources Representative may not make the final offer or allow the candidate to begin work until the medical examination is successfully completed and the medical clearance certificate has been received.

4.3.3 SH&E Manager

The SH&E Manager provides such assistance as is requested by the hiring manager to ensure the job description for the position being filled adequately describes the physical, chemical, and biological stresses of the position, and the PPE used or which may be used, including respiratory protection. The SH&E Manager provides all necessary assistance to ensure that required and appropriate information is provided with the request and authorization for medical examination.

The SH&E Manager provides assistance to the hiring manager to interpret physical activity restrictions if such restrictions are noted on the medical clearance certificate.

4.4 Scheduling Periodic and Exposure-Specific Medical Examinations

4.4.1 Medical Services Contractor

The Medical Services Contractor provides notification to the EHSA approximately 30 days before the periodic or exposure-specific medical examination is due. The Medical Services Contractor will also notify the employee 30 days before the periodic or exposure-specific medical examination is due.

The Medical Services Contractor provides notification of delinquent medical examinations to the EHSA, who ensures the notification of examination due is forwarded to the employee.

4.4.2 Manager

The manager arranges work assignments so that the employee is available to take the medical examination before the medical clearance certificate expires. In the event that an employee has not completed the medical examination before the medical clearance certificate expires, the manager removes the employee from the work assignment.

4.4.3 SH&E Manager

The SH&E Manager ensures that all relevant exposure assessments have been appropriately annotated to show the applicability to the employee and forwarded to the Medical Services Contractor. The SH&E Manager also ensures employees on the delinquent medical examination list have been removed from designated assignments.

4.5 Scheduling Exit Medical Examinations

4.5.1 Human Resources Representative/EHSA

Upon notification of termination or impending termination, the employee's manager working with the Human Resources Representative notifies the EHSA to arrange for exit medical examination. If the

employee declines the opportunity to take the exit examination the EHSA will send a waiver (Attachment 2) on behalf of the employee's manager. Once the employee signs the waiver the EHSA will place the original in the employee's SH&E and file and copy the Medical Services Contractor.

4.5.2 Manager

Upon notification of termination or reassignment, the manager contacts the Human Resources Representative.

The manager releases the terminating or reassigned employee from duties as necessary to complete the exit medical examination.

4.5.3 SH&E Manager

The SH&E Manager provides assistance to ensure that terminating and reassigned employees are offered the opportunity to take an exit medical examination.

4.6 Medical Records

Medical records must be preserved and protected in accordance with 29 CFR 1910.20 (f) for the duration of employment plus 30 years. Medical records contain information that is protected by the Privacy Act. To meet the obligations of preserving the medical records and protecting the information they contain, Earth Tech has arranged for the Medical Services Contractor to manage the medical records.

4.6.1 Access to Records

An employee or designated representative may request to review his/her medical and exposure records. Such a request must be in writing, include the employee's Social Security number, and be signed and dated. The SH&E Manager or the EHSA will forward the request to the Medical Services Contractor, who will provide the employee with a copy of the medical record.

The Medical Services Contractor will supply the copy within 15 days after the request has been submitted by the employee or designated representative.

4.6.2 Quality Control and Quality Assurance

The Medical Services Contractor performs quality control checks on all medical records to ensure examining physicians appropriately record the findings of the examination and tests.

The Director has access to all medical records to perform quality assurance checks to ensure proper recording and preservation.

4.7 Reports

4.7.1 Report of Examination

The Medical Services Contractor provides the employee with a confidential report of findings of the examination and a medical clearance certificate. Earth Tech requires the employee to preserve the medical clearance certificate in a safe place and provide copies of it to project managers and clients.

The Medical Services Contractor provides the EHSA with a copy of the medical clearance certificate.

4.7.2 Examinations Due Report

The Medical Services Contractor produces a list by organization code of employees due to be examined 30 days before the expiration of their medical clearance certificate. This list is provided to EHSAs. The EHSA ensures each manager is notified of the employees in his/her charge who are due examinations so they may be scheduled appropriately.

The Medical Services Contractor notifies each employee by letter or fax to the office of record 60 to 30 days before the periodic or exposure-specific medical examination is due.

4.7.3 Delinquent Examinations Report

The Medical Services Contractor distributes a report of delinquent medical examinations to the EHSA.

When an employee's name appears on the delinquent examination report for two consecutive months, the EHSA must notify the SH&E Manager, who will bring this to the attention of the manager for resolution. If the delinquency issue is not resolved, the Division or Section Vice President will be notified.

4.7.4 Physical Activity Restriction Report

The EHSA maintains a list of employees who have physical activity restrictions. The EHSA provides each manager in his/her area of responsibility with a list of the employees with physical activity restrictions who are assigned to their project/location.

The SH&E Manager audits locations and projects periodically to ensure employees with physical activity restrictions are not exceeding their limitations. Evidence of an employee exceeding his/her physical activity restriction is brought to the attention of the employee's manager/ supervisor for resolution.

4.7.5 Annual Reports

The Medical Services Contractor provides annual reports of utilization, medical trends, and statistical analyses. These reports are prepared to improve the service, reverse unfavorable trends, and reduce the cost of the medical surveillance program.

4.8 Cost Accounting

The Medical Services Contractor submits invoices directly to the employee's P&L center. Each examination and service invoiced includes the organization code of the employee examined or receiving the service. Departments with employees who participate in the medical surveillance program are responsible for the cost of administering the program. In addition, if special monitoring (e.g., for lead) is to be conducted for a project, the Project Manager must inform the EHSA of that project's charge code.

5.0 REFERENCES

- SH&E 111 Employee Exposure Monitoring Program
- SH&E 117 Commercial Vehicle Program

6.0 ATTACHMENTS

- Medical Surveillance Program Status
- Exit Physical Template

EarthTech
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Employee Status: New Hire ____ Annual Review ___ Reassignment ____

Employee - Medical Surveillance Program Participation/Evaluation/Change in Status

(This form is optional and has been designed to provide managers guidance when classifying employees)

Employee Last Name:	First Name:	Middle Initial	Date:

Job Title:	Employee #:	Office Name:	Location Code:	Dept/Section #:

A. This information will be used to classify Earth Tech employees participating in the medical surveillance program.
B. The form is to be completed by the employee's supervisor at initial hire, if employee is reassigned, and during each annual review.
C. The employee's immediate supervisor is to review this form with the employee and answer the questions during the review.
D. A copy of the completed form is to be forwarded to the safety administrator supporting the section identified above.

	N/A	Yes	No	Examination if Yes
EMPLOYEE STATUS				
1. Is/has the employee being/been terminated, released, or moved to a position where participation in medical surveillance is no longer required?				1. Terminate participation in medical surveillance program with Medical Services Contractor, contact EHSA.
HAZWOPER PROJECTS (29 CFR 1910.120) – SAFETY MANAGER GUIDANCE MAY BE REQUIRED FOR THIS SECTION				
2. a. Will the employee work on a site regulated under 29 CFR 1910.120 or any other (e.g. 8 CCR for CA) HAZWOPER regulated site (hazardous waste site; HAZWASTE treatment, storage, or disposal [TSD])? b. Will the employee be onsite 30 or more days a year?				2. Initial/Annual – Ensure Business unit/Section requirements are implemeneted.
3. a. Will the employee work on a site regulated under 29 CFR 1910.120 (hazardous waste site; HAZWASTE treatment, storage, or disposal [TSD])? b. Will the employee be onsite less than 30 days a year or if onsite not exposed at or above exposure limits?				3. Biennial; with approval of Medical Services Director and Safety Manager.
COMMERCIAL DRIVER'S LICENSE (CDL) EMPLOYEES				
4. Is the employee required to operate CMV ≥ 10, 001 lbs?				4. CDL Medical Certification
5. Is the employee required to operate CMV ≥ 26, 001 lbs?				5. CDL Medical Certification and SAP Random Testing Participation
OTHER-CLEARANCES				
6. Will the employee wear a respirator or needs to be certified for respirator use? If yes, how many days per year? 1-29 30+				6. Respirator Only
7. Will the employee work on projects where they may be exposed to asbestos or regulated under 29 CFR 1910.1001 and/or 1926.1101?				7. Asbestos
8. Will the employee work on projects where they may be exposed to lead or regulated under 29 CFR 1910.1025 and or 1926.62?				8. Lead
9. Will the employee's job description place them in scenarios where they could be exposed to blood borne pathogens?				9. Blood borne Pathogens
10. Will the employee have potential to be exposed to radioactive sources? Alpha _____; Beta _____; Gamma _____?				10. Radiation
11. Site/Project specific biological monitoring or toxicological screening as specified by the project-specific health and safety plan. Contact your District Safety Manager for additional direction.				11. Miscs.
12. Does the employee: a. Perform extensive physical activities (e.g. bending, lifting, climbing, pulling/pushing, etc.) b. Experienced a non-work related injury or illness c. Returned to work after a non-work related extended absence				12. Fit-for-duty Those employees required to participate will be identified by the District/Business Unit Manager and Safety Manager.
13. Will the employee be traveling to a foreign country?				13. If yes please complete the information in 13 a.

13 a.	Originating Country	Destination Country and Region	Departure Date	Return Date	Estimate: # of Days in each country

Supervisor Printed Name:	Supervisor Signature:	Date:

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(THE EHSA IS TO DRAFT THIS LETTER ON BEHALF OF THE TERMINATING EMPLOYEES MANAGER. COPY THE DRAFT TO THE MANAGER AND OBTAIN APPROVAL TO SEND TO THE TERMINATING EMPLOYEE)

Date

To: *(TERMINATING EMPLOYEE'S NAME)*

Copy:

From: *(TERMINATING EMPLOYEE'S MANAGER NAME)*

Subject: **Exit Physical**

All Earth Tech personnel whom fall under the medical requirements of 29 CFR 1910 (8 CCR in CA) and are terminating employment with Earth Tech are required to participate in an exit physical. Please contact me at ***(EHSA INSERT THEIR CONTACT INFORMATION HERE)*** about scheduling your exit physical as soon as possible.

If you do not wish to participate, please sign below and immediately return the form to:

Earth Tech, Inc

(INSERT EHSA CONTACT INFORMATION HERE)

Or fax to:

(INSERT EHSA FAX NUMBER HERE)

Thank you,
Earth Tech

I, _____ (name), decline to participate in the company sponsored exit physical that is required under 29 CFR 1910.120.

Signature _____ Date _____

Cc: Section EHSA
HR Representative
Employee's Manager

EarthTech
A Tyco International Ltd. Company

EarthTech A tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 114 DATE March 25, 2005 REVISED March 31, 2006
SH&E Training Programs	PREVIOUSLY EHS 301

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE

Earth Tech's Safety, Health and Environmental (SH&E) Training Program is designed to provide training for all personnel commensurate with the safety needs of their assigned job duties and responsibilities. Major objectives of the SH&E Training Program include:

- Identify accountability, responsibility, and authority pertaining to training program requirements.
- Establish minimum training course and/or instructor criteria to ensure compliance with applicable regulatory requirements as well as Earth Tech's SH&E Program requirements
- Provide guidelines that will facilitate employee education regarding safe work practices that will reinforce the Earth Tech Safety Core Values.
- Define documentation and corresponding archive requirements for the training program.
- Maintain consistency in SH&E training content throughout Earth Tech.

2.0 SCOPE

This procedure applies to all Earth Tech business units based in the United States. The requirements included in this procedure are the minimum applicable for all Earth Tech activities. Individual business units or operating locations may revise the attachments to this procedure (upon approval of the cognizant District Safety Manager) in order to meet operational considerations or local regulatory requirements. In addition, client-mandated requirements may apply on a project-specific basis and will be addressed in supplemental documents (e.g. health and safety plans, training guides, etc.).

3.0 RESPONSIBILITIES

Earth Tech's operational management organization (line management staff) is responsible for implementing the SH&E Training Program in accordance with the requirements of this procedure, with assistance from the SH&E Department.

3.1 Division Managers

Each division manager is responsible for ensuring adequate plans are in place to facilitate implementation of this program within the Division. This includes ensuring that adequate resources (budget, training staff, etc.) are available to the business unit(s) to implement all required safety training.

3.2 District/Business Unit Managers

District/Business Unit managers are responsible for developing plans and procedures to ensure effective implementation and enforcement of this procedure at the section/department level. This includes:

- Allocating resources for the effective implementation of this program within their district/business unit.
- Establishing procedures that ensure compliance is tracked and measured.
- Developing measurable training goals for section/department managers, and monitoring these goals on a regular basis, at least annually.
- Reviewing the safety training performance of individual sections to ensure compliance with this procedure.

3.3 Section/Department Managers

Section/department managers are responsible for ensuring that all assigned personnel comply with the requirements of this program. Section managers will also:

- Utilize the eTracking database to track employee training compliance and anniversary dates. This would include oversight of eTracking data entry for section personnel.
- Ensure that accurate training needs assessments (see Attachment 2) are maintained for all section/department employees based upon their assigned job duties.
- Identify an Environmental, Health and safety Administrator (EHSA) to coordinate safety training and to administer training program data for their section/department.
- Implement corrective actions when employees fail to meet training requirements.
- Identify supplemental employee training needs based on local/client requirements.
- Ensure that training requirements are reviewed with each employee, based upon current and anticipated job functions and past performance, on a routine basis. This will include, at a minimum, a review during the annual employee review and/or any major employee re-assignment/job change.
- Identify additional employee safety training requirements based upon prudent risk management considerations and local performance issues.

3.4 Safety, Health and Environmental Department

The SH&E Department is responsible for:

- Establishing SH&E Training Program requirements and communicating these requirements to line management within each district.
- Auditing for compliance with training program requirements.
- Providing technical assistance/support as requested by district and section managers.
- Performing internal safety training classes as requested by district and section managers.
- Reviewing and approving qualifications of Earth Tech employees providing internal safety training.
- Approving external safety training vendors and on-line (Internet) training providers.
- Approving training lesson plans and course agendas for all internal training courses.
- Maintaining a list of approved SH&E Training Vendors and posting this list on the Earth Tech Intranet SH&E Page.

3.5 Earth Tech Employees

Each Earth Tech employee is responsible for maintaining accurate *Training Needs Assessment* data (see Attachment 2) by completing and keeping their *Job Duties Description* (see Attachment 1) up-to-date. In addition, each employee is expected to track his or her own training anniversary dates coordinate with their EHSA for appropriate refresher training to prevent expiration of any necessary training certifications.

4.0 PERSONAL TRAINING REQUIREMENT IDENTIFICATION

Individual training requirements are dependent on the person's job description and duties. As stated in Section 3.0, it is each employee's responsibility, along with their supervisor, to determine what training the employee is required to have to safely perform their job and comply with Earth Tech policies and requirements. This is accomplished using the Training Needs Assessment Smartsheet tool, an MS EXCEL-based worksheet for identifying safety training needs available from the SH&E Website in ETOnline. To use this Smartsheet tool each employee (or their supervisor) will:

- Describe the employee's job duties by entering information directly in Tab 1 of the Smartsheet tool (spreadsheet), called the *Job Duties Description* form (shown in Attachment 1). For remote employees this information can be completed telephonically with their supervisor, or a hardcopy of the form can be printed, hand-marked, and sent to the supervisor for entry into the spreadsheet tool.

- Tab 2 of the Smartsheet tool, called the *Training Needs Assessment* form (shown in Attachment 2), will then indicate the employee's required safety training based on the Tab 1 information. This Tab must be printed, signed by the employee and supervisor, and used for tracking of training completion. A copy of the signed form must be provided to the EHSA to allow update of the eTracking systems.

- Each employee or supervisor should save the individual's completed Smartsheet tool for re-use during any subsequent updates, and the annual review with the employee.

4.1 Updating the Information

The *Job Duties Description* information should be reviewed by each employee, along with his or her supervisor:

- During new employee orientation
- On an annual basis after the new employee orientation
- Immediately following a major job change

4.2 Collecting Information for New Hires

For new hires a preliminary version of the Smartsheet is to be completed as part of the New Hire Request Package, and can be used as part of candidate qualification reviews during the hiring process. This preliminary information will then be reviewed with each new hires during the on-boarding process, at which time they must review, sign and return the worksheet to their supervisor before assuming their job duties.

Once the training assessment is completed and signed by the supervisor a copy is to be placed in the employee's health and safety file by the EHSA, and the original provided to the employee. If there are any certificates, copies are to be obtained and provided to the EHSA and a copy placed in the individual's SH&E file.

5.0 TRAINING COURSE FORMATS

Earth Tech utilizes 3 primary formats to provide SH&E training:

1. Internal Training – Earth Tech developed training that is performed using internal resources.
    a. Intranet training – Courses that are self-taught and individually paced and delivered via ETOnline (the Earth Tech intranet) or similar format. These courses are developed and maintained by the SH&E Department.
    b. Classroom training – Courses taught by an instructor in a classroom format. Trainers are SH&E Department approved personnel (see section 6.0) using materials that were developed specifically to train Earth Tech employees. All training course curricula must be reviewed and approved by the SH&E Department prior to execution of training.

2. Internet Training – Earth Tech will use Internet training to supplement internal training courses. All Internet based safety-training courses and providers must be approved by the SH&E Department prior to employee participating in training. The primary vendor for these services is ClickSafety (approved ClickSafety training courses can be accessed via the SH&E Department home page), however other vendors may be selected by the SH&E Department based upon need.

3. External Vendors – External vendors conduct training that is not available through internal training sources. All external vendors are to be pre-approved by the SH&E Department prior to any employee attending a training class.

6.0 TRAINING PROGRAM MANAGEMENT

District Safety Managers will be responsible for verifying training vendors, Internet training courses, or any other external training programs used by their business units to comply with applicable regulatory guidelines and Earth Tech SH&E Program requirements. Earth Tech will not consider any training received through an unapproved vendor to be valid until reviewed and accepted by a District Safety Manager.

7.0 TRAINING DATA MANAGEMENT

Records documenting employee participation safety training will be maintained in accordance with applicable regulatory requirements and Earth Tech SH&E Program requirements. Minimum requirements are as follows:

7.1 District/Section/Business Unit Responsibility

Each district/section/business unit is responsible for maintaining documentation of course completion by each individual employee The minimum requirements and documentation required for each employee's training file are as follows:

1. Supervisor-signed *Training Needs Assessment* form (see Attachment 2).

2. Certificate of completion for each class. Each certificate must indicate:
    a. Employee name
    b. Class Name, and applicable reference to specific regulatory standard (e.g. 29 CFR 1910.120; 40-Hour, 8-Hour Refresher; OSHA 10-Hour Construction Safety; ISO reference; etc.)
    c. Instructor's printed name and signature
    d. Date(s) of class
    e. Company name and address.

Data will be maintained in one of two formats:

Electronic Records (eTracking) – eTracking is an Earth Tech-wide safety database that maintains employee safety training information (dates, course name, certificates, etc.), including training certificates, which can be scanned and placed into the database. Data will be entered by each section EHSA, and each section manager is responsible to ensure the database is current for their personnel.

Hardcopy Records – Each employee is required to maintain a personal file with hardcopies of their certification(s) from all (internal, external, intranet, Internet) training providers.

The section safety training coordinator is required to maintain an individual employee safety file with hard copies of certification from all (internal, external, intranet, internet) training providers that **are not entered in the eTracking database**.

In addition to employee training records, each Section is required to maintain records for each training course which is provided. A individual training summary will be maintained for each class which must include:

1. The Course agenda for each class, which will indicate:
    a. Course Name
    b. Date(s)
    c. Class start and stop time
    d. Course outline (list of topics discussed)
    e. Instructors' name(s)
    f. Provider's name and address

2. A copy of the *Student Training Sign-in Sheet* (see Attachment 3). For external vendor classes equivalent documentation is required.

7.2 SH&E Department Responsibility

The SH&E Department will maintain the following records:

- A listing of approved external training vendor firms and courses for which they are approved.
- A listing of approved Earth Tech trainers and the courses each is approved to teach.
- Earth Tech's library of Intranet-available safety training courses.

These records will be maintained on the Earth Tech Intranet Safety Page, where they will be accessible to all Earth Tech managers and personnel for use in the planning of training activities.

8.0 ATTACHMENTS

Attachment 1 – Job Duties Description Form (Smartsheet Tab 1)

Attachment 2 – Safety Training Needs Assessment Form (Smartsheet Tab 2)

Attachment 3 – Student Training Sign-in-Sheet

JOB DUTIES DESCRIPTION FORM

By answering the questions below about your job duties, you will identify the unique safety training needs required for the work that you do at Earth Tech. Your answers should be marked YES or NO without regard for answers given to any other questions on this sheet, and must only reflect the activities that you actually perform during your work with the Company, NOT things that you never actually do, or actions you only manage, assign to others, observe others perform, or otherwise *do not directly participate in.*

Definitions for many of the terms used in this worksheet can be found in the Definitions tab (Tab 3). Questions will reference the applicable Earth Tech SH&E Procedure(s) where additional guidance may be found.

Name:	
Employee Number:	
Hire Date:	
Assigned District:	
Section Number:	

Date Completed:	

For every question below, please check either YES or NO based on your REQUIRED job duties.

General Information

Has Earth Tech classified you as a "Casual", "Designated" or "Designated Primary" driver, or are you required to operate a passenger vehicle at any time for the Company? (don't worry about how often) *NOTE: Commuting to/from home to work does not qualify as "for the Company", driving a rental car while traveling does.* [SH&E 116]	☐ YES	☐ NO
Have you been classified as a "Designated-Primary" driver by your Section Manager or Supervisor (per SH&E 116)? Is driving a primary part of your work (more than just a means to get to/from work locations), or have you been assigned an Earth Tech owned or leased vehicle for your full-time use? [SH&E 116]	☐ YES	☐ NO
Would you ever be required to provide emergency medical help (first aid or CPR) to someone who is injured or falls ill on the job? [SH&E 205]	☐ YES	☐ NO
Have you been issued any type of respirator, or do you perform work where you wear a respirator or where such use could be required? [SH&E 112]	☐ YES	☐ NO
Do you ever utilize hearing protection in your work, or work in designated Hazardous Noise areas; are there times when noise levels in your work location are loud enough to prevent normal conversation without shouting? [SH&E 109]	☐ YES	☐ NO
Do you handle or work with any type of hazardous materials or chemicals? *NOTE: Consider only materials procured or brought to the work site by Earth Tech, not environmental contaminants, asbestos, lead, or other materials which are already present at your workplaces.* [SH&E 115]	☐ YES	☐ NO
Do you need to be able to operate a fire extinguisher, or perform a task where a fire extinguisher is a required piece of equipment for the job (e.g., fire watch)? *NOTE: The presence of fire extinguishers in the workplace does not indicate that you are required to use one. Earth Tech's general policy is that only specifically designated personnel will perform fire fighting work.* [H&E 508]	☐ YES	☐ NO

JOB DUTIES DESCRIPTION FORM

By answering the questions below about your job duties, you will identify the unique safety training needs required for the work that you do at Earth Tech. Your answers should be marked YES or NO without regard for answers given to any other questions on this sheet, and must only reflect the activities that you actually perform during your work with the Company, NOT things that you never actually do, or actions you only manage, assign to others, observe others perform, or otherwise *do not directly participate in.*

Definitions for many of the terms used in this worksheet can be found in the Definitions tab (Tab 3). Questions will reference the applicable Earth Tech SH&E Procedure(s) where additional guidance may be found.

Name:	
Employee Number:	
Hire Date:	
Assigned District:	
Section Number:	

Date Completed:	

For every question below, please check either YES or NO based on your REQUIRED job duties.

General Information

Has Earth Tech classified you as a "Casual", "Designated" or "Designated Primary" driver, or are you required to operate a passenger vehicle at any time for the Company? (don't worry about how often) *NOTE: Commuting to/from home to work does not qualify as "for the Company", driving a rental car while traveling does.* [SH&E 116]	☐ YES	☐ NO
Have you been classified as a "Designated-Primary" driver by your Section Manager or Supervisor (per SH&E 116)? Is driving a primary part of your work (more than just a means to get to/from work locations), or have you been assigned an Earth Tech owned or leased vehicle for your full-time use? [SH&E 116]	☐ YES	☐ NO
Would you ever be required to provide emergency medical help (first aid or CPR) to someone who is injured or falls ill on the job? [SH&E 205]	☐ YES	☐ NO
Have you been issued any type of respirator, or do you perform work where you wear a respirator or where such use could be required? [SH&E 112]	☐ YES	☐ NO
Do you ever utilize hearing protection in your work, or work in designated Hazardous Noise areas; are there times when noise levels in your work location are loud enough to prevent normal conversation without shouting? [SH&E 109]	☐ YES	☐ NO
Do you handle or work with any type of hazardous materials or chemicals? *NOTE: Consider only materials procured or brought to the work site by Earth Tech, not environmental contaminants, asbestos, lead, or other materials which are already present at your workplaces.* [SH&E 115]	☐ YES	☐ NO
Do you need to be able to operate a fire extinguisher, or perform a task where a fire extinguisher is a required piece of equipment for the job (e.g., fire watch)? *NOTE: The presence of fire extinguishers in the workplace does not indicate that you are required to use one. Earth Tech's general policy is that only specifically designated personnel will perform fire fighting work.* [H&E 508]	☐ YES	☐ NO

JOB DUTIES DESCRIPTION FORM

Do you perform any "field activities" (work occuring away from your home office involving settings other than office locations)? *NOTE: Site walks, facility inspections, engineering evaluations, and similar activities all constitute "field activities". Meetings in client offices, attendance at conferences/trade shows, public meetings/presentations, and similar activities are not "field activities".* [SH&E 203]	☐ YES ☐ NO
Do you perform work in an analytical laboratory space? [SH&E 603]	☐ YES ☐ NO
Do you perform work on projects funded by the U.S. Army Corps of Engineers or the U.S. Navy?	☐ YES ☐ NO

In-the-Office Activities

Do you spend at least 1 full day, or at least 10 total hours per week, working in an office setting? *NOTE: This can be your assigned Earth Tech office, a home office, or a job-site trailer or similar field office location if that is your assignment, the hours should be based on that required to perform your assigned job duties, including overtime.* [SH&E 302]	☐ YES ☐ NO
Does your work ever involve the direct use of a computer for at least 2 hours continuously, a total of 4 hours in any work day, or at least half of your time in-office? [SH&E 123]	☐ YES ☐ NO

HAZWOPER/Environmental Field Activities

Are you a HAZWOPER worker, or are you required to visit any designated HAZWOPER site AND enter into any Exclusion Zone areas? [SH&E 301]	☐ YES ☐ NO
Have you already completed HAZWOPER 40-hour training? [SH&E 301]	☐ YES ☐ NO
Have you already completed your baseline (new hire) HAZWOPER medical exam? [SH&E 108 & 301]	☐ YES ☐ NO
Do you perform field management of HAZWOPER work (including supervising a work/investigation team) or people on a HAZWOPER site, or serve as a Site Safety Officer for any HAZWOPER site/activity? [SH&E 301]	☐ YES ☐ NO

Construction/Demolition Field Activities

Are you a site manager, foreman, or Site Safety Officer for job sites involving construction or demolition activities? *NOTE: This can include HAZWOPER/environmental sites where significant construction/demolition is required.* [SH&E 305]	☐ YES ☐ NO
Do you manage or perform demolition work? *NOTE: Check YES only if you are part of the crew managing or performing the work, not serving as an inspector, engineer, or other support function where others perform the work.* [SH&E 305]	☐ YES ☐ NO
Do you spend at least 50% of your time on construction/demolition sites? *NOTE: In this case, check YES whether you manage/perform the work, or provide inspector, engineering, or other support functions, as long as at least half your working time is spent on site.* [SH&E 203 & 300-series]	☐ YES ☐ NO
Do you ever perform "field activities" at construction/demolition sites in Massachusetts or Rhode Island?	☐ YES ☐ NO

JOB DUTIES DESCRIPTION FORM

Specialized Field Activities

Do you ever perform work in areas where active excavation activities are being performed, including oversight of other organizations performing such work? *NOTE: This can also include environmental activities involving test pitting, collection of confirmation or QA samples obtained from excavation work by others, or construction of some types of treatment systems.* [SH&E 402]	☐ YES	☐ NO
Are you an operator for any piece of of heavy earthworking equipment? [SH&E 513]	☐ YES	☐ NO
Do you ever need to enter a trench or excavation deeper than 3 feet? [SH&E 402]	☐ YES	☐ NO
Do you ever access or use scaffolds during the performance of your work? [SH&E 502]	☐ YES	☐ NO
Do you ever ride in a manlift or other type of aerial lift during the performance of your work? [SH&E 514]	☐ YES	☐ NO
Do you perform entry of any Permit-Required Confined Spaces, or support or *directly* supervise such an entry? *NOTE: Consider all unclassified/suspect spaces to be permit-required until evaluated by an Earth Tech-approved person.* [SH&E 118]	☐ YES	☐ NO
Are you required to participate in a team which rescue persons from inside a Permit-Confined Space by entry of the space (i.e., "entry rescue")? [SH&E 118]	☐ YES	☐ NO
Do you ever operate (drive) a forklift or other powered industrial truck? [SH&E 512]	☐ YES	☐ NO
Do you perform maintenance of electrical, mechanical, pneumatic, hydraulic or other energized equipment or devices? [SH&E 119]	☐ YES	☐ NO
Are you ever required to use fall protection or fall arrest devices (harnesses, lifelines, etc.) in your work? [SH&E 120]	☐ YES	☐ NO
Do you work within 25 feet of active rail tracks, or do you perform field work on projects funded by a railroad client? [SH&E 308]	☐ YES	☐ NO

Hazardous Materials Shipping and Transport

Are you required to personally package or prepare for shipment (by FedEx, US Mail, UPS, etc.) any types of hazardous or dangerous materials? *NOTE: This can include analytical laboratory samples, waste materials, calibration gases or other compressed-gas items, or any hazardous wastes.* [SH&E 122]	☐ YES	☐ NO
Are you required to personally package or prepare for shipment (by FedEx, US Mail, UPS, etc.) any meters containing radioactive materials? *NOTE: These devices can include various soil density/moisture meters, lead survey meters (XRFs), strain gauges, and radiation detection equipment.* [SH&E 122 & 126]	☐ YES	☐ NO
Are you required to ever personally transport any hazardous, dangerous, or radioactive materials, devices or items? [SH&E 122]	☐ YES	☐ NO
Are you required to develop, oversee, or direct the process for packaging/shipping any hazardous, dangerous, or radioactive materials, devices or items? *NOTE: Checking YES here will require that you receive HAZMAT Level 2 shipper training. This training is very extensive, so please check YES only if this duty has been explicitly assigned to you.* [SH&E 122]	☐ YES	☐ NO

JOB DUTIES DESCRIPTION FORM

Asbestos/Lead Consulting and Miscellaneous

Do you perform asbestos inspections of buildings or other facilities? [SH&E 609]	☐ YES	☐ NO
Do you write Asbestos Management Plans? [SH&E 609]	☐ YES	☐ NO
Do you perform lead inspections of buildings or other facilities? [S&E 610]	☐ YES	☐ NO
Do you write Lead Management Plans? [SH&E 610]	☐ YES	☐ NO

Radiation Safety

Do you operate or transport any devices containing radioactive material (e.g., soil density/moisture gauges, lead survey meters, or radiation detection equipment)? [SH&E 126]	☐ YES	☐ NO
Do you work in locations where you are exposed to ionizing radiation, or are you required to use Earth Tech-supplied radiation dosimeters? [SH&E 126]	☐ YES	☐ NO
Are you a Radiation Safety Officer for an Earth Tech-held Radioactive Materials (RAM) license, or on any project site? [SH&E 126]	☐ YES	☐ NO

Competent Person Designations

A Competent Person is empowered by Earth Tech as a subject matter expert and decision-maker, able to plan associated work activities and oversee it's field-level execution, in the indicated area.

Designation as a Competent Person any in any topic area requires approval by a District Safety Manager, following proof of training and experience as specified in SH&E Procedure 133.

For each of the designations below, only check YES if you require designation as a Competent Person in that subject area.

Competent Person - Confined Space Operation	☐ YES
Competent Person - Excavation Operations	☐ YES
Competent Person - Heavy Equipment Operations	☐ YES
Competent Person - Fall Protection	☐ YES
Competent Person - Lock-out/Tag-out Activities	☐ YES
Competent Person - Scaffolding	☐ YES
Competent Person - Radiation	☐ YES
Competent Person - Respiratory Protection	☐ YES

After you have answered or updated all of the questions on this page please go to Tab 2 to view and your Safety Training Needs Smartsheet. These are your required safety training courses. Please print and sign, and have your supervisor sign. Please retain this Form as a record of your current training needs, and please provide a copy of the fully-signed Form to your EHSA.

Safety Training Needs Assessment - Smartsheet

Name: 0

Emp. No.: 0

The following safety training courses are REQUIRED based upon assigned job duties.

Required	Safety Course Name	Training Frequency	Approved Provider Types
XX	01 - Safety Orientation	Every 2 years, or when new versions of Orientation training are published.	ETOnline, SH&E Dept.
	02 - Hazard Communication		
	03 - Defensive Driving Awareness Training (DDAT)		
	04 - Defensive Driving, 4-Hour Course		
	13 - Field Safety 4-Hour		
	14 - Office Ergonomics		
	15 - First Aid		
	16 - CPR		
	17 - DOT Level 1 Shipper		
	18 - Nuclear Density Gauge Shipper		
	19 - DOT Level 2 Shipper		
	20 - HAZWOPER 40-Hour		
	21 - HAZWOPER Refresher 8-Hour		
	22 - HAZWOPER Supervisor 8-Hour		
	23 - OSHA 10-Hour Construction Safety		
	24-26 - Confined Space (Entrant, Attendant, & Supervisor)		
	27 - Confined Space Rescuer		
	28 - Powered Industrial Truck (forklift)		
	29 - Aerial Lift (man-lift) Operation Training		
	30 - Respiratory Protection		
	31 - Hearing Protection		

Safety Training Needs Assessment - Smartsheet

Name: 0

Emp. No.: 0

	32 - Lockout/Tagout (awareness)		
	33 - Scaffolding (awareness)		
	34 - General Excavation Safety Training (awareness)		
	35 - Trench/Excavation (awareness)		
	36 - Fire Extinguisher		
	37 - Asbestos Inspector		
	38 - Asbestos Planner		
	39 - Lead Based Paint Inspector or Lead Based Paint Assessor		
	40 - Lead Based Planner		
	41 - Nuclear Density Gauge Operator Training		
	Respirator Fit Test		
	Fall Protection (awareness)		
	Lab Safety		
	Railroad General Roadway Worker Protection (railroad-specific – i.e., CN, CSX, etc.)		

Special and Additional Training Needs

	Radiation Safety Officer Training Course		
	Radiation Worker Safety Training		

Please write in any additional or client-mandated training which is required.

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Safety Training Needs Assessment - Smartsheet

Name: 0

Emp. No.: 0

Medical Monitoring Needs

Required	Examination Type	Frequency	Provider
	HAZWOPER Examination		
	Asbestos Examination		
	Respirator-only medical clearance		
	Hearing check		

Competent Person Designations

The following Competent Person designations are required to be approved *in writing* by the DSM or other authorized individual before duties may be undertaken, IAW SH&E 133.

	Competent Person - Confined Space Operations
	Competent Person - Excavation Operations
	Competent Person - Heavy Equipment Operations
	Competent Person - Fall Protection
	Competent Person - Lock-out/Tag-out Activities
	Competent Person - Scaffolding
	Competent Person - Radiation
	Competent Person - Respiratory Protection

I certify that the information shown above is correct as of January 0, 1900

Employee Name: _____ Employee Signature: _____

Supervisor Name: _____ Supervisor Signature: _____

STUDENT TRAINING SIGN-IN SHEET

Course Name:				**Course #:**	
City:		**State:**		**Section #:**	
Date:		**Start Time:**		**Stop Time:**	
Lead Instructor:		**Instructor 1:**		**Instructor 2:**	

	Employee Name:	Employee Signature:	Employee ID #:
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2.			
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Copy and add pages to the Sign-In Sheet as needed:

Page __ of __

STUDENT TRAINING SIGN-IN SHEET

Course Name:				**Course #:**	
City:		**State:**		**Section #:**	
Date:		**Start Time:**		**Stop Time:**	
Lead Instructor:		**Instructor 1:**		**Instructor 2:**	

	Employee Name:	Employee Signature:	Employee ID #:
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Copy and add pages to the Sign-In Sheet as needed:

Page __ of __

EarthTech A Tyco International Ltd. Company **Safety, Health & Environmental Procedure**	PROCEDURE NO. SH&E 202 DATE March 25, 2005 REVISED September 26, 2005
Safety Meetings	PREVIOUSLY ENV 202

This procedure applies to all U.S.-based personnel, projects, offices, business units and activities. Any exceptions to this procedure must be approved, in writing, by the responsible District/Business Unit Manager and Safety Manager.

1.0 PURPOSE/SCOPE

This procedure will provide general guidelines that are to implement when executing work in the field. Additionally, it provides references to other applicable procedures that are to be implemented.

2.0 PROJECT INITIATION/KICK-OFF

Where specified in the project-specific SH&E documentation (see SH&E 203 - Accident Prevention Program Requirements for SH&E Documentation), a kick-off safety meeting will be conducted prior to the start of field operations, and will involve representatives of all organizations working on the job site. Topics for this meeting will include:

- Communication of all on site SH&E responsibilities and authority.
- Communication of organizational SH&E performance expectations.
- Identification of significant project SH&E issues/hazards and solutions.
- Coordination of organizational SH&E conflicts and interactions.

Refer to SH&E 204 – Task Hazard Analysis for additional information regarding implementation of Task Hazard Analysis (THA) and associated training requirements.

Note: For low-risk projects (e.g., Facility Auditing, Industrial Hygiene Surveys, U.S. Postal Service Assessments, Non-Hazwoper Site Walkthroughs), the completion of a Pre-Task Planning Form (Attachment I) will be adequate to address health and safety concerns in most cases.

3.0 ON-SITE MEETINGS

Safety meetings will be conducted at all job sites for the following operational milestones:

1. Project Start-up: On the first day of field operations for a new project or a new phase of work.
2. Periodic: On a regular, recurring frequency of not less than once per week (daily meetings are required for HAZWOPER activities).
3. Significant Personnel Turn-over: The start of any workday where a new organization begins work on site or more than 25 percent of the day's work force is new to the site.

4. Accident Recovery: The start of the work day following any accident which results in more than $1000 dollars in property damage or where an injury to one or more personnel requires medical treatment (discuss the accident, its causes and preventive measures).

The meetings will be documented on the *Tailgate Safety Briefing Form Sign-In Log* (Attachment 2).

4.0 SUPPLEMENTAL SAFETY TRAINING

The Project Manager (PM), Site Supervisor (SS) or Site Safety Officer (SSO) will implement worker training on general safety topics as part of routine on-site training activities. Where such training is conducted it will be documented on the *Safety Training Log* (Attachment 3).

5.0 SITE ORIENTATIONS

1. All project employees will receive a safety orientation and training prior to the start of any project and/or task.

2. The PM, SS or SSO will perform the orientation and training. The level of training and method for providing orientation and training will consist of the mandatory items listed in SH&E 114 – Safety Training Programs, and a site specific orientation that will be based on the project specifics, location of the project, and client requirements. The SH&E Department can provide examples of previous orientation material for reference.

3. The depth/level of training will be commensurate with the job function(s) to be performed. Site visitors will receive general orientation and task-specific training.

4. At a minimum, initial employee orientation and training will consist of the items listed below:

1. Identification of hazards associated with the individual's job function and responsibilities.
2. Specific safety procedural instruction needed to perform his or her required job function or task.
3. Content of the HASP and THAs.
4. Other ongoing safety training for specific job functions will be conducted on an "as-needed" basis.
5. NOTE: In addition to the Project Safety Orientation all Earth Tech employees will receive the Earth Tech safety orientation as found on the Intranet.
6. http://uslgbwll03.earthtech.com/EHandSOrientation/ehs_employee_orientation.html

6.0 SAFETY MEETINGS

Safety meetings will occur on a daily basis prior to the start of field activities. Safety meetings will be conducted by the PM or SS and supplemented by the supervisors of various crafts (labor, equipment operation, foreman, safety).

1. The purpose of these meetings is to allow the project employees an opportunity to maintain a high degree of safety awareness through timely safety education. This training will be used to discuss specific safety topics and obtain employee feedback.
2. The PM and SSO will monitor safety meetings to ensure that subject matter is properly presented.

3. Topics to be discussed will include safety hazards noted during the week and explanation of job safety procedures unique to the project.
4. Other items open for discussion may include, but are not limited to:

   Use of employee personal protective equipment

   Project safety rules

   Employee accidents and incident reviews

   Review of applicable SOPs to job specific activities
5. Safety Briefings will be developed by the PM, SS, or SSO. Meetings will be conducted by the PM, SS, or foreman with support from the SH&E Department. Subjects may be obtained from the SH&E Dept.
6. Records of attendance at all employee safety orientation and training provided as part of this procedure will be documented on the Tailgate Safety Briefing Form (attached).

7.0 ATTACHMENTS

Attachment 1 – Pre-Task Planning Form

Attachment 2 – Tailgate Safety Briefing Sign-In Log

Attachment 3 – Safety Training Log

8.0 REFERENCES

- SH&E 114 – Safety Training Programs
- SH&E 203 – Accident Prevention Program – Requirements for SH&E Documentation
- SH&E 204 – Task Hazard Analysis

PRE-TASK PLAN FOR SAFETY

Project: _____ **Location:** _____

Date: _____ **Shift:** _____

Foreman: _____ **PM/RM:** _____

General Foreman (Sign after Review):

_____

Description of Work: _____

_____

_____

_____

HAZARD IDENTIFICATION

____ Housekeeping	____ Evacuation Process
____ High Voltage cables/hot rails	____ Trenches Properly shored/sloped
____ Requires Fall Protection	____ Asbestos or Lead paint
____ Open Holes	____ Confined Space(s)
____ Guarding	____ Vehicle/Traffic
____ Materials/ Scrap	____ Hot Work Protection
____ Noise	____ High Temperature
____ Working above/ below workers	____ Carbon Monoxide (150 PPM = evacuate area)
____ Acids/ Caustics	____ Radiation
____ Toxins	____ Hazardous Material

Equipment Required: _____

Engineering Required: _____

Scaffolding Required: _____

Other: _____

Control Measures

Area Secured:

____ **Warning Tape**

____ **Barricades**

____ **Roof Perimeter Protection**

Other: _____

____ **Escape Route Identified**

____ **Task Safety Checklist Completed**

Other: _____

Verification of Understanding

(Crew members sign to assure that they understand the plan)

Print	Sign
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Task Safety Checklist (check all that apply)

Personal Protective Equipment	YES	NO	N/A
Goggles/Face shield	___	___	___
Gloves	___	___	___
Rubber boots/suits	___	___	___
Respirators	___	___	___
Body Harness/Shock absorbing lanyard	___	___	___
Welding Shield	___	___	___
Leather Sleeves/coat	___	___	___
Ear Plugs	___	___	___
Long Sleeve Shirts	___	___	___
Fire Retardant Clothing	___	___	___
Energized Equipment			
Lockout Verified	___	___	___
All Locks Labeled/ Tagged	___	___	___
Broken/ Exposed Wiring	___	___	___
Fire Protection			
Proper Fire Extinguisher & Fire Hose	___	___	___
Flammable Materials Removed or Protected	___	___	___
Fire Blankets	___	___	___
Fire Watch Required	___	___	___
Area Need to be Flagged	___	___	___
Tools			
Proper Tools for the Job	___	___	___
Ladder Inspection	___	___	___
Hand Tools in Good Condition	___	___	___
Air hoses secured	___	___	___
Ground Fault protection in place	___	___	___
Oxygen/ Acetylene tied off	___	___	___

Housekeeping	Yes	NO	N/A
Work Surface Level	___	___	___
Aisles, Stairs, Floors Clean	___	___	___
Storage of Materials	___	___	___
Material Handling/Equipment Inspection			
Cranes or Cherry Pickers	___	___	___
Air Tuggers	___	___	___
Rigging Checked	___	___	___
Cables, Ropes, Slings	___	___	___
Chain Falls	___	___	___
Pre-Lift Required	___	___	___
Fall Protection			
Rope Grabs	___	___	___
Retractables	___	___	___
Vertical Lifelines	___	___	___
Horizontal Lifelines	___	___	___
Guardrail System – Handrail, Midrail, toeboard	___	___	___
Floor Openings Protected	___	___	___
Miscellaneous			
Ladders Secured	___	___	___
Scaffolds Inspected	___	___	___
Rebar Protected	___	___	___
Pinch Points	___	___	___
Purge Requirements	___	___	___
Trailer Inspection	___	___	___
Daily Shift Ending Audit (Assure Equip & Area is secure)	___	___	___

Permits**	Required Yes	Required No	Complete
Work Permit	___	___	___
Excavation	___	___	___
Confined Space	___	___	___
Hot Work	___	___	___
MSDS Available	___	___	___
Special Written Procedure	___	___	___

** Completing this form does NOT replace completion of the required permits

Specific Work Requirements:

_____

Alternative Work Areas:

_____

Safety & Productivity Improvement Suggestion(s):

Post Task Inspection Checklist

	Yes	No	N/A
Post-Job Cleanup	___	___	___
Secured Installed Materials	___	___	___
Hot Work Monitored after Work Completed	___	___	___
Barricades Installed where Needed	___	___	___
Equipment Shut Down/ Secured	___	___	___
Locks Removed	___	___	___

Emergency Numbers

SH&E Contacts

District Safety Managers

Dale Prokopchak, CIH, CSP (Cap)	**(804) 839-8312**
Bob Poll, CIH, CSP (NE)	**(562) 884-1414**
Ron Partilla, CSP, OHST (SE)	**(843) 572-5600**
Chad Ross, (MW)	**(859) 442-2300**
Bart Dawson, CIH (RM)	**(210) 271-0925**
Herold Hannah, CIH, CSP (West)	**(412) 200-2028**

Incident Reporting Line

Earth Tech Safety Coordinator **(800) 348-5046**

Shift Manager: _____

Project Manager: _____

Earth Tech
Tailgate Safety Briefing Sign-In Log

Briefing Conducted By:	Signature:	Date:	Time:

Project name:	Project Number:

This sign-in log documents the topics of the tailgate safety briefing and individual attendance at the briefing. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily. **Please provide a brief narrative of the following topics as applicable to the Project**

Scope of Work	
HASP / THA review	
SOP Review	
PPE Requirements	
Incident Review Safety Alerts	
Other:	

Personnel Sign-in List

Printed Name and Company	Signature	Printed Name and Company	Signature
1.		7.	
2.		8.	
3.		9.	
4.		10.	
5.		11.	
6.		12.	

Earth Tech
Safety Training Log

Training Conducted By:	Signature:	Date:
Project name:	**Project Number:**	**Time:**

This sign-in log documents the safety training conducted in accordance with various Parts of 29 CFR 1910 and 29 CFR 1926 as well as other applicable regulatory requirements. Earth Tech personnel who perform work activities in field/facility environments are required to attend each safety training session and acknowledge receipt of such training prior to a change in site/facility-specific operations or conditions. Additional training topics and/or regulations can be added to address ongoing site/facility operations. The assigned Manager (i.e., project, construction, response, facility, etc.) is instructed to maintain the completed documents at the facility for review for the duration of the project.

Describe the elements of the training topic below. Use a separate for separate training. This form should be used for specific training (PPE training, Respiratory Protection training, HAZCOM, etc.)

Personnel Sign-in List

Printed Name	Signature	Printed Name	Signature
1.		7.	
2.		8.	
3.		9.	
4.		10.	
5.		11.	
6.		12.	

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

Earth Tech, Inc.
Instrument Calibration Log

Instrument Information	
Instrument Name:	Manufacturer:
Serial Number:	Last Service Date:
Parameter(s):	Calibration Gas:
Calibration Procedure:	

Daily Calibration Results

Date: _____ Calibration Result: _____
Name: _____ Signature: _____
Notes:

Date: _____ Calibration Result: _____
Name: _____ Signature: _____
Notes:

Date: _____ Calibration Result: _____
Name: _____ Signature: _____
Notes:

Date: _____ Calibration Result: _____
Name: _____ Signature: _____
Notes:

Date: _____ Calibration Result: _____
Name: _____ Signature: _____
Notes:

Date: _____ Calibration Result: _____
Name: _____ Signature: _____
Notes:

D

JOB DUTIES DESCRIPTION FORM

By answering the questions below about your job duties, you will identify the unique safety training needs required for the work that you do at Earth Tech. Your answers should be marked YES or NO without regard for answers given to any other questions on this sheet, and must only reflect the activities that you actually perform during your work with the Company, NOT things that you never actually do, or actions you only manage, assign to others, observe others perform, or otherwise *do not directly participate in.*

Definitions for many of the terms used in this worksheet can be found in the Definitions tab (Tab 3). Questions will reference the applicable Earth Tech SH&E Procedure(s) where additional guidance may be found.

Name:	
Employee Number:	
Hire Date:	
Assigned District:	
Section Number:	

Date Completed:	

For every question below, please check either YES or NO based on your REQUIRED job duties.

General Information

Has Earth Tech classified you as a "Casual", "Designated" or "Designated Primary" driver, or are you required to operate a passenger vehicle at any time for the Company? (don't worry about how often) *NOTE: Commuting to/from home to work does not qualify as "for the Company", driving a rental car while traveling does.* [SH&E 116]	☐ YES	☐ NO
Have you been classified as a "Designated-Primary" driver by your Section Manager or Supervisor (per SH&E 116)? Is driving a primary part of your work (more than just a means to get to/from work locations), or have you been assigned an Earth Tech owned or leased vehicle for your full-time use? [SH&E 116]	☐ YES	☐ NO
Would you ever be required to provide emergency medical help (first aid or CPR) to someone who is injured or falls ill on the job? [SH&E 205]	☐ YES	☐ NO
Have you been issued any type of respirator, or do you perform work where you wear a respirator or where such use could be required? [SH&E 112]	☐ YES	☐ NO
Do you ever utilize hearing protection in your work, or work in designated Hazardous Noise areas; are there times when noise levels in your work location are loud enough to prevent normal conversation without shouting? [SH&E 109]	☐ YES	☐ NO
Do you handle or work with any type of hazardous materials or chemicals? *NOTE: Consider only materials procured or brought to the work site by Earth Tech, not environmental contaminants, asbestos, lead, or other materials which are already present at your workplaces.* [SH&E 115]	☐ YES	☐ NO
Do you need to be able to operate a fire extinguisher, or perform a task where a fire extinguisher is a required piece of equipment for the job (e.g., fire watch)? *NOTE: The presence of fire extinguishers in the workplace does not indicate that you are required to use one. Earth Tech's general policy is that only specifically designated personnel will perform fire fighting work.* [H&E 508]	☐ YES	☐ NO

JOB DUTIES DESCRIPTION FORM

Do you perform any "field activities" (work occuring away from your home office involving settings other than office locations)? *NOTE: Site walks, facility inspections, engineering evaluations, and similar activities all constitute "field activities". Meetings in client offices, attendance at conferences/trade shows, public meetings/presentations, and similar activities are not "field activities".* [SH&E 203]	☐ YES	☐ NO
Do you perform work in an analytical laboratory space? [SH&E 603]	☐ YES	☐ NO
Do you perform work on projects funded by the U.S. Army Corps of Engineers or the U.S. Navy?	☐ YES	☐ NO

In-the-Office Activities

Do you spend at least 1 full day, or at least 10 total hours per week, working in an office setting? *NOTE: This can be your assigned Earth Tech office, a home office, or a job-site trailer or similar field office location if that is your assignment, the hours should be based on that required to perform your assigned job duties, including overtime.* [SH&E 302]	☐ YES	☐ NO
Does your work ever involve the direct use of a computer for at least 2 hours continuously, a total of 4 hours in any work day, or at least half of your time in-office? [SH&E 123]	☐ YES	☐ NO

HAZWOPER/Environmental Field Activities

Are you a HAZWOPER worker, or are you required to visit any designated HAZWOPER site AND enter into any Exclusion Zone areas? [SH&E 301]	☐ YES	☐ NO
Have you already completed HAZWOPER 40-hour training? [SH&E 301]	☐ YES	☐ NO
Have you already completed your baseline (new hire) HAZWOPER medical exam? [SH&E 108 & 301]	☐ YES	☐ NO
Do you perform field management of HAZWOPER work (including supervising a work/investigation team) or people on a HAZWOPER site, or serve as a Site Safety Officer for any HAZWOPER site/activity? [SH&E 301]	☐ YES	☐ NO

Construction/Demolition Field Activities

Are you a site manager, foreman, or Site Safety Officer for job sites involving construction or demolition activities? *NOTE: This can include HAZWOPER/environmental sites where significant construction/demolition is required.* [SH&E 305]	☐ YES	☐ NO
Do you manage or perform demolition work? *NOTE: Check YES only if you are part of the crew managing or performing the work, not serving as an inspector, engineer, or other support function where others perform the work.* [SH&E 305]	☐ YES	☐ NO
Do you spend at least 50% of your time on construction/demolition sites? *NOTE: In this case, check YES whether you manage/perform the work, or provide inspector, engineering, or other support functions, as long as at least half your working time is spent on site.* [SH&E 203 & 300-series]	☐ YES	☐ NO
Do you ever perform "field activities" at construction/demolition sites in Massachusetts or Rhode Island?	☐ YES	☐ NO

JOB DUTIES DESCRIPTION FORM

Specialized Field Activities

Do you ever perform work in areas where active excavation activities are being performed, including oversight of other organizations performing such work? *NOTE: This can also include environmental activities involving test pitting, collection of confirmation or QA samples obtained from excavation work by others, or construction of some types of treatment systems.* [SH&E 402]	☐ YES	☐ NO
Are you an operator for any piece of of heavy earthworking equipment? [SH&E 513]	☐ YES	☐ NO
Do you ever need to enter a trench or excavation deeper than 3 feet? [SH&E 402]	☐ YES	☐ NO
Do you ever access or use scaffolds during the performance of your work? [SH&E 502]	☐ YES	☐ NO
Do you ever ride in a manlift or other type of aerial lift during the performance of your work? [SH&E 514]	☐ YES	☐ NO
Do you perform entry of any Permit-Required Confined Spaces, or support or *directly* supervise such an entry? *NOTE: Consider all unclassified/suspect spaces to be permit-required until evaluated by an Earth Tech-approved person.* [SH&E 118]	☐ YES	☐ NO
Are you required to participate in a team which rescue persons from inside a Permit-Confined Space by entry of the space (i.e., "entry rescue")? [SH&E 118]	☐ YES	☐ NO
Do you ever operate (drive) a forklift or other powered industrial truck? [SH&E 512]	☐ YES	☐ NO
Do you perform maintenance of electrical, mechanical, pneumatic, hydraulic or other energized equipment or devices? [SH&E 119]	☐ YES	☐ NO
Are you ever required to use fall protection or fall arrest devices (harnesses, lifelines, etc.) in your work? [SH&E 120]	☐ YES	☐ NO
Do you work within 25 feet of active rail tracks, or do you perform field work on projects funded by a railroad client? [SH&E 308]	☐ YES	☐ NO

Hazardous Materials Shipping and Transport

Are you required to personally package or prepare for shipment (by FedEx, US Mail, UPS, etc.) any types of hazardous or dangerous materials? *NOTE: This can include analytical laboratory samples, waste materials, calibration gases or other compressed-gas items, or any hazardous wastes.* [SH&E 122]	☐ YES	☐ NO
Are you required to personally package or prepare for shipment (by FedEx, US Mail, UPS, etc.) any meters containing radioactive materials? *NOTE: These devices can include various soil density/moisture meters, lead survey meters (XRFs), strain gauges, and radiation detection equipment.* [SH&E 122 & 126]	☐ YES	☐ NO
Are you required to ever personally transport any hazardous, dangerous, or radioactive materials, devices or items? [SH&E 122]	☐ YES	☐ NO
Are you required to develop, oversee, or direct the process for packaging/shipping any hazardous, dangerous, or radioactive materials, devices or items? *NOTE: Checking YES here will require that you receive HAZMAT Level 2 shipper training. This training is very extensive, so please check YES only if this duty has been explicitly assigned to you.* [SH&E 122]	☐ YES	☐ NO

JOB DUTIES DESCRIPTION FORM

Asbestos/Lead Consulting and Miscellaneous

Do you perform asbestos inspections of buildings or other facilities? [SH&E 609]	☐ YES	☐ NO
Do you write Asbestos Management Plans? [SH&E 609]	☐ YES	☐ NO
Do you perform lead inspections of buildings or other facilities? [S&E 610]	☐ YES	☐ NO
Do you write Lead Management Plans? [SH&E 610]	☐ YES	☐ NO

Radiation Safety

Do you operate or transport any devices containing radioactive material (e.g., soil density/moisture gauges, lead survey meters, or radiation detection equipment)? [SH&E 126]	☐ YES	☐ NO
Do you work in locations where you are exposed to ionizing radiation, or are you required to use Earth Tech-supplied radiation dosimeters? [SH&E 126]	☐ YES	☐ NO
Are you a Radiation Safety Officer for an Earth Tech-held Radioactive Materials (RAM) license, or on any project site? [SH&E 126]	☐ YES	☐ NO

Competent Person Designations

A Competent Person is empowered by Earth Tech as a subject matter expert and decision-maker, able to plan associated work activities and oversee it's field-level execution, in the indicated area.

Designation as a Competent Person any in any topic area requires approval by a District Safety Manager, following proof of training and experience as specified in SH&E Procedure 133.

For each of the designations below, only check YES if you require designation as a Competent Person in that subject area.

Competent Person - Confined Space Operation	☐ YES
Competent Person - Excavation Operations	☐ YES
Competent Person - Heavy Equipment Operations	☐ YES
Competent Person - Fall Protection	☐ YES
Competent Person - *Lock-out/Tag-out* Activities	☐ YES
Competent Person - Scaffolding	☐ YES
Competent Person - Radiation	☐ YES
Competent Person - Respiratory Protection	☐ YES

After you have answered or updated all of the questions on this page please go to Tab 2 to view and your Safety Training Needs Smartsheet. These are your required safety training courses. Please print and sign, and have your supervisor sign. Please retain this Form as a record of your current training needs, and please provide a copy of the fully-signed Form to your EHSA.

Safety Training Needs Assessment - Smartsheet

Name: 0

Emp. No.: 0

The following safety training courses are REQUIRED based upon assigned job duties.

Required	Safety Course Name	Training Frequency	Approved Provider Types
XX	01 - Safety Orientation	Every 2 years, or when new versions of Orientation training are published.	ETOnline, SH&E Dept.
	02 - Hazard Communication		
	03 - Defensive Driving Awareness Training (DDAT)		
	04 - Defensive Driving, 4-Hour Course		
	13 - Field Safety 4-Hour		
	14 - Office Ergonomics		
	15 - First Aid		
	16 - CPR		
	17 - DOT Level 1 Shipper		
	18 - Nuclear Density Gauge Shipper		
	19 - DOT Level 2 Shipper		
	20 - HAZWOPER 40-Hour		
	21 - HAZWOPER Refresher 8-Hour		
	22 - HAZWOPER Supervisor 8-Hour		
	23 - OSHA 10-Hour Construction Safety		
	24-26 - Confined Space (Entrant, Attendant, & Supervisor)		
	27 - Confined Space Rescuer		
	28 - Powered Industrial Truck (forklift)		
	29 - Aerial Lift (man-lift) Operation Training		
	30 - Respiratory Protection		
	31 - Hearing Protection		

Safety Training Needs Assessment - Smartsheet

Name: 0

Emp. No.: 0

	32 - Lockout/Tagout (awareness)		
	33 - Scaffolding (awareness)		
	34 - General Excavation Safety Training (awareness)		
	35 - Trench/Excavation (awareness)		
	36 - Fire Extinguisher		
	37 - Asbestos Inspector		
	38 - Asbestos Planner		
	39 - Lead Based Paint Inspector or Lead Based Paint Assessor		
	40 - Lead Based Planner		
	41 - Nuclear Density Gauge Operator Training		
	Respirator Fit Test		
	Fall Protection (awareness)		
	Lab Safety		
	Railroad General Roadway Worker Protection (railroad-specific – i.e., CN, CSX, etc.)		

Special and Additional Training Needs

	Radiation Safety Officer Training Course		
	Radiation Worker Safety Training		

Please write in any additional or client-mandated training which is required.

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Training Name: _____ Training Frequency: _____ Provider: _____

Safety Training Needs Assessment - Smartsheet

Name: 0

Emp. No.: 0

Medical Monitoring Needs

Required	Examination Type	Frequency	Provider
	HAZWOPER Examination		
	Asbestos Examination		
	Respirator-only medical clearance		
	Hearing check		

Competent Person Designations

The following Competent Person designations are required to be approved *in writing* by the DSM or other authorzed individual before duties may be undertaken, IAW SH&E 133.

	Competent Person - Confined Space Operations
	Competent Person - Excavation Operations
	Competent Person - Heavy Equipment Operations
	Competent Person - Fall Protection
	Competent Person - Lock-out/Tag-out Activities
	Competent Person - Scaffolding
	Competent Person - Radiation
	Competent Person - Respiratory Protection

I certify that the information shown above is correct as of January 0, 1900

Employee Name: _____ Employee Signature: _____

Supervisor Name: _____ Supervisor Signature: _____

STUDENT TRAINING SIGN-IN SHEET

Course Name:				**Course #:**	
City:		**State:**		**Section #:**	
Date:		**Start Time:**		**Stop Time:**	
Lead Instructor:		**Instructor 1:**		**Instructor 2:**	

	Employee Name:	**Employee Signature:**	**Employee ID #:**
1.			
2.			
3.			
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Copy and add pages to the Sign-In Sheet as needed:

Page __ of __