241888

HEALTH AND SAFETY PLAN

Turnpike Dump #5
Steamboat Road
Jersey City, New Jersey

Prepared for:

U.S. Environmental Protection Agency
Region 2
2890 Woodbridge Avenue
Edison, New Jersey 08837

Prepared by:

Earth Tech, Inc.
5555 Glenwood Hills Parkway
Grand Rapids, Michigan 49512

October 2006

Project No: 96241.01

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HEALTH AND SAFETY PLAN APPROVAL

This Health and Safety Plan (HASP) was prepared for employees performing a specific, limited scope of work. It was prepared based on the best available information regarding the physical and chemical hazards known or suspected to be present on the project site. While it is not possible to discover, evaluate, and protect in advance against all possible hazards, which may be encountered during the completion of this project, adherence to the requirements of the HASP will significantly reduce the potential for occupational injury.

By signing below, I acknowledge that I have reviewed and hereby approve the HASP for the Turnpike Dump #5 site. This HASP has been written for the exclusive use of Earth Tech, Inc., its employees, and subcontractors. The plan is written for specified site conditions, dates, and personnel, and must be amended if these conditions change.

Written by:

Ryan Wolschleger

Ryan Wolschleger, ASP, OHST — 10/11/06

Safety Professional — Date

Approved by:

~~Carl Duffey~~ Rob Flowers — 11/10/06

Response Manager — Date

Andrew Confortini — 11/13/06

On-Scene Coordinator — Date

Removal Support Team (RST) — Date

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) (including Attachments A-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 Turnpike Dump #5 site, located in Jersey City, New Jersey. This HASP also identifies chemical and physical hazards known to be associated with the Earth Tech-managed activities addressed in this document.

HASP Supplements will be generated as necessary to address any additional activities or changes in site conditions which may occur during field operations. Once generated, each Supplement will be inserted in Attachment E and reviewed/acknowledged by field personnel prior to the start of applicable work activities.

1.1 GENERAL

The provisions of this HASP are mandatory for all Earth Tech personnel engaged in fieldwork associated with the environmental services being conducted at the subject site. A copy of this HASP, any applicable HASP Supplements and the Earth Tech Safety, Health & Environmental (SH&E) Standard Operating Procedures (SOPs) shall be maintained on site and available for review at all times. Record keeping will be maintained in accordance with this HASP and the applicable SH&E SOPs. In the event of a conflict between this HASP, the SOPs and federal, state, and local regulations, workers shall follow the most stringent/protective requirements.

1.2 POLICY STATEMENT

Earth Tech has developed ten "Core Values", which form the foundation of our Safety Management System. These Core Values were developed for two basic reasons:

1. To communicate the company's basic safety tenets to Earth Tech employees, partners, and customers; and
2. To serve as a constant reminder for every Earth Tech staff member that our everyday business and operational decisions must be made in concert with these tenets.

The Core Values will be posted at the site in a common area and communicated to all employees prior to beginning work activities.

Earth Tech maintains the following goals for all operations:

- **Zero** work-related injuries or illnesses.
- **Zero** damage to property, and/or equipment from our activities.
- **Zero** releases to the environment from our ongoing projects.

1.3 REFERENCES

This HASP meets 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)/OSHA/U.S. Coast Guard (USCG)/EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, Publication No. 85-115, 1985.
- New York State Department of Labor, Division of Safety and Health. *Industrial Code Rules.*

1.3.1 Earth Tech Safety, Health and Environmental Website

Earth Tech's Safety Website is located on the Earth Tech Corporate Intranet, and is available for all Earth Tech employees as a resource for safety information, updates, and procedures. Project management and employees are encouraged to visit the website for key safety items and information, such as:

- The Earth Tech Employee Orientation,
- 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,
- e-Tracking
- Links to safety and regulatory information,
- Training Resources,
- Ergonomics Information, and
- A feedback link to the Earth Tech Safety Director.

The website is located at the following web address:

http://etonline.earthtech.com/etonline/healthsafety/

Please note that the website can only be accessed when connected to Earth Tech's Wide-Area Network (e.g., via iPass).

2.0 SITE INFORMATION AND SCOPE OF WORK

Earth Tech will conduct environmental services at the Turnpike Dump #5 site. Work will be performed in accordance with the applicable Statement of Work (SOW) and associated Work Plans developed for Turnpike Dump #5. Deviations from the listed SOW will require that a Safety Professional review and changes made to this HASP, to ensure adequate protection of personnel and other property.

The following is a summary of relevant data concerning the Turnpike Dump #5 site, and the work procedures to be performed. The Work Plan, prepared by Earth Tech as a companion document to this HASP, provides significantly greater details concerning both site history and planned work operations.

2.1 SITE INFORMATION

This section provides a general description and historical information associated with the site.

2.1.1 General Description

The Turnpike Dump #5 site is located at the end of Steamboat Road in Jersey City, New Jersey. This is a 16 acre tract of land comprised of 3 lots located between Grand and Aetna Streets. The site is owned by the City of Jersey City and is bordered to the north by Wilzig and Children's Hospital and related parking facilities.

The site terrain is characterized as highly irregular, consisting of tall marsh grass, large debris mounds and several building foundations.

2.1.2 Site Background/History

The site was used as an un-permitted landfill for ash, slag, tires, drums, cylinders, PCB-contaminated oil, abandoned vehicles, metal debris, construction debris, and household debris. Dumping at the site reportedly started in the early 1900's.

2.1.3 Previous Investigations

Due to the nature of the site's history, potentially unknown chemicals may be encountered. However, previous investigations have identified the following contaminants:

- Arsenic
- Lead
- Zinc
- Trichloroethylene
- Isophorone
- Xylene
- Bis-2-ethylhexyl phthalate
- Ethylbenzene
- Polychlorinated biphynels (PCBs)
- Naphthalene
- Diethylphthalate

2.2 SCOPE OF WORK

Earth Tech will perform the following removal activities:

- Mobilization / demobilization / site set up
- Clearing and grubbing
- Debris mound excavation
- Container overpacking
- Container sampling
- Decontamination
- Transportation and disposal

3.0 PROJECT HEALTH AND SAFETY ORGANIZATION

3.1 ON-SCENE COORDINATOR

The OSC, as the representative of the U.S. EPA is responsible for overall project administration and for coordinating health and safety standards for all individuals on site at all times. All U.S. EPA, Earth Tech, and contractors' health and safety guidelines and requirements, as well as all applicable OSHA standards shall be applied. The OSC is the overall site safety officer and will be responsible for the health and safety of site visitors. However, each contractor (as an employer under OSHA) is also responsible for the health and safety of its employees. If there is any dispute with regard to health and safety, the following procedures shall be followed:

1. Attempt to resolve the issue on site; and
2. If the issue cannot be resolved, site personnel shall consult off-site health and safety personnel for assistance and the specific task or operation in dispute shall be discontinued until the issue is resolved.

3.2 SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

The Superfund Technical Assessment and Response Team (START) is responsible for providing the OSC with assistance and support in regard to all technical, regulatory and safety aspects of site activity. The START is also available to advise the OSC on matters relating to sampling, treatment, packaging, labeling, compatibility, transport, and disposal of hazardous materials, but is not limited to the above-mentioned.

3.3 PROGRAM MANAGER [Rob Flowers]

The Earth Tech Program Manager (PM) has overall management authority and responsibility for all Earth Tech personnel and their safety. The specific safety responsibilities for the PM are listed in Section 2.2 of SH&E 004, *Operational SH&E Structure and Responsibilities*. The PM will provide the Response Manager with the appropriate work plans, personnel, equipment, and resources necessary to complete the associated work tasks in a safe and healthy manner.

3.4 RESPONSE MANAGER [Carl Duffey]

The Response Manager (RM) has the overall responsibility and authority to direct Earth Tech personnel at the job site according to the provided work plans.

3.4.1 Responsibilities

The RM is responsible to:

- Understand safety responsibilities listed in Section 2.2 of SH&E 004, *Operational SH&E Structure and Responsibilities* and be familiar with the requirements of all applicable SH&E SOPs.
- Discuss deviations from the work plan with the PM and an Earth Tech Safety Professional.
- Discuss safety issues with the PM, Earth Tech Safety Professional, and field personnel.
- Assist the SSO with the development and implementation of corrective actions for site safety deficiencies.
- Assist the SSO with the implementation of this HASP and ensuring compliance.
- Assist the SSO with inspections of the site for compliance with this HASP and applicable SH&E SOPs.

3.4.2 Authority

The RM has authority to:

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

3.4.3 Qualifications

In addition to being Hazardous Waste Operations and Emergency Response (HAZWOPER)-qualified (see Section 4.1), the RM is required to have completed an 8-hour HAZWOPER Supervisor Training Course in accordance with 29 CFR 1910.120 (e)(4).

3.5 SITE SAFETY OFFICER

The RM will also perform the duties of the SSO unless an alternate SSO is named.

If the SSO must leave the site during field activities, an alternate SSO will be selected by name and informed of his/her duties (see below).

3.5.1 Responsibilities

The SSO is responsible to:

- Update the site-specific HASP to reflect changes in site conditions or the scope of work. HASP updates must be reviewed and approved by the Safety Professional.
- Be aware of changes in Earth Tech Safety Policy. Changes are posted on the Earth Tech Safety Website (see Section 1.3 of this HASP).
- Monitor the lost time incidence rate for this project and work toward improving it.
- Inspect the site for compliance with this HASP and the SH&Es using the appropriate audit inspection checklist provided by an Earth Tech Safety Professional.
- Work with the RM and 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).
- Contact the Safety Professional for technical advice regarding safety issues.
- Provide a means for employees to communicate safety issues to management in a discreet manner (i.e., suggestion box, etc.).
- Determine emergency evacuation routes, establishing and posting local emergency telephone numbers, and arranging emergency transportation
- Ensure that all site personnel and visitors have received the proper training and medical clearance prior to entering the site
- Establish any necessary controlled work areas (as designated in this HASP or other safety documentation)
- Initiate tailgate safety meetings and maintain attendance logs and records
- Discuss potential health and safety hazards with the RM, the Safety Professional, and the PM
- Select an alternate SSO by name and inform him/her of their duties, in the event that the SSO must leave or is absent from the site.

3.5.2 Authority

The SSO has authority to:

- Verify that all operations are in compliance with the requirements of this HASP.
- Issue a "Stop Work Order" under the conditions set forth in Section 4.8 of this HASP.
- Temporarily suspend individuals from field activities for infractions against the HASP pending consideration by the RM, Safety Professional and the PM.

3.5.3 Qualifications

In addition to being HAZWOPER-qualified (see Section 4.1), the SSO is required to have completed an 8-hour HAZWOPER Supervisor Training Course in accordance with 29 CFR 1910.120 (e)(4).

3.6 EMPLOYEES

3.6.1 Employee Responsibilities

Responsibilities of employees associated with this project include, but are not limited to:

- Immediately report any injury, illness, or safety incident to the SSO or RM
- Notifying the SSO, in writing or verbally, of unsafe conditions and acts.
- Understanding and abiding by the policies and procedures specified in the HASP 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 HASP or other safety policies.

3.6.2 Employee 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.
- The right to refuse to work on any site or operation where the safety procedures specified in this HASP or other safety policies are not being followed.
- The right to contact the SSO or the Safety Professional at any time to discuss potential concerns.

3.7 SAFETY PROFESSIONAL

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

- Approving this HASP and any required changes.
- Approving of the designated SSO (if RM does not cover SSO duties).
- Providing sound technical safety support.
- Reviewing all personal exposure monitoring results.
- Investigating any reported unsafe acts or conditions.

3.8 SUBCONTRACTORS

The requirements for subcontractor selection and subcontractor safety responsibilities are outlined in SH&E 207, *Contractor and Subcontractor SH&E Requirements*. Each Earth Tech subcontractor is responsible for assigning specific work tasks to their employees. Each subcontractor's management will 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 personnel protective equipment (PPE).

Earth Tech considers each subcontractor to be an expert in all 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 ensure that hazards associated with the performance of the work activities are properly controlled. 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 HASP but known to any subcontractor, or known to be associated with a subcontractor's services, must be identified and addressed to the Earth Tech RM or the Site Supervisor 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.

3.9 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 RM on the hazards present at that location. Visitors will be escorted by the RM or designee at all times at the work location and will be responsible for compliance with their employer's health and safety policies. In addition, this HASP specifies the minimum acceptable qualifications, training and personal protective equipment which hare required for entry to any controlled work area; visitors must comply with these requirements at all times.

Unauthorized visitors, and visitors not meeting the specified qualifications, will not be permitted within established controlled work areas.

4.0 SAFETY PROGRAMS

4.1 SH&E STANDARD OPERATING PROCEDURES

SH&E standard operating procedures (SOPs) have been developed as guidance documents for specific work tasks and overall SH&E management. In the table below, SOPs containing specific information regarding tasks anticipated for this project have been identified. A copy of the SH&E SOP Manual must accompany this HASP.

Table 4-1. Applicable SOPs

	SOP #	TOPIC
		SH&E 000 Series
☒	001	SH&E Policy Statement
☒	002	SH&E Dept. Structure & Responsibilities
☒	003	Operational SH&E Structure & Responsibilities
☒	004	SH&E Administration Support
☒	005	Review of Safety Manual
		SH&E 100 Series
☒	101	Injury, Illness, & Near Miss Reporting
☒	102	Incident Investigation and Review
☐	103	Regulatory Agency Inspections
☒	104	SH&E Audits, Inspections, and Corrective Actions
☒	105	SH&E Procedure Variance
☒	106	Drug-Free Workplace Program
☐	107	Modified Duty Program
☒	108	Medical Monitoring & Surveillance
☒	109	Hearing Conservation Program
☐	110	Fetal Protection Program
☒	111	Employee Exposure Monitoring Program
☒	112	Respiratory Protection Program
☒	113	Personal Protective Equipment (PPE)
☒	114	Safety Training Programs
☒	115	Hazard Communication Program
☒	116	Driver and Vehicle Safety
☒	117	Commercial Vehicle Program
☒	118	Confined Space Entry Program
☒	119	Lock-Out / Tag-Out Program
☐	120	Fall Protection Program
☒	121	Electrical Safety Program
☐	122	Environmental Compliance Program
☐	123	Ergonomics Program
☒	124	Heat Stress Prevention Program
☒	125	Cold Stress Prevention Program
☐	126	Radiation Safety Program
☐	127	Radiation Protection Plans
☐	128	Radiological Exposure Assessment
☐	129	ALARA
☐	130	Non-Ionizing Radiation
☐	131	Safety Assessment Program
☐	132	Competent Persons

	SOP #	TOPIC
		SH&E 200 Series
☒	201	General Safety Rules
☒	202	Safety Meetings
☒	203	Accident Prevention Program – Requirements for SH&E Documentation
☒	204	Task Hazard Analysis
☒	205	Emergency Action Planning & Prevention
☒	206	Stop Work Authority
☒	207	Contractor & Subcontractor SH&E Requirements
☒	208	General Housekeeping, Hygiene, and Sanitation
☒	209	Disciplinary Actions/Accountability
☒	210	Walking-Working Surfaces Protection
		SH&E 300 Series
☒	301	Hazardous Waste Operations (HAZWOPER)
☐	302	Office Safety
☐	303	OE and UXO Operations
☐	304	Landfill Quality Assurance and Operations
☐	305	Demolition Operations
☐	306	Structural Steel Operations
☐	307	Underground Construction & Tunneling
☐	308	Rail Operations
☐	309	Marine Operations - Working On/Near Water
☒	310	Overhead Electrical Lines
☐	311	Blasting and Use of Explosives
		SH&E 400 Series
☒	401	Clearing & Grubbing
☐	402	Excavation & Trenching
☐	403	Drilling
☒	404	Manual Lifting
☒	405	Handling Drums & Large Containers
☒	406	Drum Sampling
☐	407	Tank & Large Container Sampling
☒	408	Unknown Hazardous Waste Drum Handling
☐	409	Tank Cleaning
☐	410	Tank Removal & Demolition
☐	411	Welding, Cutting, & other Hot Work
☐	412	Line Entry
☐	413	Cylinder Disposition & Decommissioning
☐	414	Pile Driving
☐	415	Abrasive Blasting

APPLICABLE STANDARD OPERATING PROCEDURES (continued)

	SOP #	TOPIC		SOP #	TOPIC
		SH&E 500 Series			**SH&E 400 Series (continued)**
☐	501	Ladders	☐	416	Concrete & Masonry Work
☐	502	Scaffolding	☐	417	Automotive Service Operations
☐	503	Machine Guarding	☐	418	Spray Finishing & Dip Tanks
☐	504	Woodworking and Metalworking Machines	☐	419	Cleanup of Bird Excrement/Amplified Fungal Growth
☒	505	Powered Hand Tools			**SH&E 600 Series**
☒	506	Manual Hand Tools	☒	601	Hazardous Materials Shipping
☐	507	Powder-Actuated Tools	☐	602	Process Safety Management
☒	508	Fire Extinguishers	☐	603	Chemical Hygiene Plan
☐	509	Refuse Packer Units	☒	604	Decontamination
☒	510	High Pressure Washers	☐	605	Protection from Solvents
☐	511	All Terrain Vehicles	☒	606	Flammable & Combustible Materials
☐	512	Forklifts	☒	607	Chemical and Biological
☒	513	Heavy Equipment	☒	608	Blood-Borne Pathogens
☐	514	Manlifts	☐	609	Asbestos
☐	515	Cranes, Lifting Devices & Rigging Requirements	☒	610	Lead
☒	516	Equipment Safety Cards	☐	611	Cadmium
☒	517	Traffic Safety	☐	612	Compressed Gases

4.2 HAZWOPER QUALIFICATIONS

Personnel performing work art the job site must be qualified as HAZWOPER workers (unless otherwise noted in specific THAs or by the SSO), and must meet the medical monitoring and training requirements specified in the following safety procedures:

- SH&E 108, *SH&E Medical Monitoring and Surveillance.*
- 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.*

If site monitoring procedures indicate that a possible exposure has occurred above the OSHA permissible exposure limit (PEL), employees may be required to receive supplemental medical testing to document specific to the particular materials present.

4.3 SAFETY TRAINING

The following SH&E SOPs contain specific training requirements applicable to all operations:

1. SH&E 109, *Hearing Conservation*
2. SH&E 112, *Respiratory Protection*
3. SH&E 113, *Personal Protective Equipment*
4. SH&E 114, *Safety Training Programs*
5. SH&E 115, *Hazard Communication Program*
6. SH&E 116, *Driver and Vehicle Safety*
7. SH&E 117, *Commercial Vehicle Program*
8. SH&E 118, *Confined Space Entry*
9. SH&E 119, *Lockout-Tagout*
10. SH&E 202, *Safety Meetings*
11. SH&E 204, *Task Hazard Analyses*
12. SH&E 204, *Emergency Action Planning and Prevention*
13. SH&E 601, *Hazardous Materials Shipping*

For this project, the training required to perform work includes:

1. HAZWOPER 40-hour and current 8-hour refresher,
2. 8-hour Supervisor (at least one person on site),
3. 10-Hour OSHA Construction Safety
4. Hearing Conservation,
5. Respiratory Protection,
6. Site-Specific training/orientation (See Below),
7. First Aid/CPR training (at least one person on site),

The SSO (or designee) will confirm that all appropriate training requirements have been achieved and maintained appropriately. Refer to Section 4.3.1 below for site specific training requirements.

4.3.1 Site-Specific Training/Orientation

In addition to the general health and safety training programs, personnel will be provided with a site-safety orientation to include:

1. HASP: Instructed on the contents of applicable portions of this HASP and THAs developed for the tasks to be performed.
2. Hazard Communication: Informed about the potential routes of exposure, protective clothing, precautionary measures, and symptoms or signs of chemical exposure and heat stress.
3. Hazards and Recognition: Made aware of task-specific physical, chemical, biological hazards and other hazards that may be encountered during site work. This includes any potential confined space and lockout/tagout procedures.
4. Air Monitoring: Made aware of air monitoring requirements, including where to locate action levels.
5. Emergency Response Plan: Made aware of emergency response procedures.

The orientation will be documented by the signing-off of the HASP once all of the above topics have been reviewed by the employee and RM.

4.4 HAZARD COMMUNICATION

Section 5.2 provides information concerning the materials that may be encountered as environmental contaminants during the work activities. In addition, any organization wishing to bring any hazardous material onto any Earth Tech-controlled work site must first provide a copy of the item's Material Safety Data Sheet (MSDS) to the SSO for approval and filing (the SSO will maintain copies of all MSDSs on site). MSDSs may not be available for locally-obtained products, in which case some alternate form of product hazard documentation will be acceptable. In accordance with the requirements of SH&E 115, *Hazard Communication Program*, all personnel shall be briefed on the hazards of any chemical product they use, and shall be aware of and have access to all MSDSs.

All containers on site shall be properly labeled to indicate their contents. Labeling on any containers not intended for single-day, individual use shall contain additional information indicating potential health and safety hazards (flammability, reactivity, etc.).

Attachment B provides copies of MSDSs for those items planned to be brought on site at the time this HASP is prepared. This information will be updated as required during site operations.

4.5 CONFINED SPACE ENTRY

Confined space entry is not anticipated for this site. If confined spaces are identified, the SSO/site supervisor will inform all employees of the location of confined spaces and prevent unauthorized entry. Confined space entry procedures and training requirements are listed in SH&E 118.

4.6 HAZARDOUS, SOLID, OR MUNICIPAL WASTE

If hazardous, solid and/or municipal wastes are generated during any phase of the project, the waste shall be accumulated, labeled, and disposed of in accordance with applicable Federal, State, and/or local regulations.

4.7 GENERAL SAFETY RULES

All site personnel shall adhere to SH&E 201, *General Safety Rules*, during site operations. In addition, the housekeeping and personal hygiene requirements listed below will also be observed.

4.7.1 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 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.

4.7.2 Smoking, Eating, or Drinking

Smoking, eating and drinking will not be permitted inside any controlled work area at any time. Field workers will first wash hands and face immediately after leaving controlled work areas (and always prior to eating or drinking). Consumption of alcoholic beverages is prohibited at any Earth Tech site.

4.7.3 Personal Hygiene

The following personal hygiene requirements will be observed:

Water Supply: A water supply meeting the following requirements will be utilized:

Potable Water - An adequate supply of potable water will be available for field personnel consumption. Potable water can be provided in the form of water bottles, canteens, water coolers, 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 of non-potable water will be marked with a label stating:

Non-Potable Water
Not Intended for Drinking Water Consumption

Toilet Facilities: A minimum of one toilet will be provided for every 20 personnel on site, with separate toilets maintained for each sex except where there are less than 5 total personnel on site. For mobile crews where work activities and locations permit transportation to nearby toilet facilities on-site facilities are not required.

Washing Facilities: Employees will be provided washing facilities at each work location. The use of water and hand soap (or similar substance, such as wipes) will required by all employees following exit from the Exclusion Zone, prior to breaks, and at the end of daily work activities.

4.7.4 Buddy System

All 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.

4.7.5 Heat and Cold Stress

Heat and cold stress may vary based upon work activities, PPE/clothing selection, geographical locations, and weather conditions. To reduce the potential of developing heat/cold stress, be aware of the signs and symptoms of heat/cold stress and watch fellow employees for signs of heat/cold stress. For additional requirements, refer to SH&E 124, *Heat Stress*, and SH&E 125, *Cold Stress*.

4.7.5.1 Solar Protection

To protect against exposure to solar radiation, workers will observe the following requirements:

1. All workers will wear sunglass-type safety glasses (Z87.1 approved) at all times when working outdoors during daylight hours.
2. Workers will utilize a commercial sunblock with a minimum solar protection factor (SPF) of 15.

4.8 STOP WORK AUTHORITY

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

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

4.9 CLIENT SPECIFIC SAFETY REQUIREMENTS

The client has specified no additional health and safety requirements.

5.0 HAZARD ASSESSMENT

5.1 TASK HAZARD ANALYSIS

Task hazard analysis (THA) is a technique used to identify hazards and hazard controls associated with a specific job function. THAs focus on the relationship between the workers, the task, the resources required to complete the task, and the work environment. These variables must be evaluated to identify the potential hazards associated with the task. Once identified, steps can be taken to eliminate, reduce, or control the hazards to an acceptable risk level.

Section 2.2 lists the work activities anticipated during this project. Individual THAs for the tasks associated with this work can be found in Attachment A. Refer to SH&E 204, *Task Hazard Analyses* for additional THA requirements.

5.1.1 Unanticipated Work Activities/Conditions

Operations at the site may require additional tasks not identified in Section 2.2 or addressed in Attachment A, THAs. Before performing any task not covered in this HASP a THA must be prepared, and approved by the Safety Professional.

5.2 ENVIRONMENTAL CONTAMINANT EXPOSURE HAZARDS

The following is a discussion of the hazards presented to worker personnel during this project from on-site chemical and radiological hazards known or suspected to be present on site. Hazards associated with chemical products brought to the site during work operations are addressed separately, under the Hazard Communication process described in Section 4.3.

Exposure symptoms and applicable first aid information for each suspected site contaminant listed below may be located in Attachment C of this HASP. Additional unknown chemicals may be present in soils or containers. Known chemicals include the following

- Arsenic
- Lead
- Zinc
- Trichloroethylene
- Isophorone
- Xylene
- Bis-2-ethylhexyl phthalate
- Ethylbenzene
- Polychlorinated biphenyls (PCBs)
- Naphthalene
- Diethylphthalate

5.2.1 Assessment of Exposure Hazards

Inhalation - Disturbing impacted areas (soils, drums, etc.) may result in significant inhalation hazards and exposure to hazardous concentrations of site contaminants. Respiratory protection will be identified for each task and excavation area and outlined in each specific THA.

Skin Contact - Contact with impacted materials (soils, dusts, etc.) may occur during sampling, excavation, and other site activities. Chemically protective clothing will be outlined in each specific THA.

Ingestion – Ingestion of site contaminants may occur during or following excavation, sampling, and other site activities. Protection against exposure via ingestion can be accomplished by performance of proper decontamination procedures when exiting contaminated work areas (see Sections 7.2 and 8.2).

5.3 PHYSICAL HAZARDS

The following physical hazards may be encountered during operations at the Turnpike Dump #5 site:

- Overhead/underground utilities
- Heat/cold stress
- Slips, trips, and falls
- Heavy equipment and vehicle traffic
- Heavy lifting (49 lb. rule)
- Severe weather
- Sharp objects (drums, debris, chainsaws, etc.)
- Hazardous noise (clearing/grubbing)
- Powered tools/equipment (cuts, burns, etc.)
- Electrical
- Fire/explosion

5.4 BIOLOGICAL HAZARDS

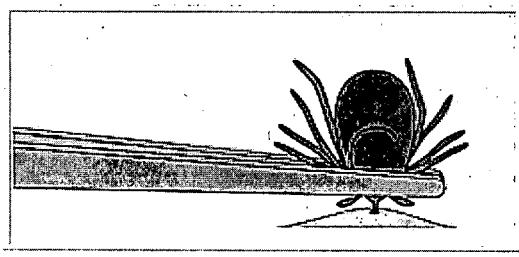
Biological hazards present a unique obstacle to personnel performing operations involving bio-hazardous materials or working in environments that contain biological hazards. Protection must be identified and provided when biological hazards are anticipated. Specific SH&E requirements can be found in the following SOPs:

1. SH&E 607, *Biohazards*
2. SH&E 608, Blood-borne Pathogens

Contact with bodies of water, animals, insects, and plants can cause injury and illness to personnel. Care must be taken to ensure that these types of injuries are avoided. Some examples of biological hazards include:

- Natural and artificial bodies of water (e.g., lakes, rivers, ponds, lagoons, etc.) may contain a variety of microorganisms. Microorganisms, in particular, present a significant hazard to personnel who may come into contact with water bodies. Contact with microorganisms in water may result in dermatitis, infection (i.e., in cuts/lacerations), digestive distress, and other diseases. Always be aware of areas that may contain excessive amounts of microorganisms. Such areas may include areas of standing water; areas of warm water (i.e., cooling tower effluents, etc.); and areas downstream of municipal wastewater treatment. To prevent exposure to microorganisms in water, always adhere to the following:
  - Wear protective gloves (i.e., nitrile, etc.) and other appropriate PPE to prevent skin contact with water.
  - Never drink from natural or artificial bodies of water. Such water is considered non-potable and is not safe for drinking.
- Wild animals, such as snakes, raccoons, squirrels, and rats. These animals not only can bite and scratch, but can carry transmittable diseases (e.g., rabies). Avoid the animals whenever possible. If bitten, go to the nearest medical facility.
- Insects such as mosquitoes, ticks (see next page), bees, and wasps. 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). Whenever you will enter areas that provide a habitat for insects (e.g., grass areas, woods), wear light-colored clothing, long pants and shirt, and spray exposed skin areas with a DEET-containing repellent. Keep away from high grass wherever possible. Keep your eyes and ears open for bee and wasp nests. If bitten by insects, see a doctor if there is any question of an allergic reaction.
- Plants such as poison ivy and poison oak can cause severe rashes on exposed skin. Be careful where you walk, wear long pants, and minimize touching exposed skin with your hands after walking through thickly vegetated areas until after you have thoroughly washed your hands with soap and water.

Tick Removal Procedure



Remove a tick from your skin as soon as you notice it. Use fine-tipped tweezers to firmly grasp the tick very close to your skin. With a steady motion, pull the tick's body away from your skin. Then clean your skin with soap and warm water or alcohol. Throw the dead tick away or save and take to your local

6.0 ACTIVITY SPECIFIC REQUIREMENTS

6.1 SUPPLEMENTAL SAFETY PROCEDURES

As discussed in Section 5.0, personnel may be exposed to a variety of chemical, physical, and biological hazards. The requirements for the control of many of these hazards these hazards is discussed in SH&E SOP Manual. Specifically, the 300, 400, 500, and 600 series of the SH&E SOP Manual provide specific information regarding hazard control and the requirements necessary to complete tasks in a safe manner.

6.1.1 Utilities

Various forms of underground/overhead 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. Should intrusive operations cause equipment to come into contact with utility lines, the SSO and an Earth Tech SH&E 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. For this site, the applicable agency is New Jersey One Call. The phone number is provided in the Emergency Contacts list found in Section 8. For additional requirements, refer to SH&E 402, *Excavation & Trenching*; SH&E 403, *Drilling*; and SH&E 310, *Overhead Electrical Lines*.

6.1.2 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. For additional requirements, refer to SH&E 404, *Manual Materials Handling*.

6.1.3 Heavy Equipment and Vehicle Operations

Heavy equipment and site vehicles present serious hazards site personnel. Blind spots, failure to yield, and other situations may cause heavy equipment/vehicles to come into contact with personnel. To reduce the possibility of contact between equipment/traffic and personnel, always adhere to the following:

- Personnel must wear a high visibility, reflective safety vest at all times when working near heavy equipment and/or other vehicle traffic.
- Personnel must always yield to equipment/vehicle traffic and stay at least 100 feet away from all equipment/vehicle traffic. Always maintain eye contact with operators.
- When feasible, place barriers between work areas and equipment/vehicle traffic.
- Always ensure reverse warning alarms are working and louder than surrounding noise. Personnel must report inoperative reverse warning alarms.

For additional requirements, refer to SH&E 513, *Heavy Earth Working Equipment*.

6.1.4 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. Serious injuries may occur as a result of falls from elevated heights. Always wear fall protection while working at heights of 6 feet or greater above the next lower level. 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.

6.1.5 Electrical and Powered Equipment

Electrical and powered equipment may be used during a variety of site activities. Injuries associated with electrical and powered equipment include electric shock, cuts/lacerations, eye damage (from flying debris), and

burns. To reduce the potential of injury from the hazards associated with electrical and powered equipment, always comply with the following:

- Wear ANSI-approved (Z87.1) safety glasses. Faceshields may be required to provide additional face protection from flying debris.
- Wear appropriate work gloves. Work gloves may reduce the severity of burns and cuts/lacerations.
- Use ground fault circuit interrupters (GFCIs) when using electrical powered tools/equipment. GFCIs prevent electrical shock by detecting the loss of electricity from a power cord and/or electrical device.
- Use lockout/tagout procedures when performing maintenance or repairs on equipment.

6.1.6 Noise

Hazardous noise may be produced during site activities by heavy equipment, powered tools, and other equipment or operations. Refer to SH&E 109, *Hearing Conservation Program* for requirements regarding hazardous noise and hearing protection.

6.1.7 Spill Prevention

Work activities may involve the use of hazardous materials (i.e. fuels, solvents) or work involving drums or other containers. The following procedures will be used to prevent or contain spills:

- All hazardous material will be stored in appropriate containers
- Tops/lids will be placed back on containers after use.
- Containers of hazardous materials will be stored appropriately away from moving equipment.

At least one spill response kit, to include an appropriate empty container, materials to allow for booming or diking the area to minimize the size of the spill, and appropriate clean-up material (i.e. speedy dri) shall be available at each work site (more as needed).

- All hazardous commodities in use (i.e. fuels) shall be properly labeled.
- Containers shall only be lifted using equipment specifically manufactured for that purpose.
- For drums/containers, follow the procedures in SH&E 405, *Handling of Drums and Large Containers*, to minimize spillage.

6.2 EXPOSURE MONITORING PROCEDURES

Monitoring procedures will be employed during site characterization activities to assess employee exposure to chemical and physical hazards. Monitoring will consist primarily of onsite determination of various parameters (e.g., airborne contaminant concentrations and heat stress effects), but may be supplemented by more sophisticated monitoring techniques, if necessary. Refer to SH&E 111, *Employee Exposure Monitoring* and SH&E 301, *Hazardous Waste Operations* for additional requirements.

6.2.1 Real-Time Exposure Measurement

Monitoring shall be performed within the work area on site in order to detect the presence and relative levels of toxic substances. The data collected throughout monitoring shall be used to determine the appropriate levels of PPE. Monitoring shall be conducted as specified in each THA (Attachment A) as work is performed.

Table 6-1specifies the real-time monitoring equipment which will be used for this project.

Table 6-1. Monitoring Parameters and Equipment

INSTRUMENT	MANUFACTURER/MODEL*	SUBSTANCES DETECTED
Photo Ionization Detector (PID)	RAE Systems mini-RAE Photovac Microtip HNu Model Hnu (min. 10.2 eV bulb)	Petroleum hydrocarbons Organic Solvents
Combustible Gas Indicator	RAE Systems Multi-RAE Other	Lower Explosive Limit
Particulate Monitor	MIE Model PDM-3 mini-RAM	Aerosols, mist, dust, and fumes

6.2.1.1 Health and Safety Action Levels

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the breathing zone.

If ambient levels are measured which exceed the action levels in areas accessible to unprotected personnel, necessary control measures (barricades, warning signs, and mitigative actions, etc.) must be implemented prior to commencing activities at the specific work area.

Personnel should also be able to upgrade or downgrade their level of protection with the concurrence of SSO or the Safety Professional.

Reasons to upgrade:

- Known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas, vapor, or dust emission.
- Change in work task that will increase the exposure or potential exposure to hazardous materials.

Reasons to downgrade:

- New information indicating that the situation is less hazardous than was originally suspected.
- Change in site conditions that decrease the potential hazard.
- Change in work task that will reduce exposure to hazardous materials.

Table 6-2. Monitoring Procedures and Action Levels

PARAMETER	LOCATION AND INTERVAL	RESPONSE LEVEL (Meter units/ppm above background)	RESPONSE
Hydrocarbons (Total by PID)*	Prior to initial entry in to impacted areas and then at least every 30 minutes afterwards in the worker's breathing zone or in the immediate work area.	< 5	Level D work and continue monitoring (not applicable for initial assessment of unknown drums or containers.
		≥ 5 – 25 (Sustained for more than 5 minutes)	Contact the SSO, and if no potential for change in conditions exist (drum/container activities increasing airborne levels), don Level C (GMA/P100 cartridges or equivalent chemical cartridge combined with P100) and continue monitoring.
		Initial entry or opening/sampling unknown drums/containers	Level B ensemble as listed in SH&E 301, *Hazardous Waste Operations* and per SSO and SH&E Manager.
		≥ 25 (Sustained for more than 5 minutes)	
Dust, Mist, Aerosols (Total by Mini-Ram)*	Continuously in the worker's breathing zone during intrusive activities involving impacted materials. In addition, site perimeter monitoring may be initiated by the SSO based on elevated air monitoring results.	Initial excavation or disturbance of unknown materials	Level C ensemble as listed in this HASP and per SSO and SH&E Manager.
		< 0.3 mg/m^3 (Sustained for more than 5 minutes)	Continue Level D work and continue monitoring.
		≥ 0.3 mg/m^3 (Sustained for more than 5 minutes)	Upgrade to Level C PPE. Contact the RM and SSO, implement mitigation measures, and continue Level C (minimum GMA/P100 cartridges or equivalent chemical cartridge combined with P100) and continue monitoring.
		≥ 0.6 mg/m^3 (Sustained for more than 5 minutes)	Temporarily cease work operations, contact the RM and SH&E Manager to discuss improving site mitigation measures. Possible upgrade to Level B for exclusion zone workers and implementation of SH&E 610, *Lead* requirements. See Section 6.3 for requirements.
Explosive Atmospheres (multi-gas detector or CGI)	In the breathing zone/work area prior to and during drum moving and opening operations.	< 10% LEL	Continue work activities. If significant changes exist in this acceptable range, contact the SSO to investigate the potential for contributing factors.
		≥ 10% LEL	Cease work, exit the area or confined space, and contact the SSO.

6.2.1.2 Monitoring Equipment Calibration

All instruments used will be calibrated at the beginning and end of each work shift, in accordance with the manufacturer's recommendations. 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.

6.3 PERSONAL SAMPLING

Should site activities warrant performing personal sampling to better assess chemical exposures experienced by Earth Tech employees, the SSO, under the direction of a Certified Industrial Hygienist (CIH), will be responsible for specifying the monitoring required. Within five working days after the receipt of monitoring results, the CIH 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.

Should the site activities warrant, the subcontractor will ensure its employees' exposures are quantified via the use of appropriate sampling techniques. The subcontractor shall notify the employees sampled in accordance with health and safety regulations, and provide the results to the SSO for use in determining the potential for other employees' exposure.

6.3.1 Lead Exposure Assessment

As required by SH&E 610, *Lead*, this lead exposure assessment provides a specific analysis of the lead exposure hazard for each operation involving the disturbance or handling of lead-impacted materials. According to previous site investigations, the concentration of lead (Pb) in soils at the Turnpike Dump #5 site range from 108 ppm to 47,500 ppm. The following exposure assessments will be based on the worst-case exposure scenario (47,500 ppm Pb in soil) and the calculations listed in Section 6.3.1.1 below. If the potential exists for employee(s) Pb exposure to exceed the action level (AL), site specific exposure control and monitoring procedures will be implemented as listed in Section 6.3.1.2 and 6.3.1.3, and employees will be required to complete baseline medical monitoring and lead awareness training as required in Section 5 of SH&E 610, *Lead.*

Soil excavation and staging activities – These activities will include excavating piles of soil. The soils will primarily be moved with heavy equipment and staged for removal. Such activities occurring within the hot zone are not anticipated to result in exposure above the Pb AL.

6.3.1.1 Calculation of PEL and Action Levels for Lead (Pb) in ASR

The following calculations are based on worst case scenario exposure (180,000 ppm Pb in ASR). The allowable exposure limit (AEL) and AL for total particulates (TP) will be calculated based on the percentage of Pb in soil and the Pb AEL/AL listed in SH&E 610, *Lead.*

Pb% in Soil $= \frac{47{,}500 \text{ ppm}}{1{,}000{,}000}$

$=$ **4.75% (or 0.0475)**

AEL

AEL (Pb) $=$ **0.05 mg/m^3**

AEL (TP) $= \frac{\text{AEL (Pb)}}{\text{Pb\% in ASR}} = \frac{0.05 \text{ mg/m}^3}{0.0475}$

$=$ **1.0 mg/m^3**

AL

AL (Pb) $=$ **0.03 mg/m^3**

AL (TP) $= \frac{\text{AL (Pb)}}{\text{Pb\% in Soil}} = \frac{0.03 \text{ mg/m}^3}{0.0475}$

$=$ **0.6 mg/m^3**

6.3.1.2 Air Monitoring

Air monitoring will consist of real-time monitoring for TP to evaluate the need for implementation of personal monitoring. Real-time monitoring will be performed as indicated in Table 6-2.

In the event that the Pb AL is exceeded, SH&E 610, *Lead* will be implanted including personal monitoring, lead awareness training, exposure control, and medical monitoring. Personal monitoring (if necessary) will consist of NIOSH Method 7300 [Lead]. At least one (1) representative sample will be collect for each task. Within five working days after the receipt of monitoring results, the CIH 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.

If work is performed by contractor/subcontractor personnel, the subcontractor will ensure its employees' exposures are quantified via the use of appropriate sampling techniques. The subcontractor shall notify the employees sampled in accordance with health and safety regulations, and provide the results to the SSO for use in determining the potential for other employees' exposure.

6.3.1.3 Lead (Pb) Exposure Control and Monitoring Procedures

For all activities where the AL is exceeded, this section will be implemented in accordance with SH&E 610, *Lead*. Exposure control will consist of site-specific control methods, medical monitoring, and lead awareness training.

Site-specific Pb exposure control methods will consist of water suppression, respiratory protection/PPE (see Table 7-1), decontamination procedures (see Section 7-2 and SH&E 604), air monitoring, and task-specific controls as listed in the THAs (Attachment A).

Water suppression will consist of a constant, fine mist of water sprayed onto areas where soils are being disturbed. These areas will be sprayed prior to initial disturbance of materials and continuously during disturbance of soils. If necessary, methods will be established to control off-site migration of run-off materials from water suppression activities. In addition, all heavy equipment will operate with closed cabs when feasible to reduce potential exposure to operators.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 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. SH&E 113, *Personal Protective Equipment*, lists the general requirements for selection and usage of PPE. Table 7-1 lists the minimum PPE required during site operations and additional PPE that may be necessary. The specific PPE requirements for each work task are specified in the individual THAs found in Attachment A.

By signing this HASP you are agreeing that you have been properly trained in the use, limitations, care and maintenance of the protective equipment you will use at this project. If you have not received training on the proper use, care, and limitations of the PPE required for this project, please see the RM/SSO for the proper training prior to signing this HASP.

Table 7-1. Personal Protective Equipment

TYPE	MATERIAL	ADDITIONAL INFORMATION
Minimum PPE:		
Safety Vest	High-visibility	Must have reflective tape and be visible from all sides
Boots	Leather	ANSI Z41 approved safety toe
Safety Glasses w/ sideshields		ANSI Z87.1 Approved
Hard Hat		ANSI Approved
Work Uniform		No shorts/cutoff jeans or sleeveless shirts
Additional PPE:		
Hearing Protection	Ear plugs and/ or muffs (minimum 29 NRR)	In hazardous noise areas
Work Gloves	Leather, [insert additional]	If working with sharp objects or powered equipment.
Protective Chemical Gloves	Inner: Nitrile Outer: Heavy Duty Nitrile, PVC, Neoprene, Viton	
Protective Chemical Coveralls	Inner: Tyvek® or equivalent Outer: Tychem SL® or equivalent	
Protective Chemical Boots	Rubber, neoprene, PVC	Booties are not recommended for this site.
Level C Respiratory Protection	MSA (Full Face or equivalent) equipped with GME/P100	Cartridge change out schedule: At the end of each work shift.
Level B Respiratory Protection	Self Contained Breathing Apparatus (SCBA), Airline with 5 minute escape pack.	Grade "D" Certified Air (Certificate Required). Obtain certificate of analysis from compressed gas vendor.
Face Protection	Debris/splash shield	
Body Protection	Apron, Chaps	During chainsaw operations

7.2 DECONTAMINATION

All requirements for performing personal and equipment decontamination may be found in SH&E 604, *Decontamination*.

7.2.1 Site Specific Decontamination Procedures

Decontamination will be performed in the contamination reduction zone and will consist of a boot wash and respirator wash station. The decontamination process for personnel will take place in the following order:

1. Remove excess dirt, dust, contamination, etc.from tyvek.
2. Remove tape and tyvek.
3. Wash boots with brush and soapy water.
4. Rinse boots with clean water.
5. Wash respirator with MSA respirator wash solution.
6. Rinse respirator and hang to dry.

7.2.2 PPE Doffing and Donning Information

The following information is to provide field personnel with helpful hints that, when applied, make donning and doffing of PPE a more safe and manageable task:

- Never cut disposable booties from your feet with basic utility knives. This has resulted in workers cutting through the booty and the underlying sturdy leather work boot, resulting in significant cuts to the legs/ankles. Recommend using a pair of scissors or a package/letter opener (cut above and parallel with the work boot) to start a cut in the edge of the booty, then proceed by manually tearing the material down to the sole of the booty for easy removal.
- When applying duct tape to PPE interfaces (wrist, lower leg, around respirator, etc.) and zippers, leave approximately one inch at the end of the tape to fold over onto itself. This will make it much easier to remove the tape by providing a small handle to grab while still wearing gloves. Without this fold, trying to pull up the tape end with multiple gloves on may be difficult and result in premature tearing of the PPE.
- Have a "buddy" check your ensemble to ensure proper donning before entering controlled work areas. Without mirrors, the most obvious discrepancies can go unnoticed and may result in a potential exposure situation.
- Never perform personal decontamination with a pressure washer.

7.2.3 Disposal of PPE & Decontamination Materials

All PPE and decontamination materials (i.e., rinsate, tubs, brushes, etc.) must be disposed of in accordance with federal, state, and local regulations. Contaminated PPE and decontamination materials may need to be disposed of as hazardous waste based on the types and degree of contamination.

8.0 SITE CONTROL

8.1 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.

Controlled work areas will be established at each work location, and if required, will be established directly prior to the work being conducted. Diagrams designating specific controlled work areas will be drawn on site maps, posted in the support vehicle or trailer and discussed during the daily safety meetings. If the site layout changes, the new areas and their potential hazards will be discussed immediately after the changes are made. A general example of a zone layout has been developed for site activities and is attached to this section.

8.2 CONTROLLED WORK AREAS

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

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

Each zone will be periodically monitored in accordance with the air monitoring requirements established in this HASP. The Exclusion Zone and the Contamination Reduction Zone are considered work areas. The Support Zone is accessible to the public (e.g., vendors, inspectors).

8.2.1 Exclusion Zone

The Exclusion Zone is the area where primary activities occur, such as sampling, remediation operations, installation of wells, cleanup work, etc. This area must be clearly marked with hazard tape, barricades or cones, or enclosed by fences or ropes. Only personnel involved in work activities, and meeting the requirements specified in the applicable THA and Sections 4.1 and 4.2, 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. To meet this requirement, the following minimum distances will be used:

- **Soil moving Activities** – A distance of 100 feet in all directions will be cleared from soil moving activities.
- **Sampling Activities** – A distance of 100 feet in all directions will be cleared from ~~soil moving~~ sampling activities.

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, or all HAZWOPER-related work must cease. All personnel, equipment, and supplies that enter controlled-access areas must be decontaminated or containerized as waste prior to leaving (through the CRZ only).

8.2.2 Contamination Reduction Zone

The Contamination Reduction Zone 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.

8.2.3 Support Zone

The Support Zone is an uncontaminated zone where administrative and other support functions, such as first aid, equipment supply, emergency information, etc., are located. The Support Zone shall have minimal potential for significant exposure to contaminants (i.e., background levels).

Employees will establish a Support Zone (if necessary) at the site before the commencement of site activities. The Support Zone would also serve as the entry point for controlling site access.

8.3 SITE ACCESS DOCUMENTATION

All personnel entering the site shall complete the "Site Entry/Exit Log" located at the Command Post.

If implemented by the RM, all personnel required to enter established site control zones shall complete the Exclusion and/or "Hot Zone" Log located at the decontamination area.

8.3.1 Visitor Access

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

1. 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 HASP. Verbal confirmation can be considered acceptable provided such confirmation is made by an officer or other authorized representative of the visitor's organization.
2. 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 tailgate safety briefing form.
3. All visitors must be escorted by the RM or designee.

If the site visitor requires entry to any Exclusion Zone, but does not comply with the above requirements, all work activities within the Exclusion Zone must be suspended. Until these requirements have been met, entry will not be permitted.

8.4 SITE SECURITY

Site security is necessary to:

- 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.

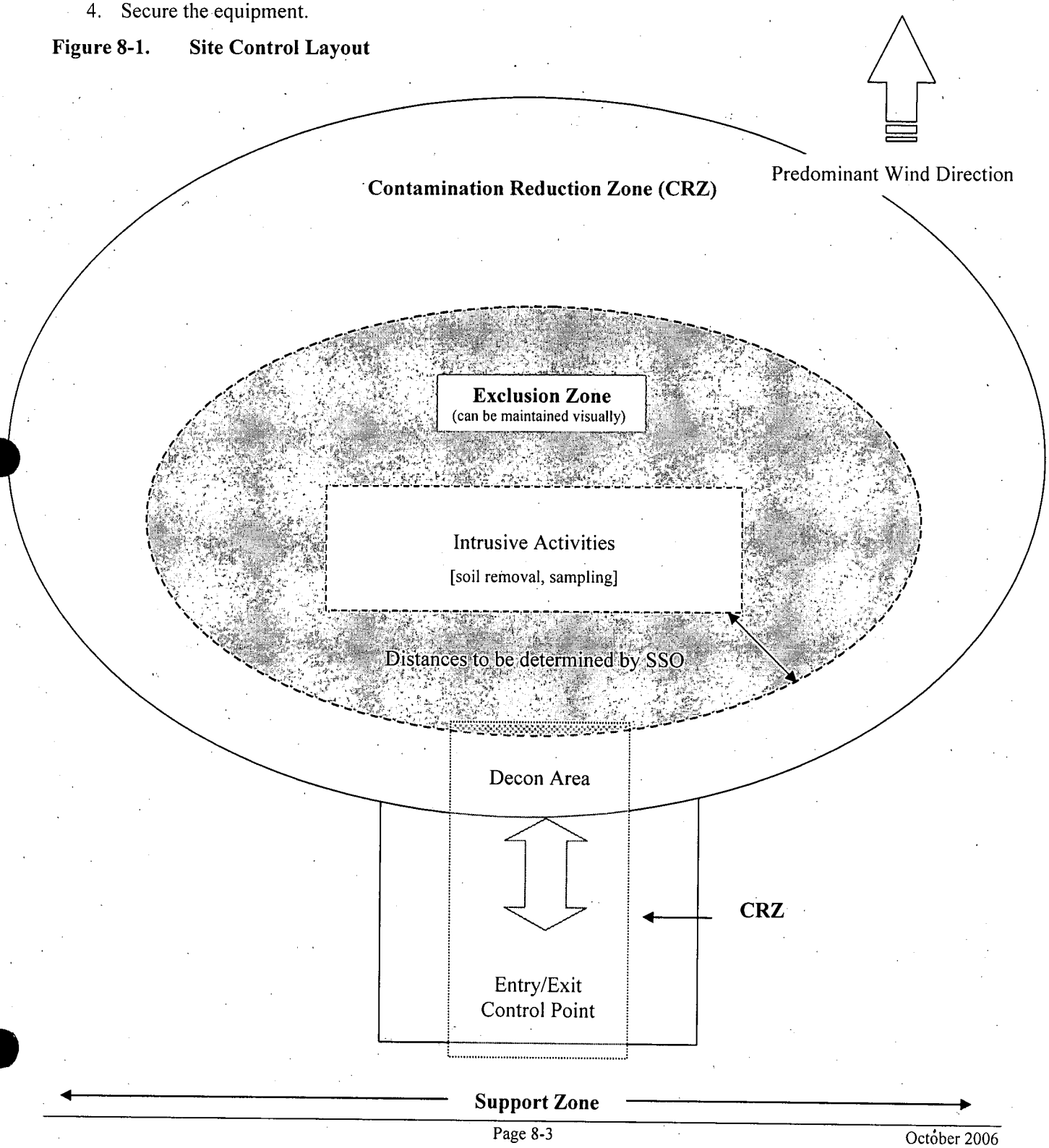
To maintain site security during working hours:

1. Maintain security in the Support Zone and at access control points.
2. Establish an identification system to identify authorized persons and limitations to their approved activities.
3. Assign responsibility for enforcing authority for entry and exit requirements.
4. When feasible, install fencing or other physical barrier around the site.
5. If the site is not fenced, post signs around the perimeter and whenever possible, use guards to patrol the perimeter. Guards must be fully apprised of the hazards involved and trained in emergency procedures.
6. Have the RM 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.

To maintain site security during off-duty hours:

1. If possible, assign trained, in-house technicians for site surveillance. They will be familiar with the site, the nature of the work, the site's hazards, and respiratory protection techniques.
2. If necessary, use security guards to patrol the site boundary. Such personnel may be less expensive than trained technicians, but will be more difficult to train in safety procedures and will be less confident in reacting to problems around hazardous substances.
3. Enlist public enforcement agencies, such as the local police department, if the site presents a significant risk to local health and safety.
4. Secure the equipment.

Figure 8-1. Site Control Layout



9.0 EMERGENCY RESPONSE PROCEDURES

Emergencies are uncontrolled circumstances that can result in damage to personnel or property. Emergencies can be a result of the work process (e.g., hazardous material spills), or environmental conditions, such as severe weather. Once identified, response to emergencies typically occurs in three stages: communication, evacuation, and mitigation (response or control method). In addition, the emergency response procedures will vary with each situation. Table 9-2 at the end of this plan serves as a guideline for responding to emergencies at the Turnpike Dump #5 site.

9.1 COMMUNICATION PROCEDURES

Communication procedures consist of the verbal, audio, and visual methods of notifying the appropriate personnel of an emergency, as well as the necessary protocols for notification. The communication of an emergency consists of three (3) phases:

1. Initial communication:
   The individual(s) who identify an emergency must immediately notify the Emergency Coordinator (EC). If necessary, the individual(s) may contact emergency services (e.g., 911) and/or order an evacuation of the work area prior to contacting the EC.
2. Evacuation:
   If necessary, the EC will notify all personnel to evacuate the work area and proceed to the appropriate muster location(s). Additional notifications will be made to subcontractors, other employers, the client, and public if necessary. See Section 1.2 below.
3. Mitigation/Control Measures:
   The EC will communicate any necessary measures to control or reduce the potential impact of the emergency to employees or emergency units. See Section 1.3 below.

Prior to performing any site activities, emergency communication and alarm methods must be developed (see Table 9-2) and communicated to ensure all site personnel are knowledgeable of protocol. When developing the alarm methods, consideration must also be given as to how the employees who hear/see the alarm will respond. For example, some alarms consist of 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 muster location(s).

In addition, personnel must be able to contact the EC and/or outside emergency units as needed. Therefore, mobile communication systems (e.g., radio, cell phone, horn, etc.) must be available to employees in the work zone. Emergency numbers are listed in Table 9-1 and must be posted at all exits of the site/project office and in all site vehicles.

Earth Tech Corporate Incident Reporting Procedures

All accidents, incidents, near-misses, and emergency situations that occur on-site during any field activity will be promptly reported to the SSO and the RM in accordance with Earth Tech Safety Procedure SH&E 101, *Injury, Illness, and Near-Miss Reporting*.

If any Earth Tech employee is injured and requires medical treatment, the RM will contact **Earth Tech's Incident Reporting Line at (800) 348-5046 immediately**. The RM will initiate a written report, using the ***Supervisor's Report of Incident*** form (see SH&E 101). The RM will complete the form and forward to the Section Manager and Corporate Safety Administrator by the following work day.

If any employee of a subcontractor is injured, documentation of the incident will be accomplished in accordance with the subcontractor's procedures; however, copies of all documentation (which at a minimum must include the OSHA Form 301 or equivalent) must be provided to the SSO within 24 hours after the accident has occurred.

9.2 EVACUATION PROCEDURES

Evacuation of the work zone and other areas will be required if it is determined that an emergency may result in injury or illness to personnel. Specific examples include large fire/explosion, chemical spill or release, severe weather event, and security threats. The EC will determine if an evacuation is necessary based on the severity of the emergency. However, any person may order an evacuation or sound an evacuation alarm to protect the safety of site personnel.

Upon the issuance of an evacuation order or alarm, personnel must evacuate the work zone and proceed directly to the appropriate muster location(s). Muster locations must be of sufficient distance from the emergency location and/or of sufficient structure and stability to protect personnel from the hazards.

Prior to beginning site operations, the EC will identify the appropriate emergency routes and muster locations in Table 9-2. If necessary, the EC may develop evacuation routes and muster locations for various buildings or sections of the site. In addition, the EC may and is encouraged to use site specific maps to identify the appropriate evacuation routes and muster locations. Emergency routes must be posted in the appropriate work areas and communicated to personnel.

In the event that an evacuation is ordered, 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.
- A headcount will be taken of the assembled employees by the EC.
- In the event that outside response agencies must respond, an individual will be identified to meet emergency responders at the site entrance or pre-determined location.

9.3 MITIGATION & CONTROL MEASURES

The implementation of mitigation and control measures are designed to reduce and/or eliminate the potential effects of emergencies. Known control measures for emergencies will be listed in Table 9-2.

9.4 RESPONSIBILITIES & TRAINING

9.4.1 Emergency Coordinator

The RM will assume the duties of the emergency coordinator (EC). In addition, the RM will select a competent person to act as the alternate EC. The duties of the EC and the alternate EC have been specified in SH&E 205 and are listed below:

- Responsible for the completing the emergency information (e.g., signals, muster points, etc.) located in Table 9-2 *Emergency Procedures* prior to beginning site activities and updating as needed. Table 9-2 must be posted in prominent locations on site.
- 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.
- Designates specific communication procedures to ensure that all personnel are alerted to potential emergency conditions, and what actions are required.
- Continually reviews this plan to ensure that identified hazards and actions are adequate for the office and/or facility.
- Designates personnel to perform specific duties during emergencies, such as taking muster, and directing emergency responders to the site(s).
- Responsible for ensuring that other contractors at the office are notified as to the potential emergencies associated with Earth Tech work, and that the contractors provide information as to potential emergencies associated with their work processes. Also, ensures that the contractor's hazards and emergency warning systems are communicated to Earth Tech employees.

- Ensures that all hazard signs (e.g., exit signs) and floor plans are posted as required. Ensures that emergency exit doors are not blocked, are labeled, and are not locked at any time.
- Establishes criteria and scheduling of emergency drills for Earth Tech employees. Critiques the drill results, and works with the supervisors to correct any observed deficiencies.
- Ensures that new employees are trained on the provisions of this plan prior to entering the work site. Ensures that visitors are either trained on the provisions of this plan, or are continually escorted by a trained employee.

9.4.2 Site Personnel

- Ensure compliance with all provisions of this plan.
- Alert the Emergency Coordinator/Supervisor to any observed conditions that can create an emergency situation.
- Notify the Emergency Coordinator/Supervisor of any change in work conditions that may impact the identified hazards in this plan.
- Do not block emergency exits or accesses.
- Participate in drills that are conducted to ensure the adequacy of the plan.

9.4.3 Subcontractors, Visitors, and Client Personnel

Subcontractors, visitors, and client personnel will follow the emergency action plans of their respective employers for the operations being performed.

Table 9-1. Emergency Contacts

Emergency Coordinators / Key Personnel			
Name	**Title/Workstation**	**Telephone Number**	**Cellular Phone**
Andrew Confortini	On-Scene Coordinator	732-906-6827	
Rob Flowers	Program Manager		
[insert]	RM/SSO/EC	(insert row if SSO is different than RM)	
Dale Prokopchak	Safety Manager	804-515-8556	804-839-8312
		(Home) 804-360-3301	
Ryan Wolschleger	Safety Professional	616-940-4235	616-446-6913
Brett Hodgson	Safety Professional	616-940-4444	616-446-6910
Incident Reporting	**Corporate Safety Administrator**	**800-348-5046**	
[insert]	Secondary EC		

Organization / Agency	
Name	**Telephone Number**
Police Department	911 or
Fire Department	911 or
State Police	911 or
Ambulance Service ***(EMT will determine appropriate hospital for treatment)***	911 or
Poison Control Center	800-222-1222
Pollution Emergency	800-292-4706
National Response Center	800-424-8802
Chem-Trec	800-424-9300
Title 3 Hotline	800-424-9346

Hospital	
Jersey City Medical Center ***(Use by site personnel is only for non-emergency cases)***	201-915-2000
355 Grand Street	
Jersey City, NJ (Hospital Route Maps on following page)	
Hospital Route: See map(s) on the following page(s) for route information. Hospital is located down the street from the site.	

Public Utilities	
Name	**Telephone Number**
New Jersey One Call	800-272-1000

Figure 9-1. Hospital Route/Detail Map(s)

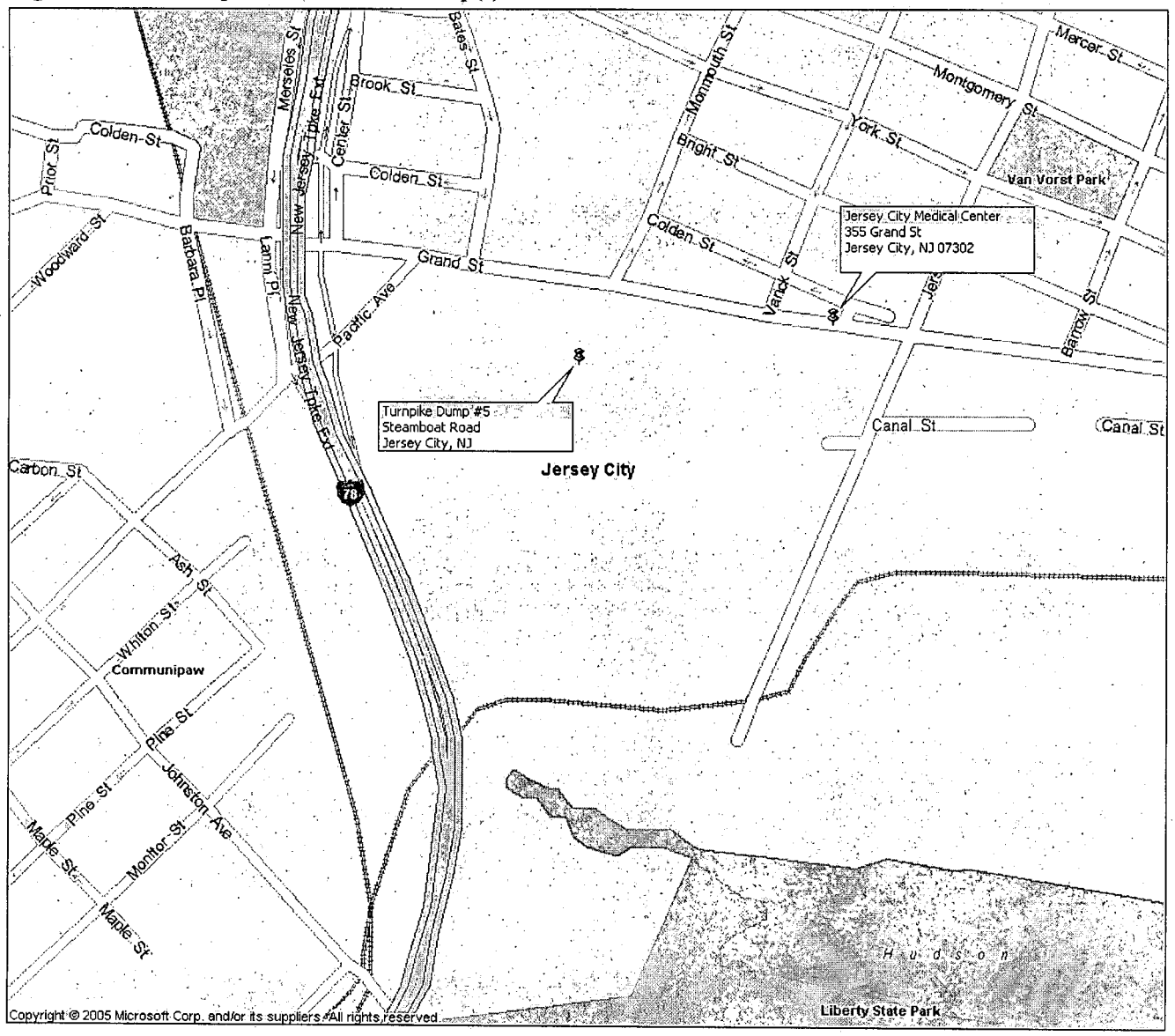


Table 9-2. Emergency Procedures

EMERGENCY	RESPONSE PROCEDURES		
	Communication	**Mitigation/Control**	**Evacuation**
Medical Emergency	If life-threatening, **contact 911** immediately and notify RM.	If qualified, perform First Aid-CPR. Keep victim calm and watch for symptoms of shock. Emergency response personnel will transport victims to hospital.	Do not move victim unless imminent threat (e.g., fire, explosion, chemical exposure, etc.) is present.
Chemical Exposure	Report incident to RM immediately.	Refer to chemical safety card or MSDS for appropriate treatment measures.	Remove individual from danger area.
Contaminated Personnel* * Involving life threatening injury or exposure.	**Contact 911** immediately and notify RM.	Send an individual to site entrance to direct emergency response personnel to the victim(s). Emergency response personnel will transport victims to hospital.	Do not move victim unless imminent threat (e.g., fire, explosion, chemical exposure, etc.) is present.
Other Incident/Near Miss	Report incident to RM immediately. RM will contact safety department.	For non-life threatening injuries or illness, transport victim to the hospital listed in Figure 9-1.	None anticipated
Severe Weather	RM will notify foreman via radio when severe weather is approaching or use the following signal:	Allow sufficient time for decontamination and shut down of operations.	**If severe weather is imminent, evacuate to the following shelter(s):**
Tornado	RM will notify foreman via radio if severe weather may result in tornado activity **or use the following signal:**	Allow sufficient time for decontamination and shut down of operations.	**Tornado shelter location(s):**
Small Fire* * ***Less than the size of a small trash can.***	Notify RM/foreman to **contact 911** immediately. **Notify all personnel evacuate or use the following signal:**	Determine if fire can be safely contained with a fire extinguisher.	See evacuation route map(s). **Exit facility and muster at the following location(s):**
Large Fire/Explosion	Notify RM/foreman to **contact 911** immediately. **Notify all personnel to evacuate or use the following signal:**	None anticipated. Evacuate immediately.	See evacuation route map(s). **Exit facility and muster at the following location(s):**
Spills/Release	Notify RM. RM will contact OSC and determine if additional agencies must be notified.	Don Level B PPE (see HASP). Complete THA. Use spill kit and diking procedures to contain spill.	See evacuation route map(s). Exit facility and move upwind at least 1000 feet.
Security Threat	Notify RM. **Contact 911**.	Keep vehicles locked and valuables out of sight.	None anticipated.

10.0 PERSONNEL ACKNOWLEDGEMENT

By signing below, the undersigned acknowledges that he/she has read and reviewed the Earth Tech HASP for the Turnpike Dump #5 site and has received a site orientation in accordance with ERRS-Specific Policy 006, Pre-Operations & Site Set-Up. 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
MARK Cobucci	Mark Cobucci	ET	11/14/06
Jonathan Mann	Jonathan M	ET	11/14/06
RUSS STRATHERN	Russell M Strathern	USCG AST	11/14/06
Carl Duffey	Carl D	ET	10/11/06
Bryan Summers	Bryan	ET	12/1/06
RUSH BRADWAY	R Bradway	USCG AST	12/4/06
DUSTIN WILSON	[illegible]	USCG AST	12/4/06
Glen Hayude	[illegible]	ET	12-5-06
William Reeder	[illegible]	ET	12-5-06
Julio Rodriguez	Julio Rodriguez	ET	12-5-06
BRETT WICKETT	[illegible]	AST# USCG	12-11-06
DUSTIN ROLL	[illegible]	USCG AST	12-18-06
AMANDA DOW	Amanda N Dow	USCG AST	03/06/07
STEVE THOMPSON	[illegible]	USCG AST	03/06/07
Dave Bofinger	[illegible]	ET RS	04/17/07
Anthony Anderson	Anthony Anderson	Earth Tech	04/17/07

Attachment A

Task Hazard Analyses

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

TASK HAZARD ANALYSIS (THA)
TURNPIKE DUMP #5
JERSEY CITY, NEW JERSEY

Evaluated by: Ryan Wolschleger, ASP, OHST

Date: October 2006

TASK NAME

DEBRIS PILE INVESTIGATION / CONTAINER REMOVAL

TASK DESCRIPTION

This task will involve the removal of soil, debris, and fill materials comprising the mounds/piles and staging the excavated materials. Containers located during investigation activities will be inspected, monitored and staged near piles on 6-mil polyethylene sheeting for sampling. Leaking or compromised containers will be overpacked.

CHEMICAL EXPOSURE HAZARDS

- See Section 5 of the Master HASP
- Unknowns may be present
  - Heavy Metals
  - Volatile organic compounds (VOCs)
  - Solvents
  - Pesticides

PPE

Level B (downgrade/upgrade based on monitoring results and Safety Professional approval)

- High-visibility reflective safety vest
- ANSI approved hardhat.
- ANSI approved safety glasses.
- ANSI approved steel toe safety shoes/boots.
- Supplied Air Respirator (SCBA or airline) with Grade D breathing air
- Protective chemical gloves (inner & outer), coveralls (tyvek® SL), and rubber boots (all seams must be taped/sealed)
- Leather gloves

OTHER SAFETY EQUIPMENT

- Air monitoring equipment
- First aid supplies
- Fire extinguisher
- Leather outer gloves when handling drums, operating powered equipment, etc.
- Air Purifying Respirator with GME/P100 cartridge
- Non sparking tools

PHYSICAL HAZARDS

- Cuts/lacerations (handling of sharp objects, operating powered tools/equipment, etc.)
- Heavy lifting (objects over 49 pounds)
- Equipment traffic (excavator, street traffic, etc.)
- Slips/trips/falls/protruding objects
- Pinch points
- Fire/explosion
- Overhead utilities

APPLICABLE OPERATIONAL SAFETY PROCEDURES

- SH&E 201, General Safety Rules
- SH&E 402, Excavation
- SH&E 404, Manual Materials Handling
- SH&E 405, Handling of Drums and Large Containers
- SH&E 408, Unknown Waste Drum Handling
- SH&E 513, Heavy Equipment
- SH&E 604, Decontamination
- SH&E 612, Compressed Gases

ADDITIONAL SAFETY CONSIDERATIONS

1. Use equipment to move drums/containers when feasible.
2. Maintain eye contact with operators. Always yield to heavy equipment.
3. Inspect drums and monitor before moving.
4. Drums that are bulging will be assumed to be pressurized and extremely hazardous to handle. These drums will not be moved. Pressurized drums evidenced by swelling or bulging will be marked and temporarily excluded from the handling activities. Pressure must be relieved via excavator mounted spike or bung venting before moving.
5. During all phases of drum and container handling, personnel will be alert for new information about potential hazards. These hazards will be properly addressed before continuing with more routine handling operations. Use slings to remove unstable drums or strap drums together on pallets before moving.

MONITORING PROCEDURES

Continually monitor with PID/FID, combustible gas indicator and dataRam and observe action levels in Section 6 of HASP. All instruments must be calibrated prior to use. USCG will perform all air monitoring services. In the event that the USCG can not provide monitoring, Earth Tech will obtain appropriate equipment for monitoring purposes. Contact Safety Professional for assistance.

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

TASK HAZARD ANALYSIS (THA)
TURNPIKE DUMP #5
JERSEY CITY, NEW JERSEY

Evaluated by: Ryan Wolschleger, ASP, OHST

Date: October 2006

TASK NAME

MOBILIZATION / DEMOBILIZATION / SITE SET UP

TASK DESCRIPTION

This task hazard analysis refers to the process of mobilizing and demobilizing the people and the materials to complete the tasks outlined in the HASP/work plan. This applies primarily to moving/loading/unloading of equipment and materials and the set up of office trailers and work zones. This THA does not cover the actual hazards present within the exclusion zone and work areas. This THA does apply whenever new materials are brought to the site or removed from the site.

This THA also involves basic site set up activities such as decontamination construction, debris clean up, etc.

CHEMICAL EXPOSURE HAZARDS

- None anticipated

PPE

Level D

- High-visibility reflective safety vest
- ANSI approved hardhat.
- ANSI approved safety glasses.
- ANSI approved steel toe safety shoes/boots.

OTHER SAFETY EQUIPMENT

- Leather gloves when handling sharp object or operating powered equipment
- Hearing protection (minimum 29 NRR)
- Fall protection (contact Safety Professional)
- Flashlights
- First aid kit
- Fire extinguisher

PHYSICAL HAZARDS

- Cuts/lacerations (handling of sharp objects, etc.)
- Heavy lifting (objects over 49 pounds)
- Equipment traffic (bobcat, forklift, street traffic, etc.)
- Slips/trips/falls
- Protruding/sharp objects
- Heat/cold stress
- Hazardous noise levels
- Falls/elevated heights (6 feet or more above next lower level, site trailer set-up, etc.)
- Inadequate lighting
- Utilities (overhead electrical, etc.)

APPLICABLE OPERATIONAL SAFETY PROCEDURES

- SH&E 201, General Safety Rules
- SH&E 210, Walking/Working Surfaces Protection
- SH&E 310, Overhead Electrical Lines
- SH&E 404, Manual Materials Handling
- SH&E 505, Powered Hand Tools
- SH&E 506, Manual Hand Tools

ADDITIONAL SAFETY CONSIDERATIONS

1. If necessary contact a security agency prior to mobilization to provide site security.
2. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel.
3. Identify utilities (overhead electrical, etc.) before beginning heavy equipment operations.
4. Use spotters when loading/unloading heavy equipment, forklifts, etc. Stand clear of these operations.
5. Ensure all equipment and chemicals are suitable for transportation – Hazmat shipping has been adhered to (Check with the T&D department if you are unsure).
6. Ensure that equipment, materials, chemicals, etc. have been secured for transportation
7. DO NOT overload trucks, trailers, etc. If more room is needed, or loads are to large, obtain additional transportation resources.

MONITORING PROCEDURES

Monitoring is not anticipated for this task.

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

TASK HAZARD ANALYSIS (THA)
TURNPIKE DUMP #5
JERSEY CITY, NEW JERSEY

Evaluated by: Ryan Wolschleger, ASP, OHST

Date: October 2006

TASK NAME

SAMPLING ACTIVITIES

TASK DESCRIPTION	CHEMICAL EXPOSURE HAZARDS

This step will involve collecting samples from containers using drum thieves and similar sampling devices. HazCat testing will also be performed on collected samples.	• See Section 5 of the Master HASP
	• Unknowns may be present
	  • Heavy Metals
	  • Volatile organic compounds (VOCs)
	  • Solvents
	  • Pesticides

PPE	OTHER SAFETY EQUIPMENT	PHYSICAL HAZARDS
Level B (downgrade based on sampling results and Safety Professional approval) • High-visibility reflective safety vest • ANSI approved hardhat. • ANSI approved safety glasses. • ANSI approved steel toe safety shoes/boots. • Supplied Air Respirator (SCBA or airline) with Grade D breathing air • Protective chemical gloves (inner & outer), coveralls (tyvek® SL), and rubber boots (all seams must be taped/sealed)	• Air monitoring equipment • First aid supplies • Fire extinguisher • Leather outer gloves when handling or opening drums, sampling with glass devices, etc. • Non-sparking tools (intrinsically safe equipment) • Air Purifying Respirator with GME/P100 cartridge • Spill kit	• Cuts/lacerations (handling of sharp objects, broken glass from sampling devices, etc.) • Heavy lifting (objects over 49 pounds) • Equipment traffic (forklift, street traffic, etc.) • Slips/trips/falls/protruding objects • Fire/explosion

APPLICABLE OPERATIONAL SAFETY PROCEDURES	ADDITIONAL SAFETY CONSIDERATIONS
• SH&E 201, General Safety Rules • SH&E 404, Manual Materials Handling • SH&E 406, Drum Sampling • SH&E 604, Decontamination • SH&E 612, Compressed Gases	1. Use caution when handling glass sampling devices. Do not pry or force drum thieves into materials. Glass may break, resulting in cuts or lacerations. 2. Wear leather gloves while moving or opening drums and containers.

MONITORING PROCEDURES

Continually monitor with PID/FID and combustible gas indicator and observe action levels in Section 6 of HASP. All instruments must be calibrated prior to use. USCG will perform all air monitoring services. In the event that the USCG can not provide monitoring, Earth Tech will obtain appropriate equipment for monitoring purposes. Contact Safety Professional for assistance.

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

TASK HAZARD ANALYSIS (THA)
TURNPIKE DUMP #5
JERSEY CITY, NEW JERSEY

Evaluated by: Ryan Wolschleger, ASP, OHST

Date: October 2006

TASK NAME

CLEARING/GRUBBING AND SITE RESTORATION

TASK DESCRIPTION	CHEMICAL EXPOSURE HAZARDS
This task involves clearing and grubbing operations on the property and as needed. Heavy equipment, chain saws, and possibly wood chippers will be used for these operations. Vegetation will be removed to access debris piles/mounds.	• None anticipated See Section 5 of HASP

PPE	OTHER SAFETY EQUIPMENT	PHYSICAL HAZARDS
Modified Level D (see Table 6-2 for upgrade/downgrade criteria) • High-visibility reflective safety vest. • ANSI approved hardhat. • ANSI approved safety glasses. • ANSI approved steel toe safety shoes/boots. • Tyvek®, protective gloves, and protective booties • Leather gloves • Hearing protection • Chainsaw chaps while operating chainsaw • Faceshield	• SPF 15 sunblock when working outdoors. • First aid supplies • Fire extinguisher(s)	• Cuts/lacerations/burns (from operating powered tools and equipment) • Falling/flying debris • Heavy lifting (objects heavier than 49 pounds) • Noise • Heavy equipment • Slip, trip, falls, and protruding objects • Heat/cold stress • Severe weather/sunburn • Biological (poison ivy, ticks) • Electrical

APPLICABLE OPERATIONAL SAFETY PROCEDURES	ADDITIONAL SAFETY CONSIDERATIONS
• SH&E 201, General Safety Rules (ENV 201) • SH&E 401, Clearing and Grubbing (ENV 533) • SH&E 404, Manual Materials Handling (ENV 501) • SH&E 505, Powered Hand Tools (ENV 504) • SH&E 506, Manual Hand Tools (ENV 505) • SH&E 513, Heavy Equipment (ENV 520)	1. Evaluate surrounding work area for additional hazards that may be present. 2. All loads in excess of 49 pounds require use of mechanical aids or assistance from other personnel. 3. Determine where trees/limbs will fall prior to cutting. 4. Be aware of heavy equipment locations at all times. Always yield to heavy equipment. 5. Identify areas of poison ivy prior to beginning cutting operations. 6. Check clothing and body (especially hair lines) for ticks after leaving infested areas and before showering. Review tick removal procedures (following page). 7. Report symptoms of poison ivy and tick exposure to on site supervisor and SH&E department.

MONITORING PROCEDURES

Monitoring is not anticipated for this specific task.

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

TASK HAZARD ANALYSIS (THA)
TURNPIKE DUMP #5
JERSEY CITY, NEW JERSEY

Evaluated by: Ryan Wolschleger, ASP, OHST

Date: October 2006

TASK NAME

TRANSPORTATION & DISPOSAL

TASK DESCRIPTION

This task involves the packaging and loading of various waste streams for disposal. Wastes may include soils, hazardous waste overpacks and labpacks, and cylinders.

**Bulking activities will be performed in level B respiratory protection unless approved by PM and safety department.

CHEMICAL EXPOSURE HAZARDS

- See Section 5 of the Master HASP
- Unknowns may be present
  - Heavy Metals
  - Volatile organic compounds (VOCs)
  - Solvents
  - Pesticides

PPE

Level C (downgrade/upgrade based on monitoring results and Safety Professional approval)

- High-visibility reflective safety vest
- ANSI approved hardhat.
- ANSI approved safety glasses.
- ANSI approved steel toe safety shoes/boots.
- Air Purifying Respirator with GME/P100 cartridge
- Protective chemical gloves (inner & outer), coveralls (tyvek®), and rubber boots (all seams must be taped/sealed)

OTHER SAFETY EQUIPMENT

- Air monitoring equipment
- First aid supplies
- Fire extinguisher
- Leather outer gloves when handling sharp edges, operating powered equipment, etc.
- Spill kit

PHYSICAL HAZARDS

- Cuts/lacerations (handling of sharp objects, operating powered tools/equipment, etc.)
- Heavy lifting (objects over 49 pounds)
- Equipment traffic (excavator, street traffic, etc.)
- Slips/trips/falls/protruding objects
- Falling debris
- Overhead powerlines
- Crush (loading/unloading roll-offs)

APPLICABLE OPERATIONAL SAFETY PROCEDURES

- SH&E 201, General Safety Rules
- SH&E 404, Manual Materials Handling
- SH&E 513, Heavy Equipment
- SH&E 604, Decontamination

ADDITIONAL SAFETY CONSIDERATIONS

1. Identify all power lines before using heavy equipment or loading/unloading roll-offs, dump trucks, etc.
2. Keep all personnel clear from roll-off loading/unloading areas.
3. Do not assist vendor personnel with loading/unloading activities.

MONITORING PROCEDURES

Continually monitor with PID/FID, combustible gas indicator and dataRam and observe action levels in Section 6 of HASP. All instruments must be calibrated prior to use. USCG will perform all air monitoring services. In the event that the USCG can not provide monitoring, Earth Tech will obtain appropriate equipment for monitoring purposes. Contact Safety Professional for assistance.

EARTH TECH
A TYCO INTERNATIONAL LTD. COMPANY

SAFETY NOW
NO OTHER WAY

SAFETY CARD

WOOD CHIPPERS

Objective / Overview:

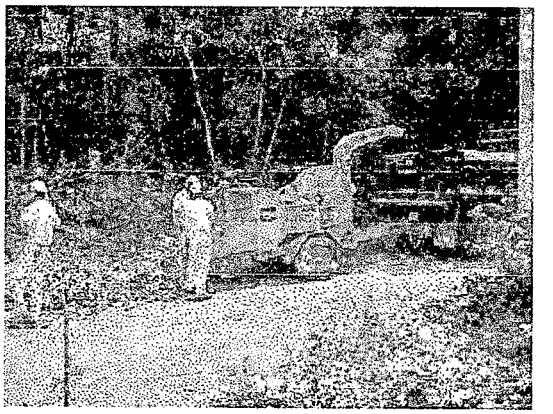
Wood chippers should be used with extreme caution in order to prevent personal injury, as the wood chipper is open to receive tree branches and other wooden material. Earth Tech only allows trained, authorized personnel to operate the wood chipper. Along with training, other safety measures include: reviewing the manufacturers instructional booklet, proper maintenance of equipment, and personal protective equipment.

Safe Operating Guidelines:

The operator must be completely familiar with the controls and proper use of the equipment. Workers feeding material into self-feeding wood chippers are at risk of being fed through the chipper if they reach or fall into the infeed hopper or become entangled in braches feeding into the machine. Prior to use make sure all safety devices and controls, such as emergency shut-off devices, are tested and verified to be functioning properly. Make sure two workers (buddy system) are in close contact with each other when operating the chipper.

Potential Hazards:

- Burns from contact with the hot muffler or engine
- Flying debris
- Noise exposure
- Inhaling exhaust fumes
- Entanglement in limbs and contact with chipper blades



Training Requirements:

- Review of Applicable SOPs (ENV 533)
- Demonstrated knowledge on the use of a wood chipper
- Review of manufacturers operating guidelines

Personal Protective Equipment (Level D PPE) and:

- Leather gloves
- Hearing protection
- Debris shield
- Long sleeve shirt (e.g. working near poison ivy, poison oak, etc.)

Other Safety Tips:

- Stand to the side of the chipper while inserting limbs into chipper, never stand directly in front
- Insert trunk portion of tree/limb first. This will prevent the branches from getting entangled with clothing, etc. and pulling you in with the tree/limb.
- Bystanders should be kept at least 25 feet away when in operation
- Keep the area around the wood chipper free of tripping hazards
- Never wear loose clothing that may get caught on feed material or moving parts
- Always set the trigger safety lock when the gun valve is not in use
- Never fill the fuel tank while the engine is running or if the engine is still hot

Attachment B

Material Safety Data Sheets

COASTAL CORP -- DIESEL FUEL NO. 2 (HIGH SULFUR)

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MSDS Safety Information

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MSDS Date: 04/04/2000
MSDS Num: CLCXH
Product ID: DIESEL FUEL NO. 2 (HIGH SULFUR)
MFN: 01
Responsible Party
Cage: 46684
Name: COASTAL CORP
Address: 9 GREENWAY PLAZA
City: HOUSTON TX 77046
Info Phone Number: 713-877-6732
Emergency Phone Number: 713-877-1400
Resp. Party Other MSDS No.: MSDS NUMBER: A0108.MSD
Chemtrec IND/Phone: (800)424-9300
Review Ind: Y
Published: Y

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Contractor Summary

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Cage: 46684
Name: COASTAL CORP
Address: 9 GREENWAY PLAZA
City: HOUSTON TX 77046
Phone: 713-877-6732

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Ingredients

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Cas: 68476-34-6
Name: DIESEL FUEL NO. 2
Percent by Wt: 100.

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Health Hazards Data

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LD50 LC50 Mixture: NO DATA PROVIDED BY MANUFACTURER
IARC: NO
OSHA: NO
Effects of Exposure: ACUTE: EYE: SLIGHT TO MODERATE EYE IRRITATION. SKIN: MODERATELY TO EXTREMELY IRRITATING. INHALATION: IRRITATING TO MUCOUS MEMBRANES AND RESPIRATORY TRACT. INGESTION: STOMACH IRRITATION. ASPIRATION HAZ ARD IF VOMITING OCCURS. INHALATION: IRRITATING TO MUCOUS MEMBRANES AND RESPIRATORY TRACT. CHRONIC: PROLONGED AND REPEATED SKIN CONTACT MAY CAUSE DERMATITIS.
Explanation Of Carcinogenicity: NO DATA PROVIDED BY MANUFACTURER
Signs And Symptions Of Overexposure: SKIN: MAY CAUSE REDNESS, DRYING, BURNS OR BLISTERING OF SKIN. INHALATION: WILL PRODUCE SYMPTOMS OF INTOXICATION SUCH AS HEADACHE, DIZZINESS, NAUSEA, VOMITING, AND LOSS OF COORDINATION. INGESTION: GAST RITIS, MILD EXCITATION, LOSS AND CAPILLARY HEMORRHAGING OF THE LUNG AND INTERNAL ORGANS. ASPIRATION HAZARD IF VOMITING OCCURS.
Medical Cond Aggravated By Exposure: MAY AGGRAVATE PRE-EXISTING DERMATITIS. MIDDLE DISTILLATES HAVE CAUSED SKIN CANCER AND KIDNEY DAMAGE IN LABORATORY ANIMALS. THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH) BASED
First Aid: EYE: FLUSH THOROUGHLY WITH WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION. SKIN: COOL THE EXPOSED AREA IMMEDIATELY. REMOVE CONTAMINATED CLOTHING. IMMEDIATELY WASH AFFECTED AREAS WITH SOAP AND WA TER. INHALATION: REMOVE TO FREAH AIR. APPLY ARTIFICIAL RESPIRATION IF NOT BREATHING. GET MEDICAL ATTENTION. INGESTION: DO NOT INDUCE VOMITING. IF

SPONTANEOUS VOMITING OCCURS, HOLD THE VICTIMS HEAD LOW ER THAN THEIR HIPS TO PREVENT ASPIRATION.

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Handling and Disposal

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Spill Release Procedures: REMOVE SOURCES OF HEAT OR IGNITION INCLUDING INTERNAL COMBUSTION ENGINES AND POWER TOOLS. CLEAN UP THE SPILL, BUT DO NOT FLUSH TO SEWER OR SURFACE WATER. VENTILATE AREA AND AVOID BREATHING VAPORS OR M ISTS.

Neutralizing Agent: NO DATA PROVIDED BY MANUFACTURER.

Waste Disposal Methods: DISPOSE THROUGH A LICENSED WASTE DISPOSAL COMPANY. FOLLOW APPLICABLE FEDERAL, STATE AND LOCAL WASTE DISPOSAL REGULATIONS.

Handling And Storage Precautions: STORE IN TIGHTLY CLOSED CONTAINERS IN A DRY, COOL PLACE, AWAY FROM SOURCES OF HEAT OR IGNITION. GROUND AND BOND ALL TRANSFER AND STORAGE EQUIPMENT TO PREVENT STATIC SPARKS AND EQUIP WITH SELF-CLOSING VALVES, PRESSURE VACUUM BUNGS AND FLAME ARRESTORS.

Other Precautions: EMPTY CONTAINERS MAY CONTAIN RESIDUE (LIQUID OR VAPOR) AND CAN BE DANGEROUS. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

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Fire and Explosion Hazard Information

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Flash Point Method: PMCC

Flash Point: =51.7C, 125.F

Autoignition Temp: =257.2C, 495.F

Lower Limits: 0.6

Upper Limits: 7.5

Extinguishing Media: DRY CHEMICAL, CARBON DIOXIDE, FOAM, AND WATER SPRAY

Fire Fighting Procedures: USE A WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS. USE A SMOTHERING TECHNIQUE FOR EXTINGUISHING FIRE OF THIS COMBUSTIBLE LIQUID. DO NOT USE A FORCED WATER STREAM DIRECTLY ON OIL FIRES AS THIS WILL SCA TTER THE FIRE. FIREFIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

Unusual Fire/Explosion Hazard: FLOWING OIL CAN BE IGNITED BY SELF-GENERATED STATIC ELECTRICITY.

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Control Measures

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Respiratory Protection: USE APPROVED RESPIRATORY PROTECTION EQUIPMENT FOR CLEANING LARGE SPILLS OR ENTRY INTO LARGE TANKS, VESSELS OR OTHER CONFINED SPACES.

Ventilation: PROVIDE ADEQUATE GENERAL AND/OR LOCAL VENTILATION TO MAINTAIN AIRBORNE CHEMICAL CONCENTRATIONS BELOW APPLICABLE EXPOSURE LIMITS.

Protective Gloves: IMPERVIOUS GLOVES

Eye Protection: CHEMICAL SAFETY GLASSES OR GOGGLES. REMOVE CONTACT LENSES

Other Protective Equipment: NO DATA PROVIDED BY MANUFACTURER

Work Hygienic Practices: NO DATA PROVIDED BY MANUFACTURER.

Supplemental Safety and Health: SYNONYMS: PETROLEUM DISTILLATE, DIESEL. NOTE: THIS PRODUCT MAY RELEASE GASES OR VAPORS THAT CAN DISPLACE OXYGEN IN ENCLOSED AREAS.

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Physical/Chemical Properties

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HCC: F4

B.P. Text: 300 TO 675EF

Vapor Pres: 1.6 MMHG @ 20EC

Vapor Density: 8(AIR=1)

Spec Gravity: 60/60F: 0.87

Viscosity: 1.9-4.1 CST @ 40 DEG C

Evaporation Rate & Reference: 0.1

Solubility in Water: INSOLUBLE
Appearance and Odor: CLEAR OR AMBER TO DARK BROWN LIQUID, MILD PETROLEUM ODOR
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Reactivity Data
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Stability Indicator: YES
Stability Condition To Avoid: STABLE UNDER NORMAL CONDITIONS OF USE. AVOID HEAT, SPARKS, FLAME AND BUILD-UP OF STATIC ELECTRICITY.
Materials To Avoid: STRONG OXIDIZING AGENTS.
Hazardous Decomposition Products: CARBON MONOXIDE, CARBON DIOXIDE, SULFUR DIOXIDE AND HYDROCARBONS
Hazardous Polymerization Indicator: NO
Conditions To Avoid Polymerization: WILL NOT OCCUR
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Toxicological Information
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Toxicological Information: NO DATA AVAILABLE.
==========
Ecological Information
==========
Ecological: NO DATA AVAILABLE.
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MSDS Transport Information
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Transport Information: DIESEL FUEL, 3, NA1993, PACKING GROUP III.
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Regulatory Information
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Sara Title III Information: SECTION 302 EPCRA EXTREMELY HAZARDOUS SUBSTANCE (EHS): NONE. SECTION 304 CERCLA HAZARDOUS SUBSTANCE: NONE. SECTION 311/312 HAZARD CATEGORIZATION: ACUTE: X, CHRONIC: X, FIRE: X. SECTION 313 EPCRA TOXIC SUBSTANCES: NONE.
Federal Regulatory Information: NO DATA PROVIDED BY MANUFACTURER.
State Regulatory Information: CHEMICALS KNOW TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM MAY BE FOUND IN CRUDE OIL AND PETROLEUM PRODUCTS. ALTHOUGH IT IS POSSIBLE TO SUFFICIENTLY REFINE A C RUDE OIL OR ITS END PRODUCTS TO REMOVE THE POTENTIAL FOR CANCER, WE ARE ADVISING THAT ONE OR MORE OF THE LISTED CHEMICALS MAY BE PRESENT IN SOME DETECTABLE QUANTITIES. READ AND FOLLOW DIRECTIONS AND U SE CARE WHEN HANDLING CRUDE OIL AND PETROLEUM PRODUCTS.
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Other Information
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Other Information: NO DATA PROVIDED BY MANUFACTURER
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Transportation Information
==========
Responsible Party Cage: 46684
Trans ID NO: 157014
Product ID: DIESEL FUEL NO. 2 (HIGH SULFUR)
MSDS Prepared Date: 04/04/2000
Review Date: 05/18/2001
MFN: 1
Net Unit Weight: UNKNOWN
Multiple KIT Number: 0
Unit Of Issue: CY
Type Of Container: CYLINDER
Additional Data: SHIPPING NAME IS PER MSDS.
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Detail DOT Information

==========
DOT PSN Code: EXF
Symbols: D
DOT Proper Shipping Name: DIESEL FUEL
Hazard Class: 3
UN ID Num: NA1993
DOT Packaging Group: III
Label: NONE
Special Provision: B1
Non Bulk Pack: 203
Bulk Pack: 242
Max Qty Pass: 60 L
Max Qty Cargo: 220 L
Vessel Stow Req: A
==========
Detail IMO Information
==========
IMO PSN Code: FOY
IMO Proper Shipping Name: DIESEL FUEL
IMDG Page Number: 3375
UN Number: 1202
UN Hazard Class: 3.3
IMO Packaging Group: III
Subsidiary Risk Label: -
EMS Number: 3-07
MED First Aid Guide NUM: 311
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Detail IATA Information
==========
IATA PSN Code: JEV
IATA UN ID Num: 1202
IATA Proper Shipping Name: DIESEL FUEL
IATA UN Class: 3
IATA Label: FLAMMABLE LIQUID
UN Packing Group: III
Packing Note Passenger: 309
Max Quant Pass: 60L
Max Quant Cargo: 220L
Packaging Note Cargo: 310
Exceptions: A3
==========
Detail AFI Information
==========
AFI PSN Code: JEV
AFI Proper Shipping Name: DIESEL FUEL
AFI PSN Modifier: ,ALSO SEE GAS OIL
AFI Hazard Class: 3
AFI UN ID NUM: UN1202
AFI Packing Group: III
Special Provisions: P5
Back Pack Reference: A7.3
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HAZCOM Label
==========
Product ID: DIESEL FUEL NO. 2 (HIGH SULFUR)
Cage: 46684
Company Name: COASTAL CORP
Street: 9 GREENWAY PLAZA
City: HOUSTON TX
Zipcode: 77046

Health Emergency Phone: 713-877-1400
Label Required IND: Y
Date Of Label Review: 05/18/2001
Status Code: A
Origination Code: F
Chronic Hazard IND: Y
Eye Protection IND: YES
Skin Protection IND: YES
Signal Word: DANGER
Respiratory Protection IND: NO
Health Hazard: Moderate
Contact Hazard: Slight
Fire Hazard: Severe
Reactivity Hazard: None
Hazard And Precautions: FLAMMABLE LIQUID AND VAPOR! TARGET ORGANS: N/P. CONTACT MAY IRRITATE SKIN AND EYES. INHALATION OF VAPORS MAY IRRITATE RESPIRATORY TRACT, CAUSE INTOXICATION. HARMFUL IF INGESTED.

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Attachment C

Chemical Safety Cards

Attachment D

Client-Specific Health and Safety Guidelines

Attachment E

Health and Safety Plan Supplements