ADDENDUM SITE SAFETY AND HEALTH PLAN TO GROUNDWATER TREATMENT AND OPERATIONS AND MAINTENANCE ACTIVITIES FOR CONSTRUCTION OF A TREATED WATER INFILTRATION GALLERY AT THE CLAREMONT POLYCHEMICAL SUPERFUND SITE OLD BETHPAGE, NASSAU COUNTY, NEW YORK

July 2009

Prepared for

US Army Corps of Engineers®

KANSAS CITY DISTRICT

CONTRACT No. W912 DQ-07-D-0044-001

Prepared by:

Science Applications International Corporation
6310 Allentown Boulevard
Harrisburg, PA 17112

SAIC®

Science Applications International Corporation (SAIC) will be completing oversight of the construction of a treated water infiltration gallery at the Claremont Polychemical facility located in Old Bethpage, NY. The infiltration gallery is to be constructed in accordance with the approved engineering design drawings and additional assumptions and specifications.

The Subcontractor will be qualified per the SAIC EH&S Procedure 140. The SAIC subcontractor will be provided a copy of this addendum and the existing SSHP and are solely responsible for ensuring that their on-site activities are conducted safely and in conformance with applicable requirements specified in this plan and all applicable laws and regulations. Any other person or entity relying on this plan hereby acknowledges that they do so at their own risk, and that SAIC has no responsibility or liability for the consequences thereof.

This plan does not relieve subcontractors of the regulatory requirement to provide a safe workplace, and SAIC subcontractors must have their own health and safety programs and procedures and must ensure that their employees perform their specific tasks safely. SAIC personnel will observe the work of all on-site subcontractors and may require changes or upgrades to safety practices to ensure safety and compliance with client requirements. This will include site-specific training requirements, routine inspections, visual and instrument surveillance for hazards, selection and use of personal protective equipment (PPE), and enforcement of the health and safety requirements by project management.

Per the Occupational Safety and Health Administration (OSHA) Excavation Standard, 29 CFR 1926, subpart P any site with a person entering a trench > 4 feet deep will require a competent trained excavation person on site to supervise the activity.

PRIVATE COMMITMENT TO IMPLEMENT THE ABOVE SITE SAFETY AND HEALTH PLAN

Richard C. Cronce

7/20/09

Richard C. Cronce, Ph. D. — Phone 717-901-8852 — Date
Program Manager

Peter Takach

7-20-09

Peter Takach — Phone 516-777-7242 — Date
Field Site Safety & Health Officer

Steve Davis CIH, CSP — Phone 423-481-4755 — Date
E&I Health & Safety Manager

Stephen L Davis

7/15/2009

Activity Hazard Analysis Table A-1

ACTIVITY – Oversight of Construction of a Treated Water Infiltration Gallery		**ANALYZED BY/DATE: Christopher Fontana 7-16-09**
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
Oversight of excavation and backhoe operation	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	The excavation subcontractor will have and follow standard operating procedures to ensure safe operation and compliance with USACE requirements. Level D Modified PPE. Safety shoes or boots, hardhat, safety glasses, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed inside the exclusion zone. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted). EH&S Procedure 130; Subsurface Asset/Hazard Avoidance, Face line of danger with respect to being struck by vehicles**.** Approach mobile/moving equipment only after getting permission of the operator. Maintain visual contact with equipment operators at all times. Workers will maintain a safe distance equivalent to the full, extended reach of all moving/mobile equipment. Personnel shall not place themselves between Heavy Equipment and fixed objects. Functional backup alarm for trucks, bobcats, etc.
	Excavation hazards	Compliance with EH&S 160, Excavation Safety. Excavations will be performed from a stable ground position. Spoil piles will be located at least 3 feet from the edge of the excavation to prevent backflow into the excavation. No SAIC personnel will enter any excavation or trenches deeper than 4 feet from ground surface unless supervised by a competent excavation trained person. All equipment shall be kept away from the edge of the excavation to prevent cave-in. All personnel will remain a minimum of 6 feet from the edge of any excavation. The excavation subcontractor must provide and designate an excavation competent person to supervise excavation work and excavation entry.
	Noise	Hearing protection when within 25 ft of heavy equipment unless equipment-specific monitoring indicates that noise levels are less than 85 decibels.
	Exposure to chemicals	PPE (level D) plus nitrile gloves for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical surveillance.
	Fire	Fire extinguisher in work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J (USACE 2008). Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.

	Biological hazards (snakes, bees, ticks, wasps)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Backhoe or hydraulic excavator, tools to connect piping	Daily site safety inspections (EM 385-1-1 16.A.02). Weekly inspections conducted by operator.	Current 40-hr Hazardous Waste Operations Training and current medical clearance for Hazardous Waste Operations. Backhoe operator will be experienced and trained in operation of the backhoe. Excavation competent person trained on site. At least two First aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed.

SITE SAFETY AND HEALTH PLAN
FOR
GROUNDWATER TREATMENT AND OPERATIONS AND MAINTENANCE ACTIVITIES
AT THE CLAREMONT POLYCHEMICAL SUPERFUND SITE
OLD BETHPAGE, NASSAU COUNTY, NEW YORK

April 2008

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PRIVATE COMMITMENT TO IMPLEMENT THE ABOVE
SITE SAFETY AND HEALTH PLAN

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ACRONYMS AND ABBREVIATIONS

ASTM	American Society of Testing and Materials
CPR	cardiopulmonary resuscitation
EPA	U.S. Environmental Protection Agency
FM	field manager
GPM	gallons per minute
GWTS	groundwater, extraction, treatment and re-injection system
SSHP	Site Safety and Health Plan
HTRW	hazardous, toxic, and radioactive waste
IDLH	immediately dangerous to life and health
IP	ionization potential
LEL	lower explosive limit
MCL	maximum contaminant level
MSDS	material safety data sheets
NIOSH	National Institute of Occupational Safety and Health
OJT	on-the-job training
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
PID	photoionization detector
PPE	personal protective equipment
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SAIC	Science Application International Corporation
SAP	Sampling and Analysis Plan
SMCL	secondary maximum contaminant level
SOP	standard operating procedure
SSHO	site safety and health officer
SSHP	Site Safety and Health Plan
STEL	short-term exposure limit
SWMU	solid waste management unit
TCLP	toxicity characteristic leaching procedure
TLV	threshold limit value
TWA	time-weighted average
USACE	United States Army Corps of Engineers
VOC	volatile organic compound

1.0 INTRODUCTION

This manual details the Site Safety and Health Plan (SSHP) and Standard Operating Procedures (SOPs) to be employed at the Claremont Polychemical Superfund Site as part of Operations and Maintenance (O&M) of a groundwater treatment facility being conducted by Science Applications International Corporation (SAIC) under contract with the U.S. Army Corps of Engineers (USACE), Kansas City District. This work will be conducted in compliance with USACE Safety and Health Requirements Manual (EM 385-1-1); USACE Safety and Occupational Health Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities (EM 385-1-92), CFR 1910.120 Hazardous Waste Operations and Emergency Response, and 29 CFR 1926 Safety and Health Regulations for Construction; SAIC Environmental Compliance and Health and Safety procedures; and the Specifications for Claremont Chemical Superfund Site dated April 1, 2008.

This plan has been prepared for the use of SAIC employees to identify potential hazards and required controls necessary to provide a safe work environment. This SSHP is not intended to be a comprehensive training manual, or to detail all procedures that may be utilized on-site, but is intended to be a safety guidance SSHP for routine treatment plant operations and routine sampling activities. Plant instructions, design criteria, reporting, operational requirements, and general safety guidance are provided in the O&M manual.

The Site Safety and Health Officer (SSHO) will perform daily safety inspections to verify that the controls in this plan are appropriate and sufficient and will revise these controls as necessary to confirm that the work is performed safely. This plan represents a good-faith effort to identify, evaluate, and prescribe controls for the hazards that will be posed by this work Revisions to the SSHP will be documented. Revisions to the SSHP that result in decreasing or eliminating a hazard control must first be approved by the SAIC Health and Safety Manager and the USACE Health and Safety Representative. Supplemental plans must also be reviewed and approved by SAIC Health and Safety Manager and the USACE Health and Safety Representative prior to the initiation of the supplemental plan.

This plan identifies the minimum hazard controls that must be implemented and addressed in SAIC subcontractor's safety plans and procedures. SAIC subcontractors will be provided a copy of this plan and are solely responsible for ensuring that their on-site activities are conducted safely and in conformance with applicable requirements specified in this plan and all applicable laws and regulations. Any other person or entity relying on this plan hereby acknowledges that they do so at their own risk, and that SAIC has no responsibility or liability for the consequences thereof. This plan does not relieve subcontractors of the regulatory requirement to provide a safe workplace, and SAIC subcontractors will be required to supplement the requirements of this plan as necessary to ensure that their employees perform their specific tasks safely. SAIC personnel will supervise all on-site subcontractors. This will include site-specific training requirements, routine inspections, visual and instrument surveillance for hazards, selection and use of personal protective equipment (PPE), and enforcement of the health and safety requirements by project management.

This manual provides information and procedures to assure that all workers, as well as any visitors to the site, will be protected from anticipated hazards. All workers shall promptly report any environmental, health, and safety concerns to their line management. SAIC and its subcontractors shall not reprimand or otherwise take disciplinary action against their employees for reporting such concerns.

1.1 Site Description

The Claremont Polychemical Site, an abandoned chemical production facility located in a light industrial area of Old Bethpage, Nassau County, New York, is approximately 9.5 acres in area. Figure 1 provides a site location reference for the subject work. The site addresses contamination stemming from the operations of a former manufacturer of pigments for plastics, inks, coated metallic tanks, and vinyl stabilizers. Leaking drums of hazardous chemicals, primarily volatile organic compounds (VOCs), were discovered by the Nassau County Department of Health (NCDOH) in 1979, and soil and groundwater contamination at the site was discovered in 1980. A series of remedial actions by the property owner began later that year, but subsequent investigations revealed additional contamination. The site was placed on the national Priorities list in June 1986. Subsequent site remedial investigations and feasibility studies led to design and construction of a groundwater treatment system to address on-site groundwater contamination.

SAIC has responsibility for operation, maintenance, and monitoring, of all equipment, processes, systems, and appurtenances associated with the Claremont Polychemical On-Site Groundwater Extraction, Treatment and Reinjection System (GWTS), extraction and reinjection wells, and associated systems. This responsibility is contracted for one year, with four additional one-year extensions at the option of USACE. The treatment facility consists of a flow equalization tank, two reaction tanks, two polymer addition coagulation/flocculation tanks, a clarification/thickening system, two down-flow sand filters, an air stripping tower, two liquid stream carbon adsorbers, two air stream carbon adsorbers, two effluent holding tanks, one filter press, chemical feed systems, and other support systems and equipment. Drums of liquid and dry process chemicals are stored in a double containment drum storage area. Maximum quantities of chemicals stored on site include 500 gallons of 38 % hydrochloric acid, 500 gallons of 50 % sodium hydroxide, 2000 pounds of dry potassium permanganate, and 1,400 pounds of dry polymer. Treated effluent is re-injected into the aquifer using four injection wells.

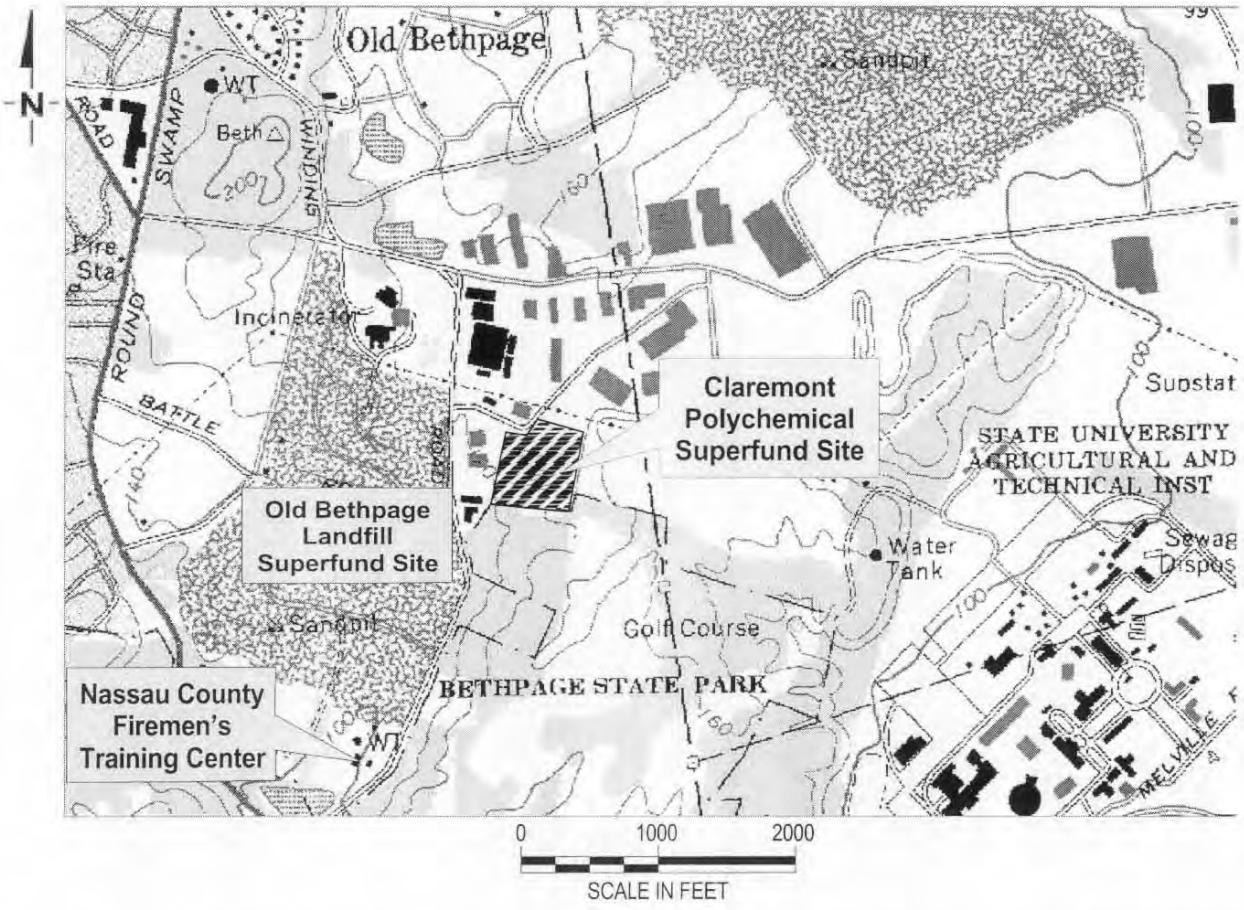
The groundwater extraction well field consists of three extraction wells, receiving flow from the Cretaceous Magothy Aquifer. Contaminated water is alternately extracted from two of the three wells utilizing a submersible turbine pumping system. The extraction well pumps are controlled by the level controllers in the wells and in the equalization (EQ) tank. A low water level in the well will shut the pump off and a high water level in the EQ tank will shut the pump off. A level set point in the EQ tank will reactivate the pumps. Each submersible pump, rated at 250 gallons per minute (gpm), delivers the water flow to the flow equalization tank. The Lamella Clarifier Influent Feed Pumps pump the contaminated water from the flow equalization tank to the aqueous waste treatment facility at a total flow rate of approximately 400 gpm.

The reinjection well field consists of four groundwater injection wells. The injection pumps, each rated for 500 gpm, pump the treated water from the treated water storage tanks to the four injection wells at approximately 400 gpm. The total flow discharged to each injection well is continuously monitored by a flow indicating transmitter and a flow totalizer. Each injection well has a high level-indicating switch which visually shows an alarm when the level in the well rises above a set point.

Site monitoring includes sampling and analyses of influents, waste streams, plant effluent, process streams, and environmental samples. Analysis is performed using both on-site analytical equipment and subcontract off-site laboratories. Groundwater is sampled at approximately 41 monitoring wells surrounding the facility. The monitoring wells are located within a contaminated plume, and the samples are sent to a subcontracted laboratory. As part of operating the existing systems, SAIC also

handles the disposal of all solid and liquid wastes generated by the treatment system at approved disposal locations and facilities in accordance with all appropriate regulatory requirements.

FIGURE 1-1: THE CLAREMONT POLYCHEMICAL SUPERFUND SITE AND THE SURROUNDING AREA.



(Note: This figure is adapted from the USGS topographic map, Huntington Quadrangle, 7.5 minute series.)

1.2 Additional Activities – Note: The activities described in this section were completed in 2005. The main manufacturing plant area is being developed and the potential exists for additional field environmental activities to occur if new areas are identified in the same area or adjacent areas. The remaining text in this Section 1.2 of the SSHP has been left as a reference to past activities and potential for future activities.

Additional activities at the Claremont Polychemical Site include removal, transport, and disposal of debris piles, decommissioning of storm water pits, and decommissioning of obsolete groundwater wells. The decommissioning of the storm water pits, groundwater wells, and debris pile removal will also include sampling and analysis. These activities are a one time action, incidental to site activities. Results of this activity will be used in support of subsequent waste classification and

management and related site closure activities.

The debris pile removal requires the removal and off-site disposal, or recycling if appropriate, of approximately 15,000 yd^3 of incidental debris located behind (north) the treatment facility. USEPA has determined that this debris is uncontaminated. Therefore, this work will be conducted in compliance with USACE Safety and Health Requirements manual (EM385-1-1), and 29 CFR 1926 Safety and Health Regulations for Construction. 29 CFR 1910.120 is not applicable for the debris removal activities. Clean up activities include site preparation to include construction of a unpaved site access road; implementation of erosion and sedimentation controls; site clearing and grubbing; segregation and on-site processing of debris for use as on-site fill if appropriate; loading, transportation, and off site disposal, or off-site recycling of debris as appropriate; and site grading and re-vegetation.

Results of initial debris testing resulted in a positive identification of asbestos at one sampling location. Further analysis documented the presence of approximately 0.6 % asbestos in the debris sample analyzed from this location. Potentially asbestos containing pipe was also observed in the area where asbestos was detected within the debris. The resultant identified an area of asbestos containing material.

Sampling results also identified the presence of debris containing cadmium at concentrations just above the regulatory level at one sampling location. These analyses, therefore, identified a limited volume of debris that constituted a hazardous waste in this area. Additional analyses were performed to better define the area of cadmium impacted soils.

Due to the identification of asbestos in the debris within one area, and the identification of hazardous constituents in the debris at a second location warranted additional worker health and safety precautions as follows:

Asbestos Containing Materials – The concentration of asbestos in the debris was below the Toxic Substances Control Act (TSCA) and NY State Department of Environmental Conservation (NYSDEC) regulatory limits for asbestos containing material, and this material did not require handling different than the other debris. The presence of asbestos at even these low concentrations, however, warranted additional awareness and precautions to ensure worker health and safety. Activity Analysis Table (AHA) B-10 (see Appendix B) provides guidance on additional precautions that were taken given the known presence of low levels of asbestos in the debris in this area of the site.

Hazardous Debris Area – Hazardous debris was removed in accordance with the Hazardous Debris Removal Plan (HDRP). All work within the identified area containing hazardous debris was performed in accordance with the current SSHP, and in accordance with the controls as listed in AHA Tables B-8 and B-10 (see Appendix B). Accordingly, excavation equipment operators and laborers were trained in accordance with CFR 1920.120 Hazardous Waste Operations and Emergency Response. Air monitoring was conducted throughout the waste removal and processing activities accordance with the current SSHP, and soil monitoring for cadmium was conducted in accordance with the current HDRP.

Notification of Adjacent Land Users – The property immediately west and adjacent to the asbestos containing area is owned by others, and used as a commercial waste separation and recycling facility. Personnel working at this site were potentially down-wind of debris removal activities

within the asbestos containing area. The owner of the facility was advised of the work being conducted within the asbestos containing area on the Claremont site.

The storm water control system consists of four, 8 ft wide, 10 ft long, and 10 ft deep, concrete, open topped, water-filled pits, also containing an unknown amount of sediment and debris. These pits apparently discharge into a fifth, round, 8 ft diameter, subsurface pit of unknown depth, also containing unknown volumes of water and sediment. USEPA plans to close these pits. Closure will likely involve removing the water and sediment, and backfilling and/or capping the concrete structures by appropriate means. Confined space procedures may be required to complete this work.

Also reportedly associated with the storm water pit area are two wells of unknown construction. These wells were reportedly used previously as a non-potable water supply, and for recharge to the groundwater of water from an undetermined source. Neither of the wells is visible at the ground surface. One of the wells is located inside a debris-filled concrete ring, and the other is buried beneath the ground surface. A backhoe will be used to attempt to excavate and expose the wellheads for determination of the construction of these two wells. The wells will be sampled and decommissioned using over-drilling methods.

The monitoring wells to be decommissioned are located in a level, open, unpaved and sparsely vegetated area just east of the main site building, and within 200 ft of the main site access road. There are no obstructions to access of the well heads. The top of one well was visible at the surface, while the second is reportedly buried beneath a piece of storm water culvert. These wells have been unprotected for an extended period of time. The construction, previous use, and current condition of these wells are unknown.

All on-site workers for well and storm water pit decommissioning must hold current certificates of OSHA hazardous waste 40 hour training and be enrolled in a medical surveillance program.

1.3 Monitoring Well Installation

SAIC will provide oversight for the installation of additional monitoring wells using rotary sonic drilling methods. During drilling, groundwater samples may be collected at discrete intervals and analyzed with rapid turn around times by a local analytical laboratory (available in less than two hours). The analytical results are used to determine when rotary sonic drilling has advanced far enough and to identify/confirm the appropriate screen interval for well construction. After construction, wells will be developed and dedicated bladder pumps will be installed in each monitoring well. Sampling of the new wells will be added to the quarterly groundwater sampling events.

2.0 STAFF ORGANIZATION, QUALIFICATIONS AND RESPONSIBILITIES

Planning and organization are critical elements of any potentially hazardous waste site activity. Potential hazards to health and safety can be reduced by formulating specific plans to deal with hazardous operations. This section presents the lines of authority, responsibilities, qualifications, and communication procedures concerning site safety and health and emergency response. It includes key SAIC and USACE personnel. This section:

1. Identifies a leader who has authority to direct all activities.
2. Identifies and defines responsibilities of key personnel.
3. Shows lines of authority, responsibility, and communication.

Table 2-1 shows an organizational chart

Table 2-1. Staff Organization
Claremont Polychemical Facility, Old Bethpage, NY

Position	Name	Phone
USACE Kansas City District Program and Project Manager	Thomas Simmons	816-389-3372
USACE New York District Project Manager	Shewen Bian, P.E.	718-630-5369
SAIC Program Manager	Richard Cronce, Ph.D.	717-901-8852
SAIC Health and Safety Manager	Steve Davis CIH, CSP	865-481-4755
SAIC Site Supervisor/Site Safety and Health Officer	Peter Takach	516-777-7242
SAIC Additional Activity Site Supervisor/Site Safety and Health Officer	Bart Sattler Todd Eaby	610-594-4312 717-901-8823
SAIC Project Safety and Health Officer	Christopher Fontana	610-594-4305

All site personnel and visitors involved in on-site work will review the SSHP prior to commencement of the work. A form will be signed (see Appendix C), stating that they have reviewed the SSHP and any questions concerning the SSHP have been answered. The Site Supervisor/Site Safety and Health Officer (SSHO) will oversee day-to-day activities, while the Project Safety and Health Officer (PSHO) will conduct several site visits annually to assess on-site tasks and hazards. The Health and Safety Manager has overall responsibility for implementation of the SSHP. Additional project personnel responsibilities are provided below.

2.1 Program Manager

The Program Manager directs the total efforts of the project and is responsible for ensuring conformance with the project work plan, SSHP, and USACE policies and procedures. Specific responsibilities of the Program Manager include:

- Coordinating with USACE personnel;
- Ensuring that project managers satisfy applicable health and safety requirements;
- Ensuring that project staff implement the project SSHP;
- Ensuring that projects have the necessary resources to operate safely;
- Ensuring an approved SSHP is issued prior to commencement of field activities; and
- Ensuring that a qualified site safety and health officer (SSHO) is designated.

2.2 SAIC Health and Safety Manager

The SAIC Health and Safety Manager manages the health and safety program. This duty includes establishing health and safety policies and procedures, supporting project and office activities, and verifying safe work practices and conditions. The SAIC Health and Safety Manager is certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene, is certified as a safety professional by the Board of Certified Safety Professionals, and has more than 10 years of hazardous waste experience. The specific responsibilities of the Health and Safety Manager include:

- Coordinating with USACE health and safety personnel;
- Reviewing and approving the SSHP;
- Approving downgrades in Personnel Protective Equipment (PPE) or protective procedures; and
- Interfacing with project personnel through routine communications and audits of selected projects.

2.3 Site Supervisor/Site Safety and Health Officer/Additional Activity Supervisor

The Site Supervisor, acting as Site Safety and Health Officer (SSHO), will oversee the field activities associated with the project and will be responsible for site accessibility and safety. The SSHO is responsible for enforcing the field requirements of this SSHP and reports to the program manager. Specific responsibilities of the SSHO are listed below:

- Coordinating on-site operations, including subcontractor activities.
- Ensuring that SAIC personnel and subcontractors follow the requirements of this SSHP.

- Stopping work or upgrading protective measures (including protective clothing) if uncontrolled health and safety hazards are encountered. Indications of uncontrolled health and safety hazards include monitoring instrument readings in excess of the established action limits, encountering liquids other than water, etc. The SSHO must also authorize resumption of work following correction of the adverse condition(s).
- Maintaining current copies of the project SSHP and the USACE *Safety and Health Requirements Manual* (USACE 2003) on-site. The USACE Safety Manual is maintained in a revised edition on the USACE Internet site at http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm. Revisions to the manual on the Internet site are considered to be an official and enforceable revision.
- Coordinating and controlling emergency response actions.
- Ensuring that two persons currently certified in first aid/cardiopulmonary resuscitation (CPR) are on-site during site operations.
- Performing (or confirming) a daily safety inspection and documenting the inspection in the field logbook.
- Verifying that personnel (employees and visitors) allowed access inside the Exclusion Zone or other controlled areas have completed the required training (i.e., Standard Operating Procedures and site briefings).
- Ensuring that daily safety briefings covering potential chemical and physical hazards, safe work practices, and emergency procedures are conducted and documented for site workers or visitors.
- Maintaining on-site auditable documentation of all required records, including:
  - Material Safety Data Sheets (MSDSs) for applicable materials utilized at the site.

  - Training for site workers and visitors.
  - Calibration/maintenance of field instruments such as photoionization detectors (PID).
  - Notification of accidents/incidents.
  - Reports of any chemical overexposure or excessive levels.
  - Notification of employees of chemical exposure data.
  - Medical surveillance.
- Maintaining a current copy of the OSHA 2203 poster in the field office or break area.

2.4 Project Safety and Health Officer

The PSHO is responsible for making health and safety decisions for specific health and safety activities, and for verifying the effectiveness of the health and safety program. The PSHO has primary responsibility for the following:

- Maintaining current copies of the project SSHP and applicable sections of EM 385-1-1 and SAIC EC&HS procedures.
- Assisting/coordinating in the correction of deficiencies identified in inspections, designating responsible parties, procedures, and timetables for correction.
-
- Revising the HASP as needed to address changes in tasks and hazards.
- Confirming that all on-site personnel have received the training listed in the Training Requirements section (Section 4.0) of this SSHP.
- Verifying that the project SSHPs emergency points of contact are correct.
- Verifying that monitoring for potential on-site exposures is conducted in accordance with this SSHP.
- Conducting and recording weekly worksite safety inspections.
- Verifying that daily worksite safety inspections are conducted by the Field Manager, SSHO, or qualified technicians.
- Updating the project SSHP (field changes) to ensure that it adequately identifies all tasks and significant hazards at the site and notifying project personnel of changes.
- Investigating accidents and near accidents and reporting same to Program Manager.
- Reporting accidents and incidents immediately and submitting written reports within two working days.
- Recommending changes to engineering controls, work practices, and PPE.

The PSHO must be a qualified individual, who is responsible, and has experience and knowledge necessary to support implementation of the SSHP. At a minimum, the PSHO must meet the following minimum educational and experience qualifications in matters of safety and health:

1. Possess a sound working knowledge of State and Federal occupational safety and health regulations.

2. Have HAZWOPER 40-hour, 8-hour refresher, CPR/First Aid, and Supervisor's training.

3. Have a minimum of four years of experience in the environmental and health and safety field, chemical industry, or chemical waste disposal industry.

4. Have a minimum of a Bachelor of Science degree in biology, chemistry, engineering, industrial hygiene, or other related natural or physical science.

Note: Each graduate degree in occupational safety and health can be substituted for one year of experience.

3.0 CONTAMINANT AND HAZARD DESCRIPTION

Site tasks will include, but are not limited to, routine operations per the O&M Manual; collecting effluent; purging and sampling monitoring wells; drilling additional monitoring wells; handling, storage, and use of treatment chemicals; and on-site testing of influent and effluent. Because area groundwater is contaminated with low levels of metals and VOCs, there is some potential for exposure to these contaminants and the spread of contamination to previously uncontaminated areas. Site tasks present a variety of possible physical hazards. Hazards that may occur while performing site tasks are shown in Table 3-1.

Table 3-1. Hazards Inventory
Claremont Polychemical Facility, Old Bethpage, NY

Biological hazards	Heavy equipment impact (Rotary Sonic Rig)
Chemical hazards	Improperly secured loads during lifting or rigging
Vehicle traffic hazards	Noise
Slips, trips, and falls	Operation of power tools or equipment
Electrical shock	Fire
Inclement weather	Temperature extremes
Confined Space	Excavation Hazards
Environmental Hazards	Allergic reactions to vegetation or insects

3.1 Activity Hazard Analyses

An activity hazard analysis (AHA) shall be prepared and documented for each activity as warranted by the hazards associated with the activity. Generally, an AHA shall be prepared for all field operations other than routine surveillance and inspection of field activities. In developing the analysis for a particular activity, the SSHO should draw upon the knowledge and experience of employees in that activity. Analyses shall define the activities being performed, identify the sequences of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not begin until the PSHO or designee approves the hazard analysis.

AHAs for the expected activities listed above can be found in Appendix B. When a task not described in this document is encountered, the SSHO, supported by the PSHO, will conduct a task-specific activity hazard analysis to evaluate the requirements necessary to perform the task safely. The activity hazard analysis will be documented on the AHA form provided in Appendix B.

3.2 Potential Exposures

The primary contaminants at the Claremont Polychemical Superfund Site include trichloroethene (TCE), tetrachlorethene (PCE), cis-DCE, and heavy metals. Table 3-2 shows some concentrations of hazardous materials.

Table 3-2. Main Groundwater Contaminates of Concern
Claremont Polychemical Facility, Old Bethpage, NY

CONTAMINANT	CONCENTRATION		
	Design	**Influent**	**Effluent**
PCE (maximum)	1,395 µg/L	900 µg/L	28.0 µg/L
(average)	465 µg/L	633 µg/L	3.4 µg/L
TCE (maximum)	2,078 µg/L	730 µg/L	79.0 µg/L
(average)	115 µg/L	514 µg/L	4.1 µg/L
cis-DCE (maximum)	1,047 µg/L	32 µg/L	5.0 µg/L
(average)	350 µg/L	24 µg/L	4.2 µg/L
Iron (maximum)	8 mg/L	4.61 mg/L	131.00 mg/L
(average)	4 mg/L	0.74 mg/L	6.64 mg/L
Manganese (maximum)	16 mg/L	0.57 mg/L	68.00 mg/L
(average)	1 mg/L	0.49 mg/L	3.66 mg/L

All analytical samples were analyzed by STL, CT[1]. The analytical data was provided to USACE in November 2001.

[1] Severn Trent Laboratories, 128 Long Hill Cross Road, Shelton, CT 06484 Ph: (203) 944-1319

Note: Benzene, ethylbenzene, and Xylene, while mentioned in the ROD, were not detected in samples from onsite monitoring wells during current long-term groundwater monitoring.

3.2.1 Principal Site Operational Hazards

In addition to chemical exposure to contaminants in the groundwater to be treated, other hazards associated with the plant operation could include:

1. Exposure to known hazardous materials.
2. Work area atmosphere that is deficient in oxygen (e.g., in confined areas, such as a tanks or vaults).
3. Excessive noise.
4. Accidents resulting in physical harm.
5. Bodily damage from high pressure air

The most hazardous of the chemicals on-site are generally the treatment chemicals. Throughout the operation of the facility, large volumes of chemicals might be transferred, stored, and used to treat the groundwater. Proper handling and storage of these chemicals must be observed at all times. See Appendix B, Hazard Analysis Tables, for proper handling of treatment chemicals. Chemicals used at the site include:

1. Caustic, NaOH, 50%,
2. $KMnO_4$
3. Anionic Polymer
4. HCl, 32% (Muratic acid),

These chemicals while in the original treatment design are not used in the present operation. However,

polymer, caustic and hydrochloric acid are currently stored on-site. In addition to these bulk chemicals, hazardous waste might be handled or temporarily stored on-site. The same procedures referenced above are to be followed when working with these materials.
Other hazards associated with the operation could potentially include:

The risks vary with the type and degree of your exposure(s) to these hazards. The results of such exposure(s) could include:

1. Asphyxiation.
2. Poisoning.
3. Cancer.
4. Damage to internal organs (e.g., liver, kidneys, brain, etc.) and nerves.
5. Infertility and other reproductive problems.
6. Skin disease.
7. Eye and other bodily injuries.
8. Hearing loss.

Possible routes of exposure to these hazards include:

1. Inhalation.
2. Skin contact, directly through contact with contaminated clothing and equipment, or by contact with contaminated media.
3. Ingestion of contaminated materials.
4. Splash hazards.
5. Injection through cuts or breaks in the skin.

3.2.2 Site Contaminants Toxicological Data

This section provides site relevant toxicological data for reported groundwater contaminants. Table 3-3. shows toxicological data for the groundwater contaminants.

Table 3-3 Relevant Toxicological Data For Reported Contaminants
Claremont Polychemical Facility, Old Bethpage, NY

Chemical	TLV[1]	STEL[1]	IDLH[2]
Trichloroethylene (Cas # 79-01-06)	50 ppm	100 ppm	Ca (1,000 ppm)
Cis/trans 1,2-Dichloroethene (CAS # 156-59-2)	200 ppm	NA	1,000 ppm
Perchlorethylene (Cas # 127-18-4)	25 ppm	100 ppm	Ca (150ppm)

TLV = Threshold Limit Value - An 8-hour time-weighted average exposure or concentration for a normal 8-hour work day or 40-hour work week below which there are no adverse effects.

STEL = Short-term Exposure Limit - A 15-minute time-weighted average exposure that should not be exceeded at any time during a work day.

IDLH = Immediately Dangerous to Life or Health (maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes with experiencing any impairing or irreversible health effects).

Ca = Indicates NIOSH has recommended that the substance be treated as a possible human carcinogen. No IDLH is listed.

NA = Not available.

[1] The exposure limits are taken from the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values, 1986-1987.

[2] From NIOSH/OSHA, Pocket Guide to Chemical Hazards.

3.3 Site Specific Monitoring and Action Levels

Air and personnel monitoring will be conducted on this site:

1. To ensure proper selection of protective equipment.
2. To delineate areas at the site where protection is needed.
3. Assess the potential health effects of exposure.
4. To detect any off-site migration of airborne contaminants.

3.3.1 Direct Reading Instruments

Direct reading instruments will be used to give immediate information concerning levels of contaminants and other hazards. This will include:

1. A Photoionization Detector (PID) to detect action levels of VOCs.
2. Sound level monitor will be used to monitor elevated noise levels.
3. A combustible gas indicator and lower explosive limit (LEL) will be used only for Confined Space Entries, if confined space entry becomes necessary.

All instruments will be calibrated to the manufacturer's specifications before use and will be operated by an individual who is familiar with the particular device's operating principles and limitations.

3.3.2 Air Monitoring/Action Levels

During O&M and sump pit/well decommissioning activities, airborne organics will be monitored via a PID equipped with a 10.6 eV lamp (or equivalent). The breathing zone (2-3 feet from source or 14 inches in front of employee's shoulder) and the work area will be monitored. Should a PID

reading greater than 5 ppm be sustained for 5 minutes, the SSHO will terminate work at that specific location and consult with SAIC's Health and Safety Manager to establish the actions necessary (e.g., Level C PPE) to continue work at the suspect location. Such resulting actions will be documented in memo form and provided to the PSHO, the Program Manager, and the USACE within 24-hours of the determination. Work may resume only after the following condition(s) is determined:

1. Organic vapor levels in the work area are less than 5 ppm in the breathing zone.
2. Analysis assures that no permissible exposure limits (PELs) are exceeded.

3. PPE level has been upgraded to the appropriate level. Sustained unidentified PID responses of 5 ppm in the breathing zone will require full-face cartridge respirators, equipped with organic vapor/acid/dust cartridges. Unidentified OVA responses of 150 ppm (not anticipated) or greater above background in the breathing zone will require upgrade of PPE to Level B, respiratory protection, self-contained breathing apparatus (SCBA).
4. Confined Space Activities – Confined space entry will be conducted per EC&HS Procedure 10 or equivalent. A confined space entry permit will be completed by the field manager prior to entry. One or more blowers will be used to introduce fresh air into the space prior to entry and continuously during entry. Entry into and work in a confined space will not be allowed when oxygen readings are less than 19.5% or greater than 23.5% or if the Lower Flammable limit reading is greater than 10%. Permit required and non-permit required confined spaces include tank and vault entries and will be identified by the SSHO.

3.3.3 Air Sampling for VOCs

Using a PID, the PSHO tested the air quality in the facility. This background check showed that the air quality in the normal working zones where plant O&M and sampling activities occur was free of all levels of VOCs. Level D PPE has been deemed appropriate for most activities. Air monitoring will continue on a weekly basis. If changes occur in work practices, processes, or environmental conditions, the PSHO, along with SAIC's Health and Safety Officer, shall determine if additional sampling is required.

3.3.4 On-Site Laboratory

The facility contains an on-site area where simple laboratory testing is conducted. OSHA 1910.1450 requires a Chemical Hygiene Plan for all laboratories. On-Site laboratory operations are minimal, on-site process testing includes pH and temperature analyses of influents, waste streams, plant effluent, and process streams. All samples are returned to the treatment system after testing is complete. In the event of a spill, spill kits are located in the laboratory area to contain and absorb the spill. Chemical extractions are not performed at the on-site laboratory. All other requirements of the Chemical Hygiene Plan are covered within the SSHP. Off-site laboratories perform all environmental analysis of the samples collected at the facility. Groundwater is sampled quarterly at approximately 40 monitoring wells located in and adjacent to the facility.

4.0 TRAINING

Personnel who participate in the O&M activities associated with this project are subject to the training requirements presented in Table 4-1. O&M activities include the tasks referenced in this plan as well as any other unspecified tasks that take place within the Facility. Examples of the tasks include routine operations per the O&M Manual; collecting effluent; purging and sampling monitoring wells; storage, handling, and use of treatment chemicals; and on-site testing of influent and effluent. Activities that are not within potentially contaminated areas, paperwork, meetings, and similar activities inside the office are not subject to these training requirements. Visitors, such as individuals that will be on-site and will enter controlled areas, are required to have the worker training listed in Table 4-1. Delivery, service/repair, and administration personnel who only access the office or staging areas of the support zone are not subject to these training requirements.

Table 4-1. Training Requirements
Claremont Polychemical Facility, Old Bethpage, NY

Training	Worker	Supervisor	Debris removal /Drilling personnel	Site visitor (no exclusion zone entry)
Hazardous Waste Operations (40 hour, 3 day OJT)	√	√	√	×
Hazardous Waste Operations Annual Refresher (8 hour)	√	√	√	×
Hazardous Waste Operations Supervisors Training (8 hour)	×	√	×	×
General Hazard Communication Training (Contained in 40-hour and 8-hour courses)	√	√	√	×
Respiratory Protection Training (required only if respirators are worn)	√	√	√	×
Hearing Conservation Training (for workers in hearing conservation program; contained in 40-hour and 8-hour courses or SAIC procedure 15)	√	√	√	×
Safety Briefing (daily when field work is being conducted and whenever conditions or tasks change)	√	√	√	×
First Aid/CPR (Red Cross or Equivalent) [if medical services >5 min. away]	≥2 workers	√	√	×
Hazard communication training (Site specific briefings providing information on onsite chemicals, contaminants and other hazards.	√	√	√	×
SAIC EC&HS Procedure 110 (Driving), 130 (Underground Utilities), 150 (Heavy Lifting), 180 (Behavior Based Safety)	√	√	√	×

√ = Required
× = Not required
OJT = on-the-job training

4.1 Hazardous Waste Operations and Emergency Response Training Requirements

The 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) course is required for personnel involved in Hazardous, Toxic, and Radioactive Waste (HTRW) activities in the exclusion (contamination) zone and for any activity that poses a potential to encounter hazardous waste associated hazards. In addition to this training, three days of relevant field experience (OJT) is required and must be documented by the SSHO or Program Manager.

The 8-hour HAZWOPER Refresher course is required annually to maintain currency in the 40-hour course. An extension may be granted for up to 30 days by the PSHO if the refresher course has been scheduled to be completed within the extension period.

The HAZWOPER Manager/Supervisor Training is required for personnel who directly supervise hazardous waste site workers. This is an eight-hour course that must be taken once. Note that the initial 40-hour HAZWOPER course is a prerequisite.

General Hazard Communication Training is required for all site workers. This training must communicate the risks and protective measures for chemicals that employees may encounter. This requirement is met by taking the 40-hour HAZWOPER course, annual refreshers, and site-specific training.

Respiratory Protection Training is required for all individuals who wear respirators. This requirement is met by taking the 40-hour HAZWOPER course, annual refreshers, and site-specific training.

Hearing Conservation Training is required on an annual basis by 29 *CFR* 1910.95 for all employees enrolled in a hearing conservation program. This will include all employees exposed to occupational noise in excess of 85 dBA for an 8-hour time-weighted average. This annual training is provided as part of the 40-hour HAZWOPER course, annual refreshers, and site-specific training.

A sound survey was completed by SAIC's PSHO throughout the entire facility. Noise levels exceeded 85 dba within 10 feet of the air compressor. Hearing protection is required when working within 10 feet of this area while the compressor is running. The area around the blower station air stripper tower has sound levels approaching 85 dba, and hearing protection is also required to work within 10 feet of this area when the blower is operating. SAIC maintains a noise level meter on-site and will take noise level readings monthly and record the readings. SAIC maintains a noise level meter on-site and will take noise level readings monthly and record the readings.

4.2 Site Worker Training

Personnel on-site must receive site-specific safety training. Signatures of those attending and the contents of the training must be entered on the Safety Plan Compliance Agreement form (Appendix C) before site access to controlled areas will be granted.

Safety briefings will be held daily and when conditions or tasks change. These briefings will be conducted by the SSHO or designee and will be attended by all applicable site workers and supervisors. These briefings will address site-specific safety issues (on-site chemicals, contaminants, and other hazards) and will be used as an opportunity to refresh workers on specific procedures and to address new hazards and controls. Documentation of safety briefings will be on the applicable safety briefing form/checklist (Appendix C).

SAIC Site wokers and sub-contractors are subject to the requirements of the SAIC Environmental Compliance and Health and Safety (EC&HS) program. The FM will insure that applicable provisions of EC&HS procedures are followed and that personnel have access to these procedures. Specifically applicable procedures include, but are not limited to; Procedure 4.1,

Accident Reporting; Procedure 8, Hazard Communication and Hazardous Chemical Control; Procedure 12, Medical Surveillance; Procedure 13, Personal Protective Equipment; Procedure 20, Hazardous Waste Operations; Procedure 24, Regulatory Agency Inspections and Incident Reporting; EC&HS Procedure 110, Vehicle Operation. Additional procedures are invoked in task-specific JSAs. These include Procedure 11, Lock Out/Tag Out; Procedure 15, Hearing Conservation and Noise Control; Procedure 25, Management of Investigation Derived Waste; Procedure 28, Hazardous Material Transportation; EC&HS Procedure 130; Subsurface Asset/Hazard Avoidance; EC&HS Procedure 150, Manual Lifting; EC&HS Procedure 160, Excavation Safety; EC&HS Procedure 170, Fall Protection, EC&HS 180, Behavioral Based Safety, EC&HS # 190, Electrical Safety, and EC&HS # 200, Blood Borne Pathogens.

5.0 MEDICAL SURVEILLANCE

All employees performing on-site work will be enrolled in a medical surveillance program to meet the requirements of 29 *CFR* 1910.120(f), 1910.134, 1910.1020 and EC&HS 12 to assess and monitor workers' health and fitness for employment in the field. Employees are provided with summaries of medical examination results following each examination and are provided more detailed information upon written request. Documentation of medical clearance will be maintained on-site during the project. The physician's written opinion for each employee will be noted on the medical clearance.

The frequency of employee medical exams shall be as follows:

- Prior to assignment.

- Once every 12 months for each employee covered unless the attending physician believes a shorter or longer interval (not to exceed 2 years) is appropriate.

- At termination of employment or reassignment to an area where the employee would not be covered, if the employee has performed fieldwork since his/her last examination and has not had an examination within the last six months.

- As soon as possible upon notification by an employee that he/she has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limit (PEL) or published exposure levels in an emergency situation.

6.0 PERSONAL PROTECTIVE EQUIPMENT

PPE for site tasks is based on potential site-specific physical and chemical hazards. In cases in which multiple hazards are present, a combination of protective equipment will be selected so that adequate protection is provided for each hazard. When a conflict exists with the PPE requirements, the more restrictive shall apply. This section emphasizes the programmatic requirements for PPE. For task-specific equipment, see the Activity Hazard Analysis Tables (Appendix B).

6.1 PPE Program

SAIC's PPE program is controlled by EC&HS Procedures 13 and 20 (SAIC 1999); 29 CFR 1910, Subpart I, "Personal Protective Equipment"; and EM 385-1-1, Section 5 (USACE 2003). The level of protection and types of materials selected for a particular task are based on the following:

- Potential for exposure because of work being done.
- Activity duration.
- Route of exposure.
- Measured or anticipated concentration in the medium of concern.
- Toxicity, reactivity, or other measure of adverse effect.
- Physical hazards such as falling objects, flying projectiles, etc.

In situations in which the type and concentration of chemical, and probability of contact are not known, the appropriate protection is selected based on the professional judgment of the Engineering and Environmental Management Group (EEMG) Health and Safety Manager until the hazards are further evaluated.

The SSHO may raise or lower the level of PPE worn by the teams, depending upon the site-specific hazards encountered in the field. Prior to lowering the level of PPE, the PSHO and the Health and Safety Manager will be consulted and the outcome documented. If site conditions are such that the level of PPE is insufficient or work must be stopped, the SSHO will take appropriate action immediately, and the appropriate personnel (see above) will be contacted afterward. Changes in established PPE must be accompanied with a field change order that must be signed by all appropriate safety personnel. A copy must be attached to the SSHP and reviewed with effected personnel. Criteria indicating a possible need for reassessment of the PPE selection include the following:

- Commencement of an unplanned (hazard not previously assessed) work phase.
- Working in unplanned temperature extremes.
- Exceeding of the action limits of chemical hazards.
- Changing of the work scope so that the degree of contact with contaminants changes.

Should respiratory protection (Level C) become necessary, respiratory protection will be implemented. As a minimum, this will require that respirator users have current training, fit tests, and medical clearance for respirator use. Workers will wear only the type and size respirator for which they have been fitted. The SSHO will provide site-specific respirator training to ensure that workers understand proper respirator use.

Should self-contained breathing apparatus (SCBA) (Level B) become necessary (Confined spaces, tank access, and vault entries), Level B SCBA will be implemented. As a minimum, this

will require that SCBA users have current training, fit tests, and medical clearance for SCBA use. Workers will wear only the type and size SCBA for which they have been fitted. The SSHO will provide site-specific SCBA training to ensure that workers understand proper SCBA use.

6.2 Types of Equipment

This section presents the types of protective clothing that may be used for the project. Requirements for task-specific levels of protective clothing are presented in the Activity Hazard Analysis located in Appendix B of this SSHP. Work shall proceed with Level D+. Levels of protection that will be used to protect against chemical and physical hazards at this site may include:

- Level D+ Protective Equipment (may vary depending on activity-specific hazards)
  - Tyvek® or equivalent coveralls with openings taped closed, as applicable
  - nitrile or polyvinyl chloride (PVC) gloves
  - safety boots (ANSI Z41)
  - disposable boot covers
  - hard hat (ANSI Z89.1)
  - safety glasses with side shields (ANSI Z87.1)
  - splash goggles or face shield (if splash hazard for eye or face/skin is present [transferring caustics and acids])

- Level D Protective Equipment - Standard
  - coveralls/field clothes
  - safety boots (ANSI Z41)
  - safety glasses with side shields (ANSI Z87.1)
  - hard hat (ANSI Z89.1)
  - leather or similar work gloves if sharp or abrasive materials are handled

- Level C Protective Equipment – Not expected
  - full-face respirator and air purifying cartridges capable of filtering out organic vapors and acid gases
  - hooded chemical-resistant clothing (Polyethylene-coated Tyvek® or equivalent) with all openings taped
  - two pair chemical-resistant gloves (nitrile and non-latex exam gloves)
  - safety boots (ANSI Z41)
  - shoe covers
  - hard hat (ANSI Z89.1)

- Level B Protective Equipment - Not expected
  - SCBA
  - hooded chemical-resistant clothing (Polyethylene-coated Tyvek® or equivalent) with all openings taped
  - two pair chemical-resistant gloves (nitrile and non-latex exam gloves)
  - safety boots (ANSI Z41)
  - shoe covers
  - hard hat (ANSI Z89.1)

A qualified person will be available at the job site to identify and evaluate any safety and health hazards at the site and to assist in the selection and fitting of respirators, if necessary. Beard and other facial hair that interfere with the respirator face piece seal may have to be removed, since respirator face pieces usually will not seal over them. Similarly, gum and tobacco chewing cannot be allowed since excess facial movement can break the face seal. A poor seal between the face and respirator can also result from talking, missing or false teeth, and facial scars.

Respirators may have impaired functions or failures due to exposures to extreme temperatures, or after repeated use; therefore, frequent maintenance checks should be performed. Respirators for emergency use may be inspected after each use, as well as routinely.

In general, wearing a respirator places an additional stress on the body. Personnel physical examinations include a determination of whether an individual is physically capable of handling this additional stress.

6.3 Cleaning, Storage, and Program Verification

If site tasks require the use of chemical protective clothing, disposable clothing will be used. Used disposable PPE will be damaged to preclude any reuse. Unused chemical protective clothing will be stored in clean staging areas until needed. The SSHO will verify that the PPE in use is appropriate and is being used properly.

7.0 STANDARD OPERATING SAFETY PROCEDURES

This section presents those general safety rules that apply to all operations performed by SAIC and its subcontractors. The provisions of the plan are mandatory for all on-site employees and visitors. This includes employees engaged in initial site reconnaissance, preliminary field investigations, mobilization, project operations, and demobilization.

7.1 Site Rules

The following rules apply to all site activities:

- The OSHA poster #2203 will be prominently displayed in the field office or break area.

- Daily safety briefings ("tailgate") will be conducted by the SSHO or designee to inform personnel of new hazards or procedures.

- The SSHO and project personnel are responsible to suspend/stop work and require all personnel to evacuate the affected area if any of the following situations occur:

  – Inadequate health and safety precautions on the part of any on-site personnel, and
  – Potential significant exposure as a result of planned or unplanned activities.

- Personnel will perform only those tasks that they believe they can do safely.

- Personnel will notify the SSHO of any medical conditions (e.g., allergy to bee stings, diabetes, and pregnancy) that require special consideration.

- Personnel will maintain proper workplace housekeeping to minimize the potential for trips and other accidents.

- Contact with potentially contaminated substances will be avoided. Site personnel in the exclusion zone will avoid walking through puddles, pools, mud, kneeling on the ground, and placing equipment on the ground.

- Spills will be prevented to the greatest extent possible. In the event that a spill occurs, the material will be contained.

- Eating, drinking, smoking, chewing gum, or tobacco and other practices that increase the probability of hand-to-mouth transfer are prohibited in contaminated and potentially contaminated areas.

- Workers should wash their hands and faces upon leaving the work area and prior to eating or drinking.

- All injuries and accidents will be reported to the SSHO, Field Manager, and Program Manager.

- All on-site workers will abide by a buddy system. Members of a buddy team will maintain contact throughout the day during O&M tasks.

- Copies of applicable EM 385-1-1 and SAIC EC&HS procedures will be on-site to reference.

- All instruments (PID, sound meters, etc.) shall be calibrated before each use.

7.2 Permit Requirements

SAIC will obtain or coordinate with USACE to obtain the permits necessary for the safe execution of this project. Permits for confined space entries and hot work will be completed by the SSHO.

7.2.1 Utility Clearances

All subsurface activities will be preceded by a notification to the New York City & Long Island One-Call Center for utility clearance at (800) 272-4480. Excavations or drilling locations must be marked in white prior to notification. The call must be made 2 to 10 days in advance of start date, not counting the date of the call. Additional information on the one-call process can be found at http://www.nycli1calldsi.com/index.php.

7.3 Hot Work Sources of Ignition and Fire Protection

This work will be performed in conformance with EM 385-1-1, Sections 9 and 10 (USACE 2003).

- Hot work (oxyfuel cutting) will be conducted using welder's helmet or shaded goggles, leather gloves, and a long-sleeved shirt.

- Only experienced personnel will be allowed to operate cutting torches or arc welders.

- Combustible material will be removed from the area of hot work for a radius of 35 feet.

- A fire extinguisher rated not less than 10 ABC will be immediately available in the vicinity of hot work.

- A nationally recognized testing laboratory must list equipment such as oxyacetylene torches and arc welders.

- Equipment such as oxyacetylene torches and arc welders will be inspected at the beginning of each shift.

- Oxyacetylene torches will be equipped with reverse-flow check valves between the torch and regulator.

- No hot work will be conducted within 50 feet of flammables storage areas.

- No sources of ignition will be allowed within 50 feet of flammables storage areas.

- At least one fire extinguisher with a rating of at least 20 B will be kept 25 to 75 feet from each flammables storage area.

- Flammables storage areas will be posted with signs reading "No smoking or open flame."

- Indoor storage of more than 25 gallons of flammable liquid must be in an approved flammables

cabinet.

- Flammable liquids (other than decontamination solvents) will be kept in safety containers with flame arresters.

7.4 Drum/Container Handling

Any drums used for the project will meet Department of Transportation and 10 *CFR* 20 requirements and will be labeled to comply with applicable U.S. Environmental Protection Agency (EPA) requirements. Drums weighing more than 40 pounds must be handled with a drum dolly or other suitable device.

7.5 Electrical Safety

This work will be conducted in conformance with 29 CFR 1910, Subpart S and EM 385-1-1, Section 11 (USACE 2003) and EC&HS Procedure 190.

- Portable electrical equipment will be connected through a ground fault circuit interrupter (GFCI).

- Extension cords will be industrial-grade, three-prong type and will be protected from traffic, sharp edges, and immersion.

- Conductive materials will be kept clear of energized power lines. The following table (Table 4-1) shows minimal rated clearances for per line voltage.

Table 7-1 Minimum Rated Clearance for Per Line Voltage.

Nominal Line Voltage	Minimum Rated Clearance
0-50 kV	10 feet
51-100 kV	12 feet
101-200 kV	15 feet
201-300 kV	20 feet
301-500 kV	25 feet
501-750 kV	35 feet
751-1,000 kV	45 feet

7.6 Machine Guarding

All equipment will be operated with all guards provided by the manufacturer and in compliance with 29 *CFR* 1910, Subpart O and EM 385-1-1 Section 16.B. If any guarding must be removed for servicing, the equipment will be disabled and locked out, as appropriate, to preclude movement or release of energy.

7.7 Lockout/Tagout

Potentially hazardous servicing or equipment repair will be governed by SAIC EC&HS Procedure 11, "Lock Out/Tag Out" (SAIC 2004) and 29 CFR 1910.147. All electrical and mechanical equipment will follow lockout/tag-out procedures prior to any maintenance.

7.8 Fall Protection

Work areas with the potential for a fall of four feet or more will be provided with fall protection in compliance with EM 385-1-1 Section 21.A.15 and EC&HS Procedure 170, Fall Protection. This fall protection will consist of guardrails or personal fall protection. Personal fall protection will be used if it is necessary for personnel to climb on tanks or equipment. The SSHP shall identify all locations where workers would be required to wear fall protection devices.

7.9 Hazard Communication

At a minimum, the following steps will be taken:

- All hazardous materials on-site will be labeled to comply with the hazard communication standard to include:
  - Clear labeling as to the contents.
  - Appropriate hazard warning.
  - Name and address of the manufacturer.
  - Follow SAIC Procedure EC&HS 8
- MSDSs will be available on-site for all hazardous materials that are present.
- A current inventory of hazardous chemicals on-site will be maintained in locations where MSDSs are stored. For emergency response purposes, each entry in the inventory shall include the approximate quantities that will be on-site at any given time. In addition, a site map will be attached to the inventory showing where the inventoried substances are stored.
- Site-specific training will include the hazards posed by site chemicals, their location, concentrations (maps showing the location and concentration of contaminants shall be used whenever feasible), protective measures, and emergency procedures.
- Copies of MSDSs for all hazardous chemicals (chemicals brought on-site) will be maintained in the work area. MSDSs will be available to all employees for review during each work shift.
- MSDS evaluations will be conducted prior to bringing a new hazardous chemical on-site for personal protection and waste management issues.

7.10 Sanitation

- Means for washing hands and faces prior to eating will be provided at the work site.
- Potable drinking water will be provided in labeled, sanitary dispensers.
- Toilets shall be provided according to the following: <20 employees = 2 toilets, 21 to 199 employees = 1 toilet seat and 1 urinal per 40 workers.

7.11 Hoisting Operations

- Hoisting operations shall be performed in accordance with EM 3851-1, Section 15.

- Rigging equipment for material handling will be checked prior to use on each shift and as often as necessary to ensure it is safe. Defective rigging will be removed from service.

- A hoisting line with a load imposed will not be permitted to be in direct contact with any derrick member or stationary equipment, unless it has been specifically designed for line contact.

- Workers will stand clear of the well bore when any wire line device is being run.

- Loads will not be lifted over workers.

7.12 Confined Space Entry

Any confined-space entry work that may be subsequently identified will be performed in conformance with the requirements of SAIC EC&HS Procedure 10 (Appendix E), 29 CFR 1910.146; and EM 385-1-1, Section 6I (USACE 2003). Entry into and work in a confined space will not be allowed when oxygen readings are less than 19.5% or greater than 23.5% or if the Lower Flammable limit reading is greater than 10%, unless these conditions are adequately addressed in the confined space entry program. Permit required and non-permit required confined spaces include tank and vault entries and will be identified by the SSHO.

7.13 Illumination

Site fieldwork will be conducted during daylight hours (no earlier than 15 minutes after sunrise and no later than 15 minutes before sunset), and natural illumination will be used. If fieldwork is conducted during non-daylight hours, then it will be specifically identified in the hazard assessment table. Work conducted in buildings will be illuminated to meet the following minimums stated in 29 CFR 1910.120: stairs and ladders: 10-foot candles; offices: 50-foot candles; and first aid areas: 30-foot candles.

7.14 Heat/Cold Stress

7.14.1 General

Temperature stress hazards will be controlled as required by EM 385-1-1, Section 6, "Hazardous Substances, Agents, and Environments" and Section 28, "HTRW and UST Activities" (USACE 2003) and by ER 385-1-92 (USACE 1994). Guidance from the American Council of Government Industrial Hygienists (ACGIH) temperature stress guidelines (ACGIH 2007) and the NIOSH/OSHA/U.S. Coast Guard/EPA (1985) *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, modified to fit SAIC's activities, will also be used.

It is the responsibility of the SSHO and each crew member to confirm that temperature stress controls are adequate for the site conditions and tasks. On-site personnel (and specifically the SSHO) are empowered and expected to stop or modify work and to take the necessary precautions to prevent temperature-related illnesses. This responsibility is in addition to the controls presented in this section.

The ambient temperature will be measured twice during the day or as needed using a dry-bulb thermometer or a wet-bulb globe temperature (WBGT) index monitor placed at the work location and in the same conditions experienced by the workers. If the temperatures reach or exceed

70 degrees Fahrenheit or reach or fall below 40 degrees Fahrenheit, temperature stress controls (administrative controls in compliance with EM385-1-1, Section 0.6J) will be implemented. Temperature monitoring results, physiological monitoring results (e.g., pulse rates, oral temperature, ear canal temperature), and temperature stress controls (e.g., breaks, fluids, heated or cooled rest areas) will be documented in field records using logbooks, or other equivalent methods.

7.14.2 Heat Stress

General controls for the prevention of heat-stress-induced illness include making fluids readily available, using the buddy system, taking scheduled or unscheduled breaks in a cooler area, providing shade, scheduling work during cooler parts of the day, providing forced ventilation, encouraging physical fitness, and application of prudent judgment by the SSHO and crew. Specific requirements include those below:

- If ambient temperatures reach or exceed 70 degrees Fahrenheit, workers will be allowed to take unscheduled breaks, as needed, in a cooler area. A break is defined as minimal physical activity (sitting or standing) and should be accomplished in the shade, if possible.

- If ambient temperatures reach or exceed, or are expected to reach or exceed, 70 degrees Fahrenheit, site-specific training will include heat-stress recognition and control and first aid for heat-stress-induced illnesses.

- If ambient temperatures reach or exceed, or are expected to reach or exceed, 70 degrees Fahrenheit, cooled water and Gatorade or equivalent drink will be made conveniently available to site workers, and site workers will be encouraged to drink frequently. A clean area will be established for the consumption of liquids near the exclusion zone.

7.14.3 Cold Stress

Critical factors in preventing cold stress disorders are adequate clothing and staying dry. The SSHO and Field Manager will confirm the capability to quickly move individuals who become wet to a sheltered, warm area. The following specific steps will be taken (adapted from the ACGIH TLV booklet [ACGIH 2007]).

- If ambient temperatures are 40 degrees Fahrenheit or below, site training will include prevention of cold injury, cold-injury symptoms, and cold-injury first aid.

- If ambient temperatures are 40 degrees Fahrenheit or below and there is a potential for workers to become significantly wet (splashed or soaked), the SSHO will confirm that at least one of the following controls is in place: (1) a sufficient supply of dry, warm clothing is immediately available; (2) employees wear clothing appropriate for water contact (e.g., immersion-survival suits, neoprene chest waders, wet suit); or (3) a heated break area is immediately available.

- A heated break area will be provided if ambient temperatures are below 32 degrees Fahrenheit.

- At a minimum, breaks will be taken in a warm area every 120 minutes if ambient temperatures are below 32 degrees Fahrenheit.

- Workers will be allowed to take unscheduled breaks, if needed, in a warm area. If the equivalent chill temperature (temperature combined with the effect of wind) is less than –29 degrees Fahrenheit, outdoor work will be discontinued or effective engineering controls such as windscreens, temporary shelters, or portable heating units will be used.

7.15 Hazardous Waste Management

SAIC or subcontract personnel are not authorized to sign uniform hazardous waste manifests or waste profiles on behalf of the site owner/operator or in any way direct final transportation to a Treatment, Storage, and Disposal (TSD) facility or disposal of field generated waste.

Regulated (and potentially regulated) project waste will be managed per the intent of EC&HS Procedure 25. SAIC personnel will not sign disposal documents without written approval from the corporate EC&HS office. The written plan for disposition of potentially regulated project waste must be in place prior to generating the waste. The plan may be specified in proposal language (preferred method), incorporated into the HASP, or be a separate document. The plan must specify; anticipated type, characteristics, and quantity of wastes; requirements for storage; process for characterization by client or at least approval of characterization by client; and process for documented transfer to client or disposal company. The plan must be approved by the client, or at least submitted (documented submittal) to the client. Containers of potentially regulated wastes must be labeled or indelibly marked to indicate at least; contents (including physical state), date placed in container, source, and client's name.

8.0 SITE CONTROL MEASURES

The SSHO will be responsible for establishing the site control zones, as necessary, around controlled areas that present physical and/or chemical hazards. Implementation of the site control zones will help to minimize the number of employees potentially exposed and to minimize the potential for the spread of contamination.

Site control zones will be established in a number of locations at the facility. The exact locations will vary depending on conditions at areas in the treatment process. Every attempt will be made to exclude all unauthorized personnel (members of the public, etc.) from exclusion and contamination reduction zones. If unauthorized personnel enter a controlled area and refuse to leave, work will be stopped and a manager will be notified. Authorized visitors will be required to show proof of current training and medical surveillance, as appropriate.

8.1 Exclusion Zone

The exclusion (contamination) zone is the area where the greatest potential exists for exposure to contamination or physical hazards. Personnel access to the exclusion zone will be limited to authorized SAIC and subcontractor individuals. The periphery of the exclusion zone will be identified by barricade tape or the door of the facility. An entry and exit checkpoint will be visually defined to regulate the flow of personnel and equipment. The entry and exit checkpoint will be delineated with barricade tape or the door of the facility. The number of people and equipment in the exclusion zone will be minimized to control physical hazards and the spread of contamination.

At a minimum, exclusion zones will be established around tasks or areas that pose a potential for the spread of contamination or injury to personnel. When drilling, the radius of the exclusion zone is, at a minimum, equal to the height of the drilling rig mast.

The following standard rules will apply to all entries into the exclusion zone:

- The SSHO must approve entry into the exclusion zone.
- All personnel entering the exclusion zone will wear the prescribed level of protective clothing.
- All items and related paraphernalia intended to be placed on the face or in the mouth (cigarettes, lighters, matches, chewing tobacco, food, cosmetics, etc.) are prohibited in the exclusion zone.
- All personnel in the exclusion zone will follow the buddy system.

Exclusion zones will be established around areas of heavy equipment use, caustic/acidic storage areas, and all activities where loose contamination and/or airborne contamination are a potential hazard. Note that the exclusion zone is intended to protect personnel who are not involved with the task. Objects, such as stored unoccupied vehicles or the walls of buildings, may occur within the exclusion zones. Building entrances or windows that occur within the exclusion zone will be locked or, at a minimum, marked to preclude use.

8.2 Contamination Reduction Zone

A contamination reduction zone will be established, as necessary, outside the exclusion zone to provide a transition from and a buffer between the exclusion zone and the support zone. All personnel entering the contamination reduction zone or restricted area will wear the prescribed level of protective clothing required for that zone. All items are intended to be placed on the face or in the mouth (e.g., cigarettes, chewing tobacco, food, cosmetics, etc.) are prohibited. Doffing of protective clothing and personnel decontamination will occur in the contamination reduction zones.

8.3 Support Zone

The support zone is the clean and relatively safe area surrounding the exclusion and contamination reduction zones. Primary functions of the support zone are:

- Staging area for clean equipment and supplies.

- Location for support services [e.g., office trailers, laboratory trailers, eating area(s), toilet facilities, parking, visitor area(s), etc.].

8.4 Site Communication

Field personnel will be capable of contacting other field personnel and outside agencies. Hand-held radio, portable air horns, or vehicle horns will assure communication on-site. Telephone service is available on the site.

9.0 PERSONAL HYGIENE AND DECONTAMINATION

A system of procedures will be used to control the spread of contamination from the exclusion (contamination) zone and to ensure that workers are sufficiently free of contamination to preclude adverse health effects. PPE doffing and personnel decontamination are part of this system. The doffing of PPE will normally be the only decontamination effort necessary. Further decontamination will only be necessary if the results of contamination surveys indicate contamination on personnel skin or personal clothing.

9.1 Level D Protection Doffing/Decontamination

Procedures for doffing/decontamination under level D PPE protection are as follows:

Station 1: Equipment drop

Place potentially contaminated equipment in a designated area.

Station 2: Removal of disposable boot covers and gloves (if worn).

Deposit disposable gloves and boot covers in a designated container. Note that this step is necessary only if gloves and boot covers are in use.

Station 3: Field wash

Wash face and hands prior to taking anything by mouth. This may be done with soap and water or disposable disinfectant towels.

9.2 Level D+ Protection Doffing/Decontamination - Standard

Procedures for doffing/decontamination under level D+ PPE are as follows:

Station 1: Equipment drop

Place potentially contaminated equipment in a designated area.

Station 2: Tape removal

Remove all tape (if used) from outer clothing and place in appropriate waste container.

Station 3: Boot covers, outer disposable garment, and gloves removal

Carefully remove boot covers, outer contamination-resistant garment, and gloves.

Station 4: Field wash

Wash hands and face prior to eating, drinking, smoking, etc. This step may be accomplished with soap and water or disposable disinfectant wipes.

9.3 Level C or B Protection Doffing/Decontamination – Not Expected

Procedures for doffing/decontamination under level C or B PPE are as follows:

Station 1: Equipment drop

Place potentially contaminated equipment in a designated area.

Station 2: Segregated equipment drop

Deposit equipment used on-site (tools, sampling devices, containers, monitoring instruments, clipboards, etc.) on plastic sheets or in different containers with plastic liners. Segregation of the equipment at the drop site reduces the possibility of cross-contamination.

Station 3: Outer boot cover and glove removal

Remove tape from outer boots and outer gloves. Remove outer boot covers and outer gloves. Deposit gloves and boot covers in plastic trash bags.

Station 4: Cartridge change

If a worker has left the exclusion zone for the sole purpose of changing a canister/cartridge of the respirator, this is the last step of the decontamination procedure. Once the worker's canister/cartridge has been changed, the outer boots and gloves will be replaced and re-taped so that all potential pathways to the skin are sealed.

Station 5: Disposable outer garment removal

Remove disposable outer garment, deposit in a plastic trash bag, and dispose in accordance with the project Work Plan.

Station 6: Respiratory protection and disposable inner glove removal

The respirator is the next-to-last item for removal. The cartridges/canisters are placed in a plastic trash bag and disposed of in accordance with the project Work Plan. The respirator is placed in a plastic bag dedicated for used respirators only. Remove disposable inner gloves last and deposit them in a plastic trash bag, in accordance with the project Work Plan.

Level B SCBA Doffing/Decontamination procedures will following Level C procedures and replace full-face respirator and cartridge with SCBA equipment.

9.4 Equipment Decontamination

Small equipment may be pressure washed or scrubbed/wiped with soap and water. Equipment requiring maintenance or repair will generally be decontaminated prior to servicing. Reusable sampling equipment and any other tools used for intrusive work will be decontaminated between sampling locations.

Larger pieces of equipment will be decontaminated with pressurized hot water/steam as necessary. Heavy equipment, such as drill rigs, will be decontaminated with pressurized hot water/steam in

a designated area where the decontamination water can be contained and managed as necessary. Steps will be taken to assure that the transportation of sampling and other equipment does not spread contamination to previously uncontaminated areas. Any equipment that is deemed to be heavily contaminated will be decontaminated in the immediate area of the sample collection or will be wrapped in plastic during transit to a decontamination area.

10.0 EMERGENCY PROCEDURES AND EQUIPMENT

The SSHO will remain in charge of all project personnel during emergency activities. The SSHO will perform emergency notification of emergency medical services, fire department, program manager, etc. The SSHO will also escort or assign an escort to off-site emergency responders. In order to minimize the potential for accidents and injuries, the SSHO, or designee, will conduct worksite inspections in areas where project activities are being conducted. The inspections will normally be documented in field logbooks. If an emergency occurs, the SSHO and the field team will participate in a post-emergency briefing to discuss the event, identify the causes, identify corrective measures, and evaluate the responses.

In the event of an accident or incident, the SSHO or Program Manager will notify SAIC line management immediately.

All personnel working on-site will be trained in the requirements of this section. This will include recognizing emergencies, reporting emergencies to the SSHO, and responding to emergencies. Employees will also be informed of any changes in potential emergencies or response plans.

10.1 Incident Reporting

Field personnel and subcontractors are responsible for immediate reporting to the SSHO of any event that may adversely impact personnel, the environment, or that may cause equipment damage, regardless of the severity. All “near misses” must also be reported. A “near miss” is an event that did not, but had the potential to, cause injury or damage. The SSHO will report the incident to the Program Manager. The USACE Project Manager and Project Health and Safety Officer will be notified immediately after the incident as well.

It is the responsibility of line management to investigate all injuries, property damage, environmental events, and near misses. The primary purpose of reporting and accident/incident investigations is to prevent recurrence of such accidents.

10.2 Potential Emergencies

Credible potential emergencies for this project include fires, minor chemical spills, and personnel injury.

10.2.1 Fires

Large volumes of acidic and caustic treatment chemicals (Muratic acid and sodium hydroxide) and small quantities of flammable solvents (typically less than 5 gallons), gasoline, adhesives, and paints will be present on-site. In the event of a fire, the local fire department will be notified immediately. If it is safe to do so, on-site personnel may attempt to extinguish minor, incipient fires with the available fire extinguishers and isolate any nearby flammable materials. If there is any doubt about the safety of extinguishing the fire, site personnel will evacuate the area. The supervisor or knowledgeable employee will provide the fire department with relevant information when they arrive.

10.2.2 Spills

Potential spills include releases of treatment chemicals (muratic acid and sodium hydroxide), fuels, lubricants, hydraulic fluids, contaminated groundwater, and decontamination solvents. With the exception of sodium hydroxide and muriatic acid, all of these materials will be contained in small quantities (5 gallons or less). The treatment chemical make-up and feed tanks are located within a secondary containment berm. Any spills of treatment chemicals will also be contained inside the walls of the facility with impoundment to the floor drain pit. In the event of a spill or leak, the employee making the discovery will immediately notify the SSHO. The SSHO will assess the situation and take appropriate measures as follows.

For small quantities (most likely spill scenario) the field crew will use the project spill control kits to clean up and containerize spilled material and other material such as soil that has become contaminated. For larger quantities (more than five gallons) the SSHO will initiate, if feasible cleanup and control with available equipment and notify the local fire department if deemed necessary. If the spill cannot be resolved without undue danger (fire or similar hazard) to personnel, the area will be evacuated and the response turned over to local emergency response personnel. All clean up will be performed wearing nitrile or similar gloves, eye protection, and any other PPE deemed necessary by the SSHO.

All spills will be reported to the Project Manager and/or SAIC Program Manager.

10.2.3 Medical Emergencies

In the event of a medical emergency, the SSHO will notify the local emergency medical service immediately. At least two first aid/CPR-trained (American Red Cross, American Heart Association, American Lung Association, etc.) individuals will be on staff at all times, and these personnel will provide first aid pending release of the injured person to emergency medical staff. Contaminated injured personnel will be decontaminated to the extent feasible. Personnel with minor (non-life threatening) injuries will follow normal decontamination procedures (e.g., removal of PPE). Personnel with serious injuries will be decontaminated, if necessary, by disrobing and wrapping in a blanket. Decontamination may be bypassed in the event of life-threatening injuries or illnesses. EMS responders shall be informed of any contamination on personnel at the time of request for response and upon arrival on the scene.

10.3 Emergency Phone Numbers and Directions to the Hospital

Table 10-1. Emergency Telephone Numbers
Claremont Polychemical Facility Old Bethpage, NY

Fire	Plainview Fire Dept	**516-938-9601**
Police	Nassau County Police - 8th Precinct	**516-573-6800**
Medical	North Shore Univ. Hospital 880 Old Country Rd.	**516-713-3000** **1-800-336-6800**
Hazardous Material	HAZ MAT Response – Nassau Cty	**516-938-9601**
Waste	HAZ Waste Hotline	**516-571-3315**
Electric	LIPA	**631-755-6900**
SAIC	SAIC Emergency Hotline	**1-800-944-6778**
Spills	Plainview Fire dept.	**516-938-9601**
Proj. Safety	Chris Fontana	**610-952-1752 cell** **610-594-3630 ext 305**
General Emergency	Nassau County	**911**
Other	USACE - Kansas City District	**816-983-3880**
	Poison Control Center	**1-800-336-6997**

DIRECTIONS TO HOSPITAL

From Claremont Polychemical Facility to North Shore University Hospital

(Directions starting from Claremont Polychemical Facility)
Proceed north on Winding Road. Turn left onto Bethpage Sweet Hollow Road. Bethpage Sweet Hollow Road becomes Old Bethpage Road. Old Bethpage Road becomes Plainview Road. Turn left onto Old Country Road. Follow signs into hospital.

Hospital Address:

Northshore University Hospital
888 Old Country Road
Plainview, New York 11803
Phone: 516-573-6800

The telephone numbers and a hospital map (Appendix D) will be posted on-site and will include written directions of routes to the hospitals and the hospital telephone numbers.

10.4 Evacuation

The SSHO will designate the evacuation routes and an assembly area and provide the information at the Site Specific Training Briefing. All employees will be familiar with the evacuation routes and assembly area.

10.5 Emergency Equipment

Several items of emergency equipment will be maintained at the work site. The required emergency equipment includes:

- First aid kit indoors or in weatherproof container.
- The existing emergency eyewashes and showers comply with ANSI Z3851-1998.

- Fire extinguishers with a minimum rating of 2A-10B:C are provided at all site facilities. Contractor shall provide 2A-10B:C fire extinguishers in all vehicles; at any other site locations where flammable or combustible materials present a fire risk; and for use during maintenance operations away from the plant site.

- Basic spill kit suitable to handle small spills of decontamination fluids, caustic and acidic treatment chemicals, hydraulic fluid, or fuels and containing absorbent pads, tubes, and nitrile or similar gloves.

- Telephone for contact with emergency services and, depending on-site conditions, portable radios for on-site communication.

- Two positive-pressure SCBA will be on-site at all times for rescue purposes. The SCBA will be dedicated for emergency use only and maintained on-site in the clean area of the site.

11.0 LOGS, REPORTS, AND RECORD KEEPING

A system of reports and logs will be used to document activities related to site Health and Safety. These reports will include injuries, accidents, near accidents, interpretations of the SSHP or regulations, interactions with auditors/regulators personnel, and any off-normal events.

- Accident and injury reports for all accidents other than minor first aid cases.
- Daily safety tailgate meet forms (see Appendix C).
- Daily site safety inspection forms (see Appendix C).
- Non-routine safety inspection forms (see Appendix C).
- Training certificates.
- Records or logbooks detailing site training, topics covered, names and signatures of participants and trainer, general site activities, inspections, surveillances, site workers, H&S problems, and problem resolutions.
- Medical clearance forms.
- Related procedural forms such as equipment and personal decontamination, and records of radiological surveys.
- Equipment maintenance logs will contain the dates and types of routine maintenance performed on-site equipment.
- Records of environmental and personal exposure monitoring/sampling results will be maintained and will contain monitoring data, location and time of monitoring, types of work being done, calibration records, and the identities of personnel performing monitoring.

APPENDIX A

ENGINEERING AND ENVIRONMENTAL MANAGEMENT GROUP EC&HS POLICY STATEMENT

ENGINEERING AND INFRASTRUCTURE BUSINESS UNIT ENVIRONMENTAL COMPLIANCE AND HEALTH AND SAFETY POLICY

The Engineering and Infrastructure (E&I) Business Unit is committed to a goal of zero accidents and we will conduct our business in a manner that protects the health and safety of our employees, customers, business partners, community neighbors, and the environment. In order to pursue this goal we will take the following specific actions.

The E&I Business Unit General Manager will ensure that the implementation of the Environmental Compliance and Health and Safety (EC&HS) program conforms to the requirements of the American National Standards Institute standard Z10 "American National Standard for Occupational Health and Safety Management Systems". The Business Unit General Manager will review the performance of this system at least annually and ensure the development of action plans in order to pursue continuous improvement.

Each Operation Manager will review the EC&HS performance of his/her operation at least quarterly and will ensure that actions are taken to pursue continuous improvement.

Managers at every level will take responsibility for health and safety and environmental compliance within their respective areas and in addition will be active participants in the program. They will lead the program by word and example, and when necessary, by disciplinary action.

Managers at every level will make adequate resources available to protect employees, subcontractors, the public, and the environment. This is an absolute requirement and does not depend on the availability of budgeted (project) funds.

Managers at every level will ensure that health and safety and environmental compliance are incorporated into all work planning and that requirements are documented.

Managers at every level will ensure that all incidents are reported and investigated to identify opportunities for improvement.

Employees will be empowered and encouraged to stop unsafe work.

Robert F. Shokes PhD
Business Unit General Manager - Engineering and Infrastructure Business Unit
Senior Vice President - Science Applications International Corporation

June 29, 2006
Date

APPENDIX B

ACTIVITY HAZARD ANALYSIS TABLES

Activity Hazard Analysis Table B-1

ACTIVITY: Groundwater Treatment and O&M Activities	**ANALYZED BY/DATE: Christopher Fontana 4-1-08**

PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
1. Driving to and from Site	Heavy traffic/accidents	Compliance with EC&HS Procedure 110, Vehicle Operation (valid drivers license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Groundwater Treatment and O&M activities will be operated per O&M Manual found in the plant.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Safety and site-specific training. Standard operating procedures. Personnel will wear Level D + PPE. Safety shoes or boots, hardhat, safety glasses (goggles and/or face shield when handling chemicals), hearing protection, heavy-duty work gloves as appropriate. Subcontractor will operate per their own standard operating procedures that must meet or exceed the hazard controls specified in this plan. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near operating machinery. No employees under lifted loads. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted). EC&HS Procedure 170, Fall Protection
	Noise	Hearing protection required above 85 dba. Monthly testing required.
	Exposure to chemicals	PPE (level D +) plus nitrile gloves for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical surveillance. If PID readings are sustained above the action level (5 ppm), personnel will stop work and SSHO will notify the Program Manager and Health and Safety Manager. Work will not continue until levels fall below 5 ppm or an upgrade in personnel protection (Level C) is approved. If levels are sustained above 150 ppm (this is not anticipated) personnel will stop work and SSHO will notify the Program Manager and Health and Safety Manager. Work will not continue until levels fall below 150 ppm. Weekly air quality testing is required.
	Confined space entry	Any confined-space entry work that may be subsequently identified will be performed in conformance with the requirements of SAIC EC&HS Procedure 10 (SAIC 1999) and 29 CFR 1910.146 and EM 385-1-1, Section 6I (USACE 2003).
	Lock Out/Tag Out	All electrical and mechanical systems will follow lockout/tag out procedures prior to any maintenance.
	Fire	A 5-pound ABC fire extinguisher in each work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J. Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (snakes, bees, ticks, wasps)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENT**	**TRAINING REQUIREMENTS**
Heavy equipment, Hand tools,PID, sound meter, hand cart.	Daily site safety briefings. PID or similar monitoring as appropriate. Sound monitoring.	Current 40-hr Hazardous Waste Operations Training and current medical clearance for Hazardous Waste Operations. Personnel will be experienced and trained in operation of the equipment. At least two First aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held daily.

Activity Hazard Analysis Table B-2

ACTIVITY: General Site Movement		ANALYZED BY/DATE: Christopher Fontana 4-1-08
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
1. Driving to and from Site	Heavy traffic/accidents	Compliance with EC&HS Procedure 110, Vehicle Operation (valid drivers license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Principal steps located in the O&M Manual.	General safety hazards	Level D Modified PPE (see Chapter 4). Site-specific training. Standard operating procedures.
	Fire	A 5-pound ABC fire extinguisher in each work area (serviced annually and inspected monthly).
	Exposure to chemicals	Exposure to chemicals is expected to be minimal. PPE (level D modified) plus nitrile gloves for contact with potentially contaminated material, minimal contact, and washing face and hands prior to taking anything by mouth.
	Noise	Hearing protection required above 85 dba. Monthly testing required.
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J. Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (snakes, bees, ticks, wasps)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
Travel To/At Project Site	Vehicle accidents.	All site personnel operating motor vehicles shall have a valid driver's license and comply with all federal, state, and local traffic regulations. Personnel shall only use vehicles that are in good condition and are safe to operate. All personnel will drive defensively, wear seatbelts while vehicles are in motion, and comply with speed limits. Backing of vehicles shall be avoided when possible. Extra care shall be taken to back vehicles when unavoidable.
Travel On-Site	Vehicle accidents, collision with objects, running over site workers.	Operate vehicle within a safe speed (< 10 MPH).

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Automobiles	Daily Site safety inspections.	Current 40-hr Hazardous Waste Operations Training and current medical clearance for Hazardous Waste Operations. At least two First aid/CPR-trained personnel will be present during survey work.

Activity Hazard Analysis Table B-3

ACTIVITY: Groundwater/Effluent/Influent Sampling	ANALYZED BY/DATE: Christopher Fontana 4-1-08

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	CONTROLS
Groundwater sampling will be completed per O&M Manual and SAP.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Standard operating procedures. Personnel will wear Level D + PPE. Safety shoes or boots, hardhat, safety glasses, hearing protection, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near operating machinery. Hazardous waste safety and site-specific training. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted).
	Noise	Hearing protection requires above 85 dba.
	Exposure to chemicals	PPE (level D modified) for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical clearance for hazardous waste work. If PID readings are sustained above the action level (5ppm), personnel will stop work and Field Manager will notify the Project Manager and Health and Safety Managers. Work will not continue until levels fall below 5ppm or an upgrade in personnel protection is approved.
	Fire	A 5-pound ABC fire extinguisher in each work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J. Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (snakes, bees, ticks, wasps, skin sensitizing vegetation)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Bladder pumps and controller, portable generator, water level indicator, Horiba, and PID.	Daily site safety inspections (EM 385-1-1 16.A.02). PID or similar monitoring as appropriate.	Current 40-hr Hazardous Waste Operations Training and current medical clearance for Hazardous Waste Operations. Groundwater sampling crew will be experienced and trained in operation pumps. At least two First aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed.

Activity Hazard Analysis Table B-4

ACTIVITY: Onsite Laboratory and Handling of Treatment Chemicals		ANALYZED BY/DATE: Christopher Fontana 4-1-08
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
Onsite laboratory and handling of chemicals will be completed per O&M manual and SAP.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Personnel will wear Level D + PPE. Safety shoes or boots, hardhat, safety glasses, face shield, hearing protection, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near equipment and chemicals. Use buddy system when transferring caustic or hydrochloric acid. Hazardous waste safety and site-specific training. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted). MSDS for all chemicals brought onsite.
	Noise	Hearing protection requires above 85 dba.
	Exposure to chemicals	PPE (level D modified) for contact with potentially contaminated material and chemicals, minimal contact, washing face and hands prior to taking anything by mouth, medical clearance for hazardous waste work. Face shields will be worn when transferring treatment chemicals. All chemical containers labeled to indicate contents and primary hazard. MSDSs kept on site. Site specific training on hazardous chemicals.
	Fire	A 5-pound ABC fire extinguisher in each work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J. Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Lab equipment, hand cart	Daily site safety inspections (EM 385-1-1 16.A.02).	Current 40-hr Hazardous Waste Operations Training and current medical clearance for Hazardous Waste Operations. Laboratory personnel will be experienced and trained in using lab equipment and handling hazardous chemicals. At least two First aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed.

Activity Hazard Analysis Table B-5

ACTIVITY: Equipment Decontamination		ANALYZED BY/DATE: Christopher Fontana 4-1-08
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
Principal steps located in the O&M manual.	General safety hazards (Moving equipment, slips, falls)	Level D Modified PPE. Safety shoes or boots, hardhat, safety glasses, splash shield, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near operating machinery. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted).
	Noise	Hearing protection requires above 85 dba.
	Exposure to chemicals	PPE (level D modified) for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical clearance for hazardous waste work.
	Fire	A 5-pound ABC fire extinguisher in each work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J. Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (snakes, bees, ticks, mosquitoes wasps, and skin sensitizing vegetation)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Generator and pumps.	Daily Site safety inspections.	At least two First aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed. Current 40-hr Hazardous Waste Operations training. Medical clearance for Hazardous Waste Operations.

Activity Hazard Analysis Table B-6

ACTIVITY: Confined Space activities (Storm water pits)		ANALYZED BY/DATE: Christopher Fontana 4-1-08
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
Activities will be completed per work plan	General safety hazards (moving equipment, slips, falls)	A ladder will be used to access the space. Standard operating procedures. Personnel will wear Level D PPE. Safety shoes or boots, hardhat, safety glasses, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near operating machinery.
	Cranes and other heavy equipment	Equipment will be operated by experienced personnel only. Subcontractor crane operators must have documented crane operation/safety training. No personnel will be allowed under lifted loads.
	Confined Space	Any confined-space entry will be performed in conformance with the requirements of SAIC EC&HS Procedure 10 (SAIC 1999); 29 CFR 1910.146; A confined space entry permit will be completed by the field manager prior to entry, One or more blowers will be used to introduce fresh air into the space prior to entry and continuously during entry, O2 readings less than 19.5% or greater than 23.5% will prohibit entry. No hot work or any other work that may consume oxygen or generate airborne chemicals will be performed in the space.
	Noise	Hearing protection required above 85 dba.
	Exposure to chemicals	PPE (level D modified) for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical clearance for hazardous waste work.
	Fire	Fire extinguisher in work area (serviced annually and inspected monthly).
	Temperature extremes	Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Electrical shock	Electrical hand tools will be connected through ground fault circuit interrupters. Personnel will utilize lock out/tag out process if any electrical work is performed.

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Hand Tools, PID, LEL/O2, Blower	Daily site safety inspections.	Current Confined Space Training and current medical clearance. Crew will be experienced and trained. At least one First aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed.

Activity Hazard Analysis Table B-7

ACTIVITY: Monitoring Well Abandonment		**ANALYZED BY/DATE: Christopher Fontana 4-1-08**
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
Grout machine will be operated per operating Manual. Principal steps located in the Work Plan.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Standard operating procedures. Personnel will wear Level D Modified PPE. Safety shoes or boots, hardhat, safety glasses, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed inside the exclusion zone. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted). ; EC&HS Procedure 130; Subsurface Asset/Hazard Avoidance
	Noise	Hearing protection above 85dba.
	Exposure to chemicals	PPE (level D modified) for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical clearance for hazardous waste work.
	Fire	Fire extinguisher in work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J (USACE 2003). Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (snakes, bees, mosquitoes, ticks, wasps and skin sensitizing vegetation)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Grout Machine	Daily site safety inspections.	Current 40-hr Hazardous Waste Operations Training and current medical clearance for Hazardous Waste Operations At least one First Aid/CPR trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed.

Activity Hazard Analysis Table B-8

ACTIVITY: Debris Clearing/soil sampling		**ANALYZED BY/DATE: Christopher Fontana 4-1-08**
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
Bulldozer and weed trimmer will be operated per operating Manual. Principal steps located in the Work Plan.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Safety and site-specific training. Standard operating procedures. Personnel will wear Level D Modified PPE. Safety shoes or boots, hard hat, safety glasses, hearing protection, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near operating machinery. A bulldozer may be required to assist in creating the access road. Bulldozer operator shall be experienced and following standard operating procedures. Dozier will be equipped with Roll over protection system as required by EM 385 1-1 16B.12. Dozier will have functional back-up alarm. Hearing protection is required not only for sound protection, but also required to prevent foreign objects (e.g., twigs and thorns) from entering the ear and puncturing the eardrum while clearing. Face shield will be worn while clearing operations are occurring. Personnel will follow EM 385 1-11 31 and 13F. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted). EC&HS Procedure 130; Subsurface Asset/Hazard Avoidance
	Noise	Hearing protection within 25 feet of brush clearing equipment.
	Exposure to chemicals	Exposure to chemicals is not a concern. Wash face and hands prior to taking anything by mouth.
	Fire	Fire extinguisher in work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J. Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (mosquitoes, snakes, bees, ticks, wasps)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Machete, weed trimmer, and bulldozer, trucks, soil sampling equipment	Daily site safety inspections (EM 385-1-1 16.A.02). Weekly inspections conducted by operator.	At least one First Aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed.

Activity Hazard Analysis Table B-9

ACTIVITY: Sump Pit Excavation/Sediment & Water Sampling		ANALYZED BY/DATE: Christopher Fontana 4-1-08
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
Backhoe operator will follow operations manual. Any samples collected will be collected from the bucket.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Level D Modified PPE. Safety shoes or boots, hardhat, safety glasses, heavy-duty work gloves as appropriate. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed inside the exclusion zone. Excavations will be performed from a stable ground position. Spoil piles will be located at least 3 feet from the edge of the excavation to prevent backflow into the excavation. Personnel will sample from the backhoe bucket only when the bucket is resting on the surface of the ground and the backhoe bucket control is in the off position. Procedure 150 (heavy lifting – lifting equipment > 50 lbs by one person is not permitted). EC&HS Procedure 130; Subsurface Asset/Hazard Avoidance
	Noise	Hearing protection within 25 feet of rig unless noise monitoring indicates noise is less than 85 dBA.
	Exposure to chemicals	PPE (level D) plus nitrile gloves for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical surveillance.
	Fire	Fire extinguisher in work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J (USACE 2003). Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (snakes, bees, ticks, wasps)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Backhoe or hydraulic excavator & Sampling Equipment.	Daily site safety inspections (EM 385-1-1 16.A.02). Weekly inspections conducted by operator.	Current 40-hr Hazardous Waste Operations Training and current medical clearance for Hazardous Waste Operations Backhoe operator will be experienced and trained in operation of the backhoe. At least one First aid/CPR-trained personnel will be present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed.

Activity Hazard Analysis Table B-10

ACTIVITY: Debris clearing/removal in areas potentially containing Asbestos/Cadmium	ANALYZED BY/DATE: Christopher Fontana 4-1-08

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	CONTROLS
Bulldozer, debris separator, backhoe will be operated per operating Manual. Principal steps located in the Work Plan.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Safety and site-specific training. Standard operating procedures. Personnel will wear Level D Modified PPE. Safety shoes or boots, hard hat, safety glasses, hearing protection, heavy-duty work gloves as appropriate. Workers will avoid working down-wind of operating equipment or in areas where the air contains visible dust. Dust Masks will be worn by all personnel working within, or down-wind of the pre-designated areas containing asbestos and cadmium. During windy days the Asbestos/Cadmium zones will be sprayed with water to prevent particulate from entering the breathing zone. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near operating machinery. A bulldozer may be required to assist in creating the access road. Bulldozer/backhoe/debris sifter operators shall be experienced and following standard operating procedures. Dozier/backhoe will be equipped with roll over protection system as required by EM 385 1-1 16B.12. Dozier/backhoe will have functional back-up alarm. Debris sifter will have a functional kill switch and required safety guards. EC&HS Procedure 130; Subsurface Asset/Hazard Avoidance
	Noise	Hearing protection within 25 feet of brush clearing equipment.
	Exposure to chemicals	PPE (level D modified) for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical clearance for hazardous waste work.
	Fire	Fire extinguisher in work area (serviced annually and inspected monthly).
	Temperature extremes	Administrative controls in compliance with EM385-1-1, Section 0.6J (USACE 2003). Shaded break area or warmed break area, depending on the season. Routine breaks in established break area. Chilled drink if temperatures exceed 70°F. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (mosquitoes, snakes, bees, ticks, wasps)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Debris sifter, backhoe, bulldozer, trucks, soil sampling equipment	Daily site safety inspections (EM 385-1-1 16.A.02). Weekly inspections conducted by operator.	Debris removal crew will be experienced and trained by subcontractor. At least two First aid/CPR-trained personnel will be present during fieldwork. Safety briefings will be conducted daily. Current 40-hr Hazardous Waste Operations training. Medical clearance for Hazardous Waste Operations.

Activity Hazard Analysis Table B-11

ACTIVITY: Rotary Sonic Drilling , Groundwater Sampling	**ANALYZED BY/DATE: Chris Fontana 4-1-08**	
PRINCIPAL STEPS	**POTENTIAL SAFETY/HEALTH HAZARDS**	**CONTROLS**
1. Driving to and from Site	Heavy traffic/accidents	Compliance with EC&HS Procedure 110, Vehicle Operation (valid drivers license, seat belt use, routine vehicle inspections, no cell phone use while driving).
1. Soil Boring, 2. Groundwater sampling. See site specifics in the work plan.	General safety hazards (hydraulic machinery, moving equipment, slips, falls)	Safety and site-specific training. Personnel will wear Level D PPE Safety shoes or boots, hardhat, safety glasses, hearing protection, heavy-duty work gloves as appropriate. Drilling subcontractor will operate per their own standard operating procedures that must meet or exceed the hazard controls specified in this plan. Equipment operation will be conducted per standard operating practices. Only necessary and experienced personnel will be allowed near operating machinery. Rig equipped with two kill switches or operated by an active (dead-man) switch. Rig operating manual on-site. No employees under lifted loads. Exclusion zone at least as large as the mast height around rig if there is any potential for unauthorized entry. EC&HS Procedure 130; Subsurface Asset/Hazard Avoidance
	Noise	Hearing protection within 25 feet of operating rig.
	Exposure to chemicals	PPE (level D modified) plus nitrile gloves for contact with potentially contaminated material, minimal contact, washing face and hands prior to taking anything by mouth, medical clearance. If PID readings are sustained above the action level (5 ppm), for 1 minute, personnel will stop work and Field Manager will notify the Project Manager and Health and Safety Managers. Work will not continue until levels fall below 5 ppm or an upgrade in personnel protection is approved. If corrosive sample preservatives are used eyewash capability will be provided: eyewash bottle if adding water to pre-preserved bottles or 15 minute eyewash if pouring or handling containers with more than 100 mL of corrosive. Site specific briefing will include discussion of all chemicals used on site. Chemical containers will be labeled to indicate contents and hazard.
	Fire	Fire extinguisher in work area (serviced annually and inspected monthly). No matches, lighters or other ignition sources within work area.
	Temperature extremes	Administrative controls. Shaded break area. Personnel will take breaks as needed to prevent adverse health effects from temperature extremes.
	Biological hazards (snakes, bees, ticks, wasps)	PPE (boots, work clothes, taped pant legs as necessary). Insect repellent on boots, pants legs, and elsewhere, as necessary. Pants legs tucked into boots or otherwise closed to minimize potential for tick entry. Inspection for ticks during the day and at the end of the workday.
	Electrical shock	Identification and clearance of overhead and underground utilities. Electrical hand tools will be connected through ground fault circuit interrupters.
EQUIPMENT TO BE USED	**INSPECTION REQUIREMENTS**	**TRAINING REQUIREMENTS**
Rotary Sonic Rig, Ground water sampling equipment	Daily Site safety inspections. Daily Rotary Sonic equipment inspections.	Soil boring equipment operators and support personnel will be experienced and trained in operation of the equipment being used. At least one First aid/CPR-trained personnel present during fieldwork. A project kick-off briefing will be conducted and additional safety meetings will be held as needed. Current 40-hr Hazardous Waste Operations training. Medical clearance. EC&HS Procedure 130, 150 & 180.

APPENDIX C

FORMS

DAILY SITE SAFETY INSPECTION

CLAREMONT POLYCHEMICAL SUPERFUND SITE

DAILY

CHEMICAL SKID LEAKS	PUMPS	VALVES	COMMENTS
POLYMER			
CAUSTIC			
POTASIUM PERMANGANATE			
HYDROCHLORIC ACID			

PROCESS TANK LEAKS			
EQUALIZATION			
MIXERS			
CLARIFIERS			
SAND FILTERS			
CARBON VESSELS			
AIRSTRIPPER			

PROCESS SKID LEAKS			
INFLUENT			
RECYCLE			
AIR STRIPPER			
CARBON FEED			
INJECTION			

ABNORMAL NOISES _____

FLOOR INSPECTION			
TRIP HAZARDS			
PUDDLES			
PINCH POINTS			
SHARP EDGES			

AIR COMPRESSOR			
TANK			
AFTER COOLER			
AIR DRIER			

WEEKLY (ON MONDAYS)

SHOWERS _____

EYEWASH _____

FIRST AID _____

MONTHLY (1ST WORKDAY OF EACH MONTH)

FIRE EXTINGUISHERS _____

SCBA'S _____

EMERGENCY EXIT LIGHTS _____

NOTES _____

SIGNED: _____ DATE: _____

CLAREMONT POLYCHEMICAL SUPERFUND SITE
TAILGATE SAFETY MEETING

Date:_____ Time:_____ Project #:_____

SAFETY TOPICS PRESENTED

1.) Emergency Procedures: Implementation and Notify the SSHO or designated representative.

Hospital: Northshore University Phone: 681-8900 Fire/Amb:938-2727 Police:911

2.) Special Topics / Equipment Covered:-

_____
_____
_____
_____
_____
_____

ATTENDANCE

PRINT NAME	SIGNATURE

Meeting Conducted By:_____

NON-ROUTINE SAFETY INSPECTION Page 1 of 2

PROJECT:_____

N	Y	NA	Item
			OSHA poster #2203 displayed
			Daily safety briefing conducted
			Emergency numbers and route to hospital posted
			SSHP on site, available to employees, and complete?
			Required exposure monitoring conducted and documented
			Monitoring instruments (PID, FID, CGI) calibrated daily against known standard and documented
			16 unit first aid kit available and inspected weekly
			Personnel wearing PPE required by SSHP for field work (at least safety shoes or boots, safety glasses with side shields, and nitrile or similar gloves to handle potentially contaminated material)
			Personnel using buddy system (maintain visual or verbal contact and able to render aid)
			If temperature >85°F: heat stress training conducted, cool fluids available, pulse rates of personnel wearing Tyvek are being monitored, work/rest cycle in SSHP being followed
			If temperature <40°F: cold stress training conducted, controls in SSHP implemented
			Personnel using appropriate biological hazard controls (See SSHP)
			Drill rig operating manual on site
			Drill rigs inspected weekly and documented
			Personnel near drill rig or other overhead hazards wearing hardhats
			Each of two drill rig kill switches tested daily
			Employees excluded from under lifted loads
			Unnecessary personnel excluded from hazardous areas, specifically near drill rigs
			Radius of exclusion zone around drill rig at least equal to mast height
			Personnel wearing hearing protection when within 25’ of drill rigs, generators, or other noisy equipment
			Containers of flammable liquids closed and labeled properly
			Fully charged fire extinguisher available 25 to 50 feet from flammables storage area and inspected monthly
			Personnel exiting potentially contaminated areas washing hands and face before eating
			Personnel using steam washer wearing face shield, hearing protection, heavy duty waterproof gloves, Saranax or rain suit
			Portable electrical equipment double insulated or plugged to a GFCI
			Electrical wiring covered by insulation or enclosure
			Three wire, UL approved, extension cords used
			Housekeeping adequate (walkways clear of loose, sharp or dangerous objects and trip hazards, work areas clear of objects that might fall on employees)
			Walking/working surfaces safe (not slippery, no unguarded holes, no trip hazards)

DAILY SAFETY INSPECTION Page 2 of 2

PROJECT:_____

			Moving (rotating) machinery guarded to prevent employee contact
			Fall protection provided for work at elevations greater than 4 feet
			All containers of hazardous material labeled to indicate contents and hazards
			MSDSs for hazardous materials on site
			If work is conducted in areas open to hunting (and during season) high visibility vests and other alerting systems such as lights, noise devices (radios) in use
			15 minute eyewash (accessible and full) within 100 feet of areas where corrosive sample preservatives are poured
			Potable and non-potable water labeled
			Chainsaws have anti kick-back protection, personnel wearing cut resistant gloves, protective chaps
			Visitor access controlled
			Site hazards and controls consistent with SSHP
			Site hazard controls appropriate and sufficient

Areas checked, equipment in use, and employees present

Actions taken to current or control and “N” responses

_____

Name Signature Date

PHOTOIONIZATION DETECTOR (PID)
CALIBRATION LOG

DATE	TIME	INSTRUMENT	MFG./MODEL#	SERIAL #	CALIBRATION GAS	LOT#	CONC	BKG. COUNTS	SPAN SETTING	INITIALS

Review: _____

SSHO or Designee

PHOTOIONIZATION DETECTOR (PID)
MONITORING LOG

DATE	TIME	INSTRUMENT	MFG./MODEL#/Serial# or Asset No.	Site Location/Area	GPS Coordinates (UTM, meters) or Reference point	Additional Notes (if needed)	Breathing Zone CONC (ppm)	BKG. CONC (ppm)	INITIALS

Review: _____

SSHO or Designee

Daily Drill Rig Inspection Checklist

Equipment Name/ID _____ Project Name _____

	Date					
Item Inspected						
All hydraulic fittings and hoses free of damage, tightened, and not leaking						
Rig controls clearly labeled and in working condition						
Rig kill switches in working order						
All rig connections tightened and leak-free						
Parking brake functions properly						
Steering controls in working order and clear of obstacles						
Tires fully inflated and in good condition						
Back-up alarm working						
First aid kit accessible and stocked						
Fire extinguisher accessible and fully charged						
Eye wash full and accessible						
Hearing protection available and being used						
All overhead and underground hazards identified						
Inspector Signature						

Comments:

DRILL RIG OPERATIONAL CHECKLIST

Site Name:_____

Rig
Model: _____ Manufacturer:_____

Serial Number: _____ Rig Owner: _____

Inspection Performed
by: _____
(Driller's Signature) (Date)

Checklist Reviewed and
Emergency Shutdown Observed
by: _____
(Signature) (Date)

Place an X in each appropriate ( )

1.0 GENERAL

1.1 Check all safety devices which are part of drill rig and which can be verified (see note).
Is (are all) device(s) intact and operating as designed?

Emergency Interrupt System

A. ( ) Kill Switch 1 Yes ( ) No ( ) NA

B. ( ) Kill Switch 2 Yes ( ) No ( ) NA

C. ( ) Kill Switch 3 Yes ( ) No ( ) NA

D. ( ) Kill Switch 4 Yes ( ) No ( ) NA

E. ( ) Kill Switch 5 Yes ( ) No ( ) NA

F. ( ) Other _____ Yes ( ) No ( ) NA

G. ( ) Other _____ Yes ( ) No ( ) NA

H. ( ) Other _____ Yes ( ) No ( ) NA

Note: All safety devices (not otherwise listed in this checklist) should be identified for each drill rig at the beginning of each project and subsequently checked at each inspection. Testing of all safety devices must be observed by health and safety personnel. List only safety devices which can be checked without disassembly or without rendering the device ineffective. This checklist does not cover United States Department of Transportation requirements.

DRILL RIG OPERATIONAL CHECKLIST (page 2)

1.2	Is the proper type and capacity of fire extinguisher(s) present, properly charged, and inspected? ( )	Yes ( ) No ( ) NA
1.3	Is rig properly grounded? ( )	Yes ( ) No ( ) NA
1.4	Are rig and mast a safe distance from electrical lines? ( )	Yes ( ) No ( ) NA
1.5	Can mast be raised without encountering overhead obstructions? ( )	Yes ( ) No ( ) NA
1.6	Have spill prevention materials been placed under rig (i.e., plastic sheeting)? ( )	Yes ( ) No ( ) NA
1.7	Is a spill kit present? ( )	Yes ( ) No ( ) NA
1.8	Is the safe operating zone/exclusion zone posted (minimum radius at least equal to height of raised drill mast)? ( )	Yes ( ) No ( ) NA
1.9	Do all modifications made to the drill rig permit it to operate in a safe manner and allow the drill to operate within the manufacturer's specifications? ( )	Yes ( ) No ( ) NA
1.10	Are moving parts (excluding cathead and other moving parts normally used during operations) properly guarded? ( )	Yes ( ) No ( ) NA
1.11	Are all exhaust pipes, which would come in contact with personnel during normal operation properly guarded? ( )	Yes ( ) No ( ) NA
1.12	Are tank(s) and lines free of leakage? ( )	Yes ( ) No ( ) NA
1.13	Are all normal or manufacturer-recommended maintenance activities or schedules performed at the required frequency? ( )	Yes ( ) No ( ) NA
1.14	Are walking and standing surfaces, steps, rungs, etc., free of excess grease, oil, or mud which could create a hazard? ( )	Yes ( ) No ( ) NA

2.0 CONTROL MECHANISMS

	Are all control mechanisms and gauges on the drill rig functional and free of oil, grease, and ice (checked while running)? ( )	Yes ( ) No ( ) NA

DRILL RIG OPERATIONAL CHECKLIST (page 3)

3.0 HYDRAULICS AND PNEUMATICS

Note: The mast should be lowered during the completion of this section to allow inspection of portions of the lifting mechanisms normally out of reach during operation.

3.1 Do all hydraulic reservoirs exhibit proper fluid levels? Yes ( ) No ( ) NA ( )

3.2 Are hydraulic and/or pneumatic systems in good condition and functioning correctly (checked while running)? Yes ( ) No ( ) NA ( )

4.0 LIFTING MECHANISMS

Note: The mast should be lowered during the completion of this section to allow inspection of portions of the lifting mechanisms normally out of reach during operation.

4.1 Have all wires, ropes, cables, and lines that are kinked, worn, corroded, cracked, bent, crushed, frayed, stretched, birdcaged, or otherwise damaged been replaced and the defective equipment removed from the site? Yes ( ) No ( ) NA ( )

4.2 Have all wires, ropes, cables, and lines been wrapped around winch drums without excessive pinching or binding? Yes ( ) No ( ) NA ( )

4.3 Are all pulleys undamaged and functional? Yes ( ) No ( ) NA ( )

4.4 Are all clips, clamps, clevises, hooks, and other hardware used to rig wires, ropes, cables, or lines undamaged and attached properly? Yes ( ) No ( ) NA ( )

4.5 Do all eyes formed in wires, ropes, cables, or lines attached to the rig use a thimble to retain the shape of the eye? Yes ( ) No ( ) NA ( )

4.6 Do all hooks having functioning safety gates/latches? Yes ( ) No ( ) NA ( )

DRILL RIG OPERATIONAL CHECKLIST (page 4)

5.0 NONCONFORMING ITEMS

5.1 When did the last operation checklist inspection take place for this drill rig at this site?

Date: _____

5.2 Have any nonconforming items been carried over from the last inspection? List any such items and dates or original nonconformance.

A. _____

Date: _____

B. _____

Date: _____

C. _____

Date: _____

D. _____

Date: _____

Any nonconforming items must be documented in the following remarks section and reported to the field operations manager for the project prior to operating the drill ring. Reference all remarks to the item numbers noted above.

Remarks:

_____

_____

_____

_____

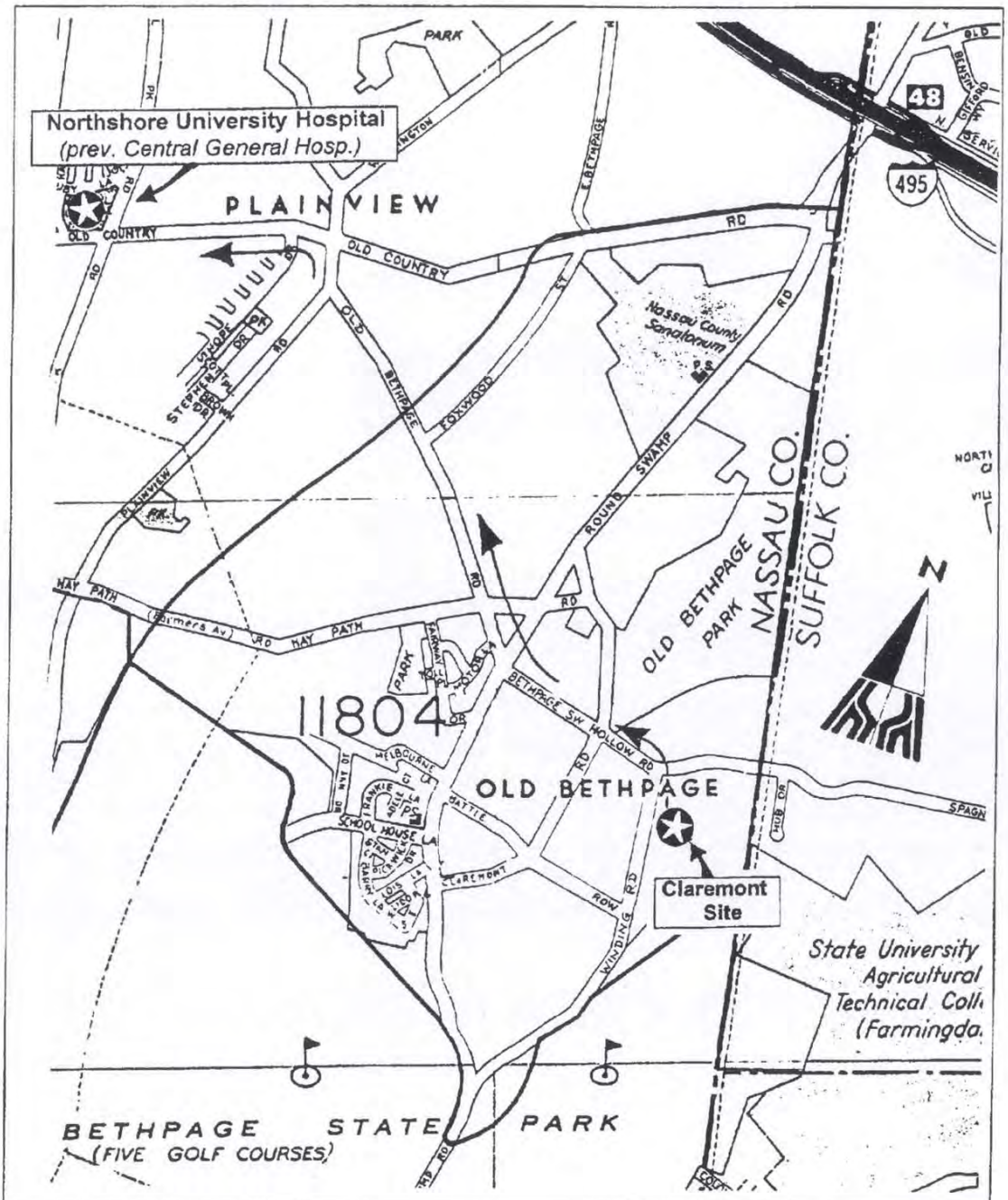
SAFETY PLAN COMPLIANCE AGREEMENT
Claremont Chemical Superfund Site Operations & Maintenance
Nassau County, New York

I have reviewed a copy of the SSHP for the Claremont Chemical Superfund Site O&M project. I have read this plan, understand it, and agree as a minimum, to comply with all of its provisions. I understand that I could be prohibited from working on the project site for violating any of the safety requirements specified in the SSHP.

Signature	Printed Name	Company	Date

APPENDIX D

HOSPITAL ROUTE MAP



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HOSPITAL ROUTE MAP

PROJECT: CLAREMONT POLYCHEMICAL

SCALE:		DATE:
NONE	Appendix D	May 2002

APPENDIX E

SAIC CONFINED SPACE ENTRY PROCEDURE

10. CONFINED SPACE ENTRY

10.1 Purpose

To establish minimum requirements for the safe performance of confined space entry operations by SAIC or SAIC contractors/subcontractors. This includes minimum requirements for identifying permit- and non-permit required confined spaces, defining pre-entry testing, entry into, and work within confined spaces. This procedure establishes a confined space entry program that complies with 29 CFR 1910.146 for permit-required confined spaces meeting specified requirements (reference Section 10.8.A).

10.2 Scope

This program applies to all SAIC facilities/operations having confined spaces or involved in permit-required confined space entry operations.

Note: Differing or more restrictive requirements than those presented herein may exist in certain industries (e.g., shipyard) or may be required for confined space entry at a customer location. In those cases, the more restrictive of each of the respective program requirements are to be complied with.

10.3 Definitions

A. Attendant: An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties as assigned in this confined space entry program.

B. Authorized Entrant: An employee authorized to enter a confined space.

C. Confined Space: A space defined by the concurrent existence of the following conditions:

1. Large enough and configured so that an employee can bodily enter and perform assigned work.

2. Limited or restricted means for entry or exit.

3. Not designed for continuous employee occupancy.

Confined spaces may include, but are not limited to, storage tanks, boilers, ventilation ducts, sewers, underground utility vaults, pipelines, and other open-top spaces deeper than 4 feet, such as pits, trenches, vaults and tanks.

D. Entry: The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

E. Entry permit: The written or printed document that is provided to allow and control entry into a permit space.

F. Entry Supervisor: The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

G. Hazardous Atmosphere: An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL).

2. Airborne combustible dust at a concentration that meets or exceeds its LFL. (Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less).

3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.

4. An atmospheric concentration of any substance for which a dose or permissible exposure limit is published and which could result in employee exposure in excess of its dose or permissible exposure limit.

   Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment or ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

5. Any other atmospheric condition that is immediately dangerous to life or health (IDLH).

H. Non-Permit Confined Space: A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

I. Permit-Required Confined Space (permit space): A confined space that has one or more of the following characteristics:

1. Contains or has the potential to contain a hazardous atmosphere.

2. Contains a material that has the potential for engulfing an entrant.

3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.

4. Contains any other recognized serious safety or health hazard (e.g., mechanical hazards, steam pipes, high temperatures, electrical hazards).

10.4 References

U.S. Code of Federal Regulations Title 29 (29 CFR) 1910.146, Permit-Required Confined Spaces

10.5 Responsibilities

A. Manager(s)/Supervisor(s)

1. Ensure that the requirements of this procedure are implemented for any confined space entry conducted under his/her management.

2. Ensure only those employees that have completed the training as described in Section 10.13 participate in confined space entry operations (i.e., as Entry Supervisors, Attendants, Atmospheric Monitors, or Authorized Entrants).

3. Coordinate with the Local EC&HS Official on the use of contractors/subcontractors for tasks involving permit-required confined space entry (reference Section 10.10).

4. Coordinate with the Local EC&HS Official on any changes potentially impacting this procedure, including, but not limited to, changes in employee job assignments, changes in the use or configuration of confined spaces, or the introduction of new processes.

B. Local EC&HS Official (or his/her designee)

1. Identify confined spaces in accordance with the requirements of Section 10.6.

2. Provide written concurrence on any reclassification of a permit-required confined space to a non-permit confined space done in accordance with the requirements of Section 10.7.

3. Review the confined space entry program and employee confined space training certificates provided by contractors/subcontractors as provided under the provisions of Section 10.10.

4. Perform annual program reviews in accordance with the requirements of Section 10.12.

5. Ensure all program records are maintained in accordance with the requirements of Section 10.14.

C. Entry Supervisor

1. Satisfactorily completes training in accordance with the requirements of Section 10.13 prior to performing activities associated with a confined space entry operation.

2. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

3. Ensures completion of a “Confined Space Entry Authorization Form” (Exhibit 10-1) in accordance with the requirements of Section 10.9, and verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

4. Terminates the entry and cancels the permit when the entry operations have been completed or if a condition that is not allowed (uncontrolled hazard, elevated instrument readings, entry of unauthorized personnel, emergency) arises in or near the space.

5. Verifies that rescue services are available and that the means for summoning them are operable.

6. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

7. Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

D. Attendant

1. Satisfactorily completes training in accordance with the requirements of Section 10.13 prior to performing activities associated with a confined space entry operation.

2. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

3. Is aware of possible behavioral effects of hazard exposure in authorized entrants.

4. Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants [i.e., the “Confined Space Entry Authorization Form” (Exhibit 10-1)] accurately identifies who is in the permit space.

5. Remains outside the permit space during entry operations until relieved by another attendant.

6. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.

7. Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:

a. If the attendant detects a prohibited condition;

b. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;

c. If the attendant detects a situation outside the space that could endanger the authorized entrants; or

d. If the attendant cannot effectively and safely perform all his or her other duties as described herein

8. Summon rescues and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.

9. Takes the following action when unauthorized persons approach or enter a permit space while entry is underway:

a. Warn the unauthorized persons that they must stay away from the permit space;

b. Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and

c. Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

10. Performs non-entry rescues as specified in established rescue procedures.

11. Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

E. Atmospheric Tester

1. Satisfactorily completes training in accordance with the requirements of Section 10.13 prior to performing activities associated with a confined space entry operation.

2. Performs testing of the internal atmosphere of the permit space in accordance with the requirements of Section 10.8.B.f and 10.8.C.

F. Authorized Entrant

1. Satisfactorily completes training in accordance with the requirements of Section 10.13 prior to performing activities associated with a confined space entry operation.

2. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.

3. Properly use all equipment, including but not limited to that provided for testing and monitoring, ventilating, communications, personal protection, lighting, barriers, or entry or exit from the space.

4. Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of any need to evacuate the space.

5. Alert the attendant whenever:

   a. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or

   b. The entrant detects a prohibited condition; and

6. Exit from the permit space as quickly as possible whenever:

   a. An order to evacuate is given by the attendant or the entry supervisor;

   b. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;

   c. The entrant detects a prohibited condition; or

   d. An evacuation alarm is activated.

10.6 Identification of Confined Spaces

A. Each facility or location operated—or field project conducted—by SAIC is to be evaluated to determine the presence of confined spaces (permit- and non-permit required). The decision flow chart in Appendix A to 29 CFR 1910.146 may be used to facilitate this evaluation.

B. A listing of permit- versus non-permit required confined spaces is to be created and maintained (in accordance with the requirements of Section 10.14) for each facility or location operated by SAIC.

C. Where a permit-required confined space is identified within an SAIC facility or operated location signage is to be posted near the

entrance of each such space containing the following information (or substantially similar language):

DANGER – PERMIT REQUIRED CONFINED SPACE DO NOT ENTER

or;

UNAUTHORIZED ENTRY PROHIBITED

HAZARD DESCRIPTION (e.g., potential oxygen deficiency)

Person to contact if entry is required: (Fill in name and phone no.)

D. If there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the space is to be reevaluated and, if necessary, reclassified as a permit-required confined space.

10.7 Non-Permit Confined Space Entry

A. With written concurrence from the Local EC&HS Official, a space identified as a permit-required confined space may be reclassified as a non-permit confined space under the following procedures:

1. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated.

2. If it is necessary to enter the permit space to eliminate hazards, such entry shall be performed in accordance with the requirements of Section 10.8. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated.

Note: Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards.

3. The basis used for determining that all hazards in a permit space have been eliminated are to be documented through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification is to be made available to

each employee, or that employee's authorized representative, entering the space.

4. When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the space is to be reevaluated and, if necessary, reclassified as a permit-required confined space.

10.8 Permit-Required Confined Space Entry

A. Entry into a permit space under this procedure is allowed only when it can be demonstrated that:

1. The only hazard posed by the permit space is an actual or potential hazardous atmosphere (i.e., no other recognized serious safety or health hazard exists, or for which effective isolation or abatement has not been accomplished prior to entry);

2. Continuous forced air ventilation alone is sufficient to maintain the permit space safe for entry; and

3. Monitoring and inspection data is developed to support the requirements of paragraphs 10.8.A.1 and 10.8.A.2.

B. Pre-Entry Requirements

1. The following requirements apply to entry into permit spaces that meet the conditions set forth in paragraph 10.8.A.

a. Any conditions making it unsafe to remove an entrance cover are to be eliminated before the cover is removed.

b. When horizontal entrance covers are removed, the opening is to be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

c. Lines that may convey hazardous substances (e.g., flammable liquids, corrosive materials, etc.), asphyxiants (e.g., nitrogen or water), or steam into the space are to be disconnected, blinded, or blocked off by other positive means to prevent the entry of these materials. The disconnection or blind

is to meet the requirements of EC&HS Procedure 11, Lock Out/Tag Out, and be so located or done in such a manner that inadvertent reconnection of the line or removal of the blind are effectively prevented.

d. Isolation of energy sources (e.g., electrical, mechanical, hydraulic, pneumatic, chemical, thermal, etc.) serving the permit space is to be conducted in accordance with the requirements of EC&HS Procedure 11, Lock Out/Tag Out.

e. Continuous forced air ventilation is to be used, as follows:

i. An employee is not to enter the space until the forced air ventilation has eliminated any hazardous atmosphere;

ii. The forced air ventilation is to be directed as to ventilate the immediate areas where an employee is or will be present within the space and is to continue until all employees have left the space; and

iii. The air supply for the forced air ventilation is to be from a clean source and may not increase the hazards in the space.

f. Before an employee enters the space, the internal atmosphere is to be tested with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, is to be provided an opportunity to observe the pre-entry testing.

g. There may be no hazardous atmosphere within the space whenever any employee is inside the space.

h. Prior to any entry, a "Confined Space Entry Authorization Form" (Exhibit 10-1) is to be completed in accordance with Section 10.9, Permit System.

C. Entry Requirements

1. The atmosphere within the space is to be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. At a minimum, testing is to be performed once per hour with the results documented on the "Confined Space Entry Authorization Form" (Exhibit 10-1). Any employee who enters the space, or that employee's authorized representative, is to be provided an opportunity to observe the periodic testing.

2. If a hazardous atmosphere is detected during entry:

   a. Each employee is to leave the space immediately;

   b. The space is to be evaluated to determine how the hazardous atmosphere developed; and

   c. Measures are to be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

10.9 Permit System

A. Prior to any entry a "Confined Space Entry Authorization Form" (Exhibit 10-1) is to be completed in its entirety and signed by the entry supervisor authorizing entry.

B. The completed permit is to be made available at the time of entry to all authorized entrants, or their authorized representatives, by posting it at the entry portal or by any other equally effective means, so that entrants can confirm that pre-entry preparations have been completed. A reevaluation of the permit space is to be performed at the request of an authorized entrant, or that employee's authorized representative, who has reason to believe that the evaluation of the space may not have been adequate. The results of the reevaluation are to be made immediately available to the requestor, or their authorized representative, and all authorized entrants.

C. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

D. The entry supervisor is to terminate entry and cancel the entry permit when:

1. The entry operations covered by the entry permit have been completed; or

2. A condition that is not allowed under the permit arises in or near the permit space.

E. Any problems encountered during an entry operation are to be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

F. A copy of each canceled entry permit is to be forwarded to the Local EC&HS official for retention in accordance with the requirements of Section 10.14.

10.10 SAIC Contractors and Subcontractors

A. OSHA regulation [29 CFR 1910.146(c)(8)] establishes requirements for an employer that contracts with another employer to perform work in a permit-required confined space. When bids are requested by SAIC from contractors or subcontractors, the following information must be placed in all contractor or subcontractor bid packages (requests for proposals).

1. The proposal involves work in permit-required confined spaces as defined at 29 CFR 1910.146(b). The contractor/subcontractor is responsible for conducting permit-required confined space entries in accordance with their own written confined space entry program, having trained employees, all necessary monitoring and rescue equipment, and for performing all work in accordance with 29 CFR 1910.146 and all other regulations applicable to their work. SAIC will not perform air monitoring for contracted confined space entry and will not provide the attendant or entry supervisor, or rescue services. The contractor/subcontractor shall submit a copy of their confined space entry program and copies of employee's confined space entry training certificates in advance of project start-up to SAIC for examination.

2. The following information is being provided by SAIC to prospective contractors/subcontractors in accordance with 29 CFR 1910.146(c)(8):

a. The workplace contains and the project involves entry into permit required confined spaces. Contractor's/ Subcontractor's representatives shall only enter permit required confined spaces in accordance with Contractor's/Subcontractor's written confined space entry program, 29 CFR

1910.146, and all other regulations applicable to the work being performed.

b. A description of the permit required confined space(s) and SAIC's experience (if any) with the identified confined space(s) is provided as an attachment to this request for proposal [See Attachment, Description of Permit Required Confined Space(s)].

c. A copy of SAIC's written confined space entry program is provided as Attachment to this request for proposal. SAIC's confined space entry program was developed for use by SAIC for the purpose of assigning responsibilities, establishing safe practices and mandatory safety procedures, and to provide for contingencies that may arise while operations are being conducted at (insert location name).

The SAIC employee responsible for coordinating entry operations with the contractor/subcontractor and the joint SAIC/contractor/subcontractor debriefing at the conclusion of entry operations on procedures followed and hazards detected or created is (insert the name of the responsible individual). He/she can be reached by telephone at (insert responsible individuals telephone number).

3. The information provided in this request for proposal was developed for use by contractors/subcontractors at (insert location address and name) in accordance with 29 CFR 1910.146(c)(8). SAIC disclaims responsibility for any other use of this information other than the express purpose for which it is intended and assumes no liability for the use of this information for any other purpose. The information and evaluations presented reflect professional judgments subject to the accuracy and completeness of information available when the information was compiled.

10.11 Confined Space Entry at Client Facilities

A. OSHA regulations establish requirements for an employer that contracts with another employer to perform work in a permit-required confined space. When SAIC or its subcontractors will perform work in permit-required confined spaces at a client's

facility, the following information must be provided by the client in accordance with 29 CFR 1910.146(c)(8);

1. Identification of permit-required confined spaces involved in the project.

2. A copy of the client's confined space entry program and all other procedures applicable to the work being performed (i.e., lockout/tagout and emergency procedures).

3. A description of the permit required confined space(s) and client's experience (if any) with the identified confined space(s).

4. The name of the client's employee or organization that is responsible for coordinating entry operations with SAIC or its subcontractors, and joint client/SAIC-SAIC subcontractor debriefing required by 29 CFR 1910.146(c)(8)(v) at the conclusion of entry operations on procedures followed and hazards detected or created.

B. When SAIC or its subcontractors are required to enter confined spaces at client facilities, this procedure may be required to be modified to coordinate the confined space entry activities at the client's facility with their internal policy and procedures. Two possible scenarios for work involving confined space entry at client facilities, include:

1. A client's policy is to not issue confined space entry permits for contractors. Contractors are required to provide a competent person to issue their own permits. In this case Procedure 10 is applicable in its entirety.

2. A client's policy is to provide contractors with training, monitoring, and to issue permits in accordance with client's confined space entry program. In this case a copy of the client's confined space entry program (including training materials) must be obtained and evaluated by the Local EC&HS Official or SHSO. to ensure that it is at least as comprehensive as Procedure 10.

10.12 Annual Program Review

A. A documented review of the permit-required confined space program, using the cancelled permits, is to be performed within one (1) year after each entry. The results of this program review are to be used to revise the program, as necessary, in order to ensure that employees participating in entry operations are protected from permit space hazards.

Note: If no entry is performed during a 12-month period, no review is necessary.

B. A record of each annual review is to be maintained in accordance with the requirements of Section 10.14.

10.13 Training

A. Training is to be provided to all employees involved in confined space entry operations in order to ensure that they acquire the understanding, knowledge, and skills necessary for the safe performance and proficient discharge of their assigned responsibilities.

B. Training is to be provided before an employee is first assigned confined space related duties, before there is a change in assigned duties, whenever there is a change in permit space operations that present a hazard about which an employee has not previously been trained, and whenever there is reason to believe either that there are deviations from the permit space entry procedures specified herein or that there are inadequacies in the employee's knowledge or use of these procedures.

C. Documentation of employee training is to be maintained in accordance with the requirements of Section 10.14.

10.14 Recordkeeping

A. Training

1. Records of employee training conducted in accordance with the requirements of this procedure are to minimally include the following:

- The name of the employee;
- The date(s) of the training;
- The signature or initial of the trainer(s); and
- A SAIC-signed certification that the training required by this procedure has been accomplished.

B. Entry Permits

A copy of each canceled entry permit issued in accordance with the requirements of Section 10.9 is to be retained in accessible files by the Local EC&HS Official for a minimum f one (1) year, or

until such time as the annual program review required by Section 10.12 is satisfactorily completed, whichever is longer.

C. Annual Program Review Records

A copy of each annual program review conducted in accordance with the requirements of Section 10.12 is to be retained in accessible files by the Local EC&HS Official until such time as a subsequent annual program review has been satisfactorily completed.

D. Confined Space Listing

The listing of permit- and non-permit required confined spaces compiled in accordance with the requirements of Section 10.6 is to be retained in accessible files by the Local EC&HS Official for as long as the listed spaces are under SAIC's control.

Exhibit 10-1. Confined Space Entry Authorization Form

DATE OF PERMIT:			EXPIRATION DATE/TIME:			
LOCATION:			DESCRIPTION:			
AUTHORIZED ACTIVITY:						
ENTRY SUPERVISOR:			AUTHORIZED ENTRANTS:			
ATTENDANT:			ATMOSPHERIC TESTER:			
ATMOSPHERIC TEST DATA						
TEST	PRE-ENTRY	FOLLOW-UP				
		TIME				
OXYGEN CONTENT						
EXPLOSIVE (% LEL)						
HAZARDOUS SUBSTANCES (SPECIFY)						
TIME OF TESTING						
ACCEPTABLE CONDITIONS (Y/N)						
MAKE, MODEL, S/N OF TEST EQUIP.						
REQUIRED SAFETY PRECAUTIONS						
REQUIREMENT	YES	NO	SPECIFICS (IDENTIFY LOCATIONS, TYPES, SIZES, AND JUSTIFICATION)			
RESPIRATOR						
RESCUE EQUIPMENT						
PROTECTIVE EQUIPMENT						
FIRE EXTINGUISHER						
DISCONNECT/BLIND LINES ENTERING SPACE						
LOCKOUT/TAGOUT						
POWERED VENTILATION						
COMMUNICATION EQUIPMENT (IF OTHER THAN VOICE)						
OPENING BARRIER						
OTHER PERMITS REQUIRED (E.G., HOT WORK, DRILLING, CHEMICAL USE)						
OTHER COMMENTS:						
EMERGENCY CONTACT (NUMBER/LOCATION):						
ENTRY SUPERVISOR SIGNATURE AUTHORIZING ENTRY:			DATE:			