

**Final Site Safety and Health Plan
Sites 5 and 17, U.S. Marine Corps Air Station
Cherry Point, North Carolina**

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List of Acronyms

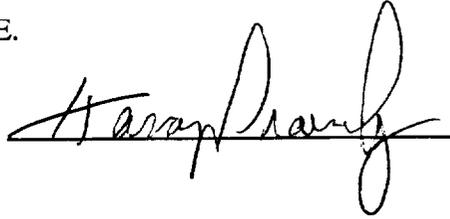
ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CBC	Complete blood count
CPR	cardiopulmonary resuscitation
CQCP	Contractor Quality Control Plan
CQP	Contractor Quality Plan
CRZ	contamination reduction zone
DRMO	Defense Reutilization and Marketing Office
EMR	Environmental Medicine Resources
EPA	U. S. Environmental Protection Agency
ERP	Emergency Response Plan
EZ	exclusion zones
GC/MS	Gas Chromatography/Mass Spectrometry
HEPA	high efficiency particulate air
IAS	Initial Assessment Study
IARC	International Agency for Research on Cancer
IDLH	Immediately Dangerous to Life and Health
ID	Inside diameter
IT	IT Corporation
LEL	Lower Explosive Limit
MCAS	Marine Corps Air Station
MSDS	Material Safety Data Sheets
MSHA	Mine Safety and Health Agency
NCDEHNR	North Carolina Department of Environmental, Health, and Natural Resource
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTR	Navy Technical Representative
NTP	National Toxicology Program
OD	Outside diameter
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
PID	photoionization detector
PPE	personnel protective equipment
POL	petroleum oil and lubricant
PVC	Polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
SSHC	Site Safety and Health Coordinator
SSHP	Site Safety and Health Plan
SMAC	Sequential Multiple Analyzer Computer
SMP	Site Management Plan
STEL	short-term exposure limit
SZ	support zone
TSDF	treatment, storage, and disposal facility
TLVs	Threshold Limit Values
TWA	time-weighted average
USACOE	United States Army Corps of Engineers
USDOL	United States Department of Labor
USN	United States Navy
VOC	Volatile Organic Compound
WBG	Wet Bulb Globe Temperature

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1.0 Introduction

1.1 Objective

This SSHP establishes the work practices necessary to help ensure the protection of IT personnel and subcontractors during the PCB removal action for Sites 5 and 17 located on the U.S. MCAS, Cherry Point, North Carolina.

The objective of this plan is to provide a mechanism for the establishment of safe working conditions at Sites 5 and 17. The safety organization and procedures have been established following an analysis of potential hazards at the sites. Specific hazard control methodologies have been evaluated and selected in an effort to minimize the potential of occupational illnesses, accidents or injuries.

All site operations will be performed in accordance with applicable state, local, IT corporate policies and procedures, OSHA and all USN requirements. All IT employees and subcontractors must comply with the requirements set forth in this SSHP.

1.2 Site/Facility Description

The MCAS Cherry Point is part of a military installation located in southeastern Craven County, North Carolina, just north of Havelock. The base is located on an 11,485-acre tract of land bounded on the north by the Neuse River estuary, on the east by Hancock Creek, and on the south by North Carolina Highway 101.

Site 5 is located between the east side of Slocum Creek and a dismantled steam generation plant in the northwest portion of MCAS (Refer to Appendix A). In general, the site is flat and ground surface slopes gently toward Slocum Creek. There are few remaining structures and the remainder of the area is fairly well vegetated.

Also located near Site 5 is a 1,500,000-gallon aboveground tank previously used for storage of No. 6 fuel oil. Site 5 previously included a 100,000-gallon aboveground tank (Tank No. 1771) used to store waste POL products. A closure plan for Tank No. 1771 and appurtenances was approved by NCDEHNR during September 1988 and implemented during the fall of 1990.

Site 17 is located in the southwest portion of MCAS southeast of Building 155 (Refer to Appendix A). It includes an area of approximately 1 acre and an associated drainage ditch adjacent to a railroad line. This ditch is also the outfall for MCAS's DRMO which houses a RCRA-regulated TSDF.

DRMO is used as a storage area, including the previous storage of PCB-containing transformers. It was reported that six transformers, each containing 1,000 gallons of oil and approximately 100 smaller transformers containing 10 to 500 gallons of oil were emptied into the drainage ditch. These spills occurred between 1961 and 1968.

1.3 Policy Statement

It is the policy of IT to provide a safe and healthful work environment for all its employees and subcontractors. IT considers no phase of operations or administration to be of greater importance than prevention of injury, occupational illness and accident. Occupational safety and health take precedence over expediency or shortcuts. Every accident, occupational illness, and injury is avoidable and IT will take every reasonable step to reduce their occurrence.

This SSHP prescribes the procedures that must be followed by all site personnel. Operational changes which could affect the health or safety of personnel, the community or the environment will not be made without prior approval of the Project Manager and the H&S Manager.

The provisions of this plan are mandatory to all IT personnel and subcontractors assigned to the project and all visitors to the work site. Work conditions can change as operations progress; therefore, the H&S Manager will provide written addenda to this SSHP when changes warrant. No changes to the plan will be implemented without prior approval of the Project Manager, NTR, and H&S Manager or his authorized representative.

1.4 References

This SSHP complies with applicable OSHA and EPA regulations and follows the guidelines established in the following documents:

- Navy/Marine Corps Installation Restoration Manual [United States Navy (USN) February 1992]

- Standard Operating Safety Guides [United States Environmental Protection Agency (EPA) July 1988]
- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities [National Institute for Occupational Safety and Health (NIOSH) 85-115]
- Title 29 of the Code of Federal Regulations, Part 1926 (29 CFR 1926); [United States Department of Labor/Occupational Safety and Health Agency (USDOL/OSHA)]
- Safety and Health Requirements Manual EM 385-1-1 [United States Army Corps of Engineers (USACOE) Revised October 1992]
- Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices [American Conference of Governmental Industrial Hygienists (ACGIH) 1992-1993]

Contents of this plan are consistent with the following IT H&S Policies and Procedures:

IT Health and Safety Policies and Procedures

Procedure Number	Procedure Name
HS001	Safety Policy
HS010	Employee Safety and Health Work Rules
HS011	Contractor Safety and Health Rules
HS012	Chemical Hygiene Plan and Safety Manual
HS013	Health and Safety Procedure Variances
HS018	Safety Councils (Revision 1)
HS019	Injury and Illness Prevention Program (Revision 2)
HS020	Accident Prevention Program: Reporting, Investigation, and Review (Revision 3)
HS021	Accident Prevention Program: Management Safety Audits and Inspections (Revision 3)
HS022	Accident Prevention Program: Review of New Proposals, Projects, Operation, and Construction
HS040	Stop Work Authority
HS041	Embryo-Fetus Protection Program

Procedure Number	Procedure Name
HS050	Training Requirements
HS051	Tailgate Safety Meetings
HS052	Health and Safety Plans
HS060	Hazard Communication Program
HS080	Insurance Claims
HS090	OSHA Regulatory Inspections
HS091	Serious Injury and Fatality Reporting Requirements
HS092	Occupational Injury and Illness Records
HS100	Medical Policies and Procedures
HS101	Drug and Alcohol Testing (Revision 1)
HS102	Access to Employee Exposure and Medical Records
HS104	Employee Notification of Industrial Hygiene Monitoring Results
HS105	Occupational Injuries/Illnesses Procedures
HS106	First Aid Kits
HS300	Confined Spaces, Industrial
HS302	Confined Spaces, Leaded Product
HS303	Hydroblasting
HS304	Compressed Gases
HS305	Pressurized Systems
HS306	Handling Known Compressed Gas Cylinders
HS307	Excavation and Trenching
HS310	Hazardous Waste Operations at Uncontrolled Waste Sites
HS311	Emergency Response Operations
HS314	Hot Work in Hazardous Locations
HS400	Working in Hot Environments
HS401	Cold Stress
HS402	Hearing Conservation Program

Procedure Number	Procedure Name
HS500	Handling of PCBs
HS501	Handling of PCBs in the Laboratory
HS502	PCB Containment and Spill Prevention Requirements for Transport Vehicles
HS505	Handling of Inorganic Lead, Inorganic Lead Compounds, and Organic Lead Soaps
HS511	Handling of Benzene and Benzene Contaminated Materials
HS512	Handling of Blood or Other Potentially Infectious Materials
HS600	Personal Protective Equipment
HS601	Respiratory Protective Program
HS602	Eye Protection - Prescription Safety Glasses
HS603	Maintenance of Survey Equipment
HS604	Use and Maintenance of Portable Electrical Equipment
HS605	Electron Capture Detectors
HS606	Soil Density Gauges
HS800	Motor Vehicle Operation: General Requirements
HS810	Commercial Motor Vehicle Operation and Maintenance

These policies and their implementation are central to IT's accident prevention program. IT will make copies of its Health and Safety policies available to the USN upon request. One copy of these policies will be maintained on site for employee use.

2.0 Responsibilities

2.1 All Personnel

All personnel are responsible for continuous adherence to these H&S procedures during the performance of their work. No person may work in a manner that conflicts with the intent or the inherent safety and environmental precautions expressed in this SSHP. After due warnings, any person who violates safety procedures, will be dismissed from the site. IT employees and subcontractors are subject to progressive discipline and may be terminated for continued violations.

2.2 Project Manager

The Project Manager is ultimately responsible for ensuring that all project activities are completed in accordance with the requirements set forth in this plan.

2.3 Project Engineer

The Project Engineer supervises all field activities at the site and is responsible for the implementation of this SSHP. This includes communicating site requirements to all personnel, ensuring field supervisors and subcontractors enforce all provisions of the plan and consulting with the H&S Manager regarding changes to the SSHP. Other responsibilities include:

- Reading and becoming familiar with this SSHP and IT Policies and Procedures
- Enforcing the SSHP and other safety regulations
- Stopping work as required to ensure personal and environmental safety and health
- Discussing potential H&S hazards with the H&S Manager and the Project Manager
- Implementing changes as directed by the H&S Manager and Project Manager.

2.4 Health and Safety Manager

The H&S Manager is responsible for developing and coordinating the SSHP and addenda as required. Other H&S Manager responsibilities include:

- General H&S program administration.
- Determining the level of personnel protection required.
- Updating equipment or procedures based on information obtained during site operations.

- Establishing air monitoring parameters based on expected contaminants.
- Establishing employee exposure monitoring notification programs.
- Investigating significant accidents and illnesses and implementing corrective action plans.
- Performing regular site inspections.
- Developing site-specific employee/community emergency response plans as required based on expected hazards
- Contact for regulatory agencies on matters of H&S.

2.5 Site Safety and Health Coordinator

The SSHC has the ultimate responsibility to stop any operation that threatens the health or safety of the team or surrounding populace or that causes significant adverse impact to the environment. Other responsibilities include but are not limited to:

- Enforcing all safety procedures and operations on site
- Observing work party members for symptoms of on-site exposure or stress
- Upgrading or downgrading, in coordination with the H&S manager and the Project Manager, the levels of personal protection based upon site observations and monitoring results
- Informing the project H&S Manager of significant changes in the site environment that require equipment or procedure changes
- Arranging for the availability of on-site emergency medical care and first aid, as necessary.
- Determining evacuation routes, establishing and posting local emergency telephone numbers, and arranging emergency transportation
- Ensuring that all site personnel and visitors have received the proper training and medical clearance prior to entering the site (Refer to Section 6 of this plan.)
- Establishing exclusion, decontamination and clean zones (Refer to Section 7 of this plan.)

- Presenting tailgate safety meetings and maintaining attendance logs and records
- Assuring that the respiratory protection program is implemented (See Section 5 of this plan.)
- Assuring that decontamination procedures meet established criteria
- Assuring that there is a qualified first-aid person on site.

2.6 Subcontractors

On-site subcontractors and their personnel are responsible for understanding and complying with all site requirements. Subcontractors are required to follow the guidelines established in IT's General Safety Rules for Contractors and this SSHP.

2.7 Visitors

All visitors are required to comply with the provisions of this SSHP and are responsible for conducting themselves in a safe and healthful manner while on site.

3.0 Activity Hazard Analysis

3.1 Scope of Work

IT will perform a PCB removal action for Sites 5 and 17 at MCAS Cherry Point. This will include the following tasks:

- Site survey
- Excavation of PCB-contaminated soils
- Placement of erosion and sediment controls
- Dewatering of excavation
- Water/soil sampling
- Water treatment and discharge
- Transportation and disposal of PCB-contaminated soils
- Equipment decontamination
- Backfilling and site restoration
- Mobilization/demobilization.

3.2 Activity Hazard Analysis

Each activity hazard analysis identifies potential safety, health, and environmental hazards and provides for the protection of personnel, the community and the environment. Because of the complexity and constant change of remediation projects, supervisors must continually inspect the work site to identify hazards which may harm site personnel, the community or the environment. The Project Manager, Project Engineer, and SSHC must be aware of these changing conditions and discuss them with the H&S Manager. The H&S Manager will write addenda to change activity hazard analyses as necessary.

These sites contain PCB-contaminated materials which may present potential hazards to project personnel. All IT personnel, subcontractors, and visitors will be familiar with these hazards, and strictly adhere to the appropriate safety procedures prescribed in this SSHP. The potential hazards and the appropriate controls will be presented to project personnel during Tailgate Safety Meetings conducted by the SSHC.

Task specific activity hazard analyses for this project can be found in Appendix C.

3.3 Cold Stress

Most cold-related worker fatalities have resulted from failure to escape low environmental air temperatures, or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is a drop in the deep-core body temperature.

3.3.1 Signs and Symptoms

Employees should be protected from exposure to cold so that their deep-core body temperature does not fall below 98.6°F. A lower body temperature will very likely result in reduced mental alertness, reduction in rational decision-making, or loss of consciousness with the threat of fatal consequences.

Frostbite. Frostbite occurs when the extremities do not get sufficient heat from the central body stores. The fluids around the cells of the body tissues freeze from exposure to low temperatures. This condition can result in damage to, and loss of, tissue. The most vulnerable areas are the nose, cheeks, ears, fingers, and toes.

Damage from frostbite can occur in either the outer layers of skin, or in the tissue beneath these layers, and can be serious, resulting in scarring, tissue death, permanent loss of movement, or amputation.

There are three degrees of frostbite:

- First degree: freezing without blistering or peeling
- Second degree: freezing with blistering or peeling
- Third degree: freezing with skin tissue death and possible deeper tissue damage.

Symptoms of frostbite include:

- Skin color changes to white or grayish-yellow, to reddish-violet and finally black as the tissue dies
- Pain may be felt at first, but subsides
- Coldness or numbness of the affected part.

Hypothermia. This is the most severe form of cold stress and results from a drop in the body's core temperature. The symptoms of hypothermia are:

- First, uncontrollable shivering and the sensation of cold
- Heartbeat slows and may become irregular
- Pulse weakens and the blood pressure changes
- As the body's core temperature drops, other signs may include cool skin, slow irregular breathing and apparent exhaustion
- When core temperatures are in the mid-range, the victim may become listless, confused, exhibit severe shivering, or develop severe pain in the extremities
- Final signs are a significant drop in blood pressure, fatigue, and shallow respiration.

3.3.2 Control Measures

When the ambient air temperature falls below 36°F, the following cold weather clothing requirements will be adhered to:

- If wind chill is a factor, the cooling effect of the wind shall be reduced by shielding the work area or providing employees an outer windbreak layer garment.
- Extremities, ears, toes, and nose shall be protected from extreme cold by protective clothing.
- Employees performing light work and whose clothing may become wet shall wear an outer layer of clothing which is impermeable to water.
- Employees performing moderate to heavy work and whose clothing may become wet shall wear an outer layer of clothing which is water repellent.
- Outer garments must provide for ventilation to prevent wetting of inner clothing by sweat.
- If clothing is wet, the employee shall change into dry clothes before entering a cold environment.
- Workers shall change socks and removable felt insoles at regular daily intervals or use vapor barrier boots.

- Workers who become immersed in water or whose clothing becomes wet shall immediately be provided a change of clothing and be treated for hypothermia if necessary. If the clothing becomes wet from sweating, the employee may finish the task which caused the sweating before changing into dry clothes.
- Employees will be provided with thermal underwear, insulated coveralls, gloves, socks, and boots.

When employees are working in air temperatures of -15°F or less, the guidance given in Table 3-4, Cold Weather Work/Warmup Regimen, will be followed.

Metal handles of tools and control bars will be covered by thermal insulating materials when temperatures fall below 30°F.

Whenever the site becomes covered with snow or ice, eyewear providing protection against ultraviolet light, glare, and blowing ice crystals will be worn by employees.

3.4 Heat Stress

Due to the hot and humid climate often encountered in the Cherry Point Area, heat stress is of paramount importance during the summer months of this project.

Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and individual characteristics. Extreme hot weather can cause physical discomfort, loss of efficiency, or personal injury.

Individuals vary in their susceptibility to heat stress. Factors that may predispose individuals to heat stress include:

- Lack of physical fitness
- Insufficient acclimation
- Age
- Dehydration
- Obesity
- Alcohol and/or drug use
- Medical conditions
- Infection
- Sunburn

- Diarrhea
- Chronic disease.

Reduced work tolerance and the increased risk of heat stress are directly influenced by the amount and type of PPE worn. PPE adds weight and bulk and severely reduces the body's access to normal heat exchange mechanisms (evaporation, convection, and radiation), and increases energy expenditure.

3.4.1 Signs and Symptoms of Heat Stress

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild to fatal.

Heat-related problems include:

- Heat rash - caused by continuous exposure to heat and humidity and aggravated by chafing clothes. Heat rash decreases the body's ability to tolerate heat as well as being a nuisance.
- Heat cramps - caused by profuse perspiration with inadequate electrolytic fluid replacement. Heat cramps cause painful muscle spasms and pain in the extremities and abdomen.
- Heat exhaustion - caused by increased stress on various organs to meet increased demand to cool the body. Heat exhaustion causes shallow breathing; pale, cool, moist skin; profuse sweating; and dizziness. Heat exhaustion can be alleviated by promptly moving the affected individual to a cool place to lie down and by providing cool fluids to drink.
- Heat stroke - the most severe form of heat stress. Heat stroke symptoms include hot, dry skin; no perspiration; nausea; dizziness; confusion; strong, rapid pulse; and coma. The body must be cooled immediately to prevent severe injury or death.

3.4.2 Heat Stress Prevention

One or more of the following practices will help reduce the probability of succumbing to heat stress:

- Acclimate workers to heat conditions when field operations are conducted during hot weather.

- Provide plenty of liquids to replace the body fluids lost by perspiration. Fluid intake must be forced since under conditions of heat stress, the normal thirst mechanism is not adequate to bring about a voluntary replacement of lost fluids.
- Provide cooling devices to aid natural body ventilation. However, these devices add weight and should be balanced against worker comfort.
- If possible, install mobile showers or hose-down facilities to reduce body temperature and cool protective clothing.
- If possible, conduct field operations in the early morning.
- Train personnel to recognize the signs and symptoms of heat stress and its treatment.
- Rotate personnel to various job duties, if possible.
- Provide shade or shelter to relieve personnel of exposure to the sun during rest periods.

Individuals succumbing to the symptoms of heat stress will notify the SSHC or Project Engineer immediately. The onset of heat stress will preempt any of the aforementioned, halt activities and initiate treatment. Early detection and treatment of heat stress will prevent further serious illness or injury and lost work time. Proper and effective heat stress treatment can prevent further serious illness or injury or lost work time. Proper and effective heat stress treatment can prevent the onset of more serious heat stroke or exhaustion conditions. Individuals that have succumbed to any heat related illness become more sensitive and predisposed to additional heat stress situations.

3.4.3 Acclimatization

The degree to which an employee's body has physiologically adjusted or acclimatized to working under hot conditions is extremely important in the hot and humid conditions sometimes encountered in North Carolina. NIOSH recommends a progressive six-day acclimatization period for unacclimatized workers before allowing them to work at their full capacity. Under this regimen, the first day of work on site is begun using only 50 percent of the anticipated workload and exposure time, and 10 percent is added each day through day six. Six days should be considered the average time needed for worker acclimatization due to each individual's physical condition and their ability to adjust to hot and humid environments. It is important to note that

employees can lose acclimatization in a matter of days and should be subjected to a short re-acclimatization period when returning to Cherry Point after trips to colder locations.

3.4.4 Wet Bulb Globe Temperature Monitoring

The WBGT index technique will be used to measure heat stress potential for site employees. This method will require the use of a heat stress monitoring device such as the Wibget Heat Stress Monitor (Reuter-Stokes). WBGT measurements will be taken a minimum of four times per day when ambient air temperatures exceed 78°F. WBGT readings will be compared to the TLVs outlined in the ACGIH TLVs manual and a work/rest regimen established, as necessary, according to the WBGT obtained. Once the initial work/rest regimen has been established, physiological monitoring will be conducted by the SSHC in order to make any necessary adjustments to the regimen. WBGT measurement methods and the establishment of work/rest regimens will be based on the information supplied in Appendix E.

3.4.5 Physiological Monitoring

Ambient temperature and other environmental factors provide basic guidelines to implement work/rest periods. However, since individuals vary in their susceptibility to heat stress, IT will also utilize physiological monitoring to regulate each individual's response to heat stress when ambient temperatures exceed 78°F. The two physiological parameters that each individual will monitor are:

- Heart rate - Each individual will count his/her radial (wrist) pulse for 30 seconds as early as possible in the first rest period. If the heart rate of any individual exceeds 100 beats per minute at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same.
- Oral temperature - Each individual will measure his/her oral temperature with a single-use thermometer for one minute as early as possible in the first rest period. If the oral temperature exceeds 99.6°F at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same.

An individual is not permitted to return to work if his/her oral temperature exceeds 100.6°F.

Physiological monitoring information will be recorded on the Employee Record for Heat Stress. All monitoring will be performed by persons with a minimum of current Red Cross first-aid certification and individualized training to recognize the symptoms of heat stress.

3.4.6 Training

Personnel (including subcontractor employees) potentially exposed to heat stress conditions will have the following training during the site-specific training session:

- Employees
 - Sources of heat stress, influence of protective clothing, and importance of acclimation
 - How the body handles heat
 - Heat-related illnesses
 - Preventative/corrective measures
 - First-aid procedures.
- IT Supervisors
 - Physiological monitoring, WBGT measurement and methods and establishment of work-rest regimens based upon information supplied in Appendix E - Recommended Heat Stress Guidelines for Unacclimated/Acclimated Workers in Hot Environments.

3.5 Hazardous and Toxic Materials

This section discusses the hazards associated with materials that are used on the site or are likely to be found on the site. The H&S Manager will update this section as information developed during this project warrants.

The potential chemical hazards involved at the site are related to PCB contamination. The most common routes of entry are from skin contact or ingestion. Toxic effects in humans include chloracne, pigmentation of the skin and nails, excessive eye discharge and swelling of the eyelids. Systemic effects include nausea, vomiting, loss of weight, jaundice, edema and abdominal pain. PCBs are a hepatotoxin.

3.6 Exposure Standards

TLVs refer to airborne concentrations of substances which represent conditions that nearly all employees may be repeatedly exposed to day after day without adverse effect. These TLVs are prescribed by the ACGIH and are based upon the best available information obtained through

industrial experience and animal or human studies. Because of the wide variation in individual susceptibility, a small percentage of workers may experience discomfort from some substances at concentrations below the recommended values. It has been policy to use these guidelines for good hygienic practices; however, whenever applicable, stricter guidelines may be utilized.

Currently, exposure guidelines to pesticides and other chemical substances are regulated by OSHA. These exposures are based upon the time-weighted average (TWA) concentration for a normal 8-hour workday and a 40-hour work week. Several chemical substances have short-term exposure limits or ceiling values which allow a maximum concentration to which workers can be exposed continuously for a short period of time without suffering from (1) irritation, (2) chronic or irreversible tissue damage, (3) narcosis of a sufficient degree to result in accidental injury, impaired self-rescue abilities or substantially reduced work efficiency.

The STEL is defined by the ACGIH as a 15-minute TWA exposure which should not be exceeded at any time during a workday even if the 8-hour TWA is within the TLV-TWA. Exposure above the TLV-TWA up to the STEL should not be longer than 15 minutes and should not occur more than four times per day. There should be at least 60 minutes between successive exposures in this range. An averaging period other than 15 minutes may be recommended when this is warranted by observed biological effects. OSHA requires that a 15-minute "Ceiling" concentration never be exceeded for that chemical constituent. This notation appears as the letter "C" after the chemical name.

Under certain chemical substance listings, a "skin" notation may appear. This refers to the potential contribution to the overall exposure by the cutaneous route, including mucous membranes and eye, either airborne or by direct contact. Little quantitative data are available describing absorption as a function of the concentration to which the skin is exposed. Biological monitoring may be considered to determine the relative contribution of dermal exposure to the total dose.

The ACGIH and OSHA have recognized through epidemiological studies, toxicology studies and, to a lesser extent, case histories that certain chemical substances may have the potential to be carcinogenic in humans. Because of the long latency period for many carcinogens, it is often impossible to base timely risk management decisions on the results of such information. Two

categories of carcinogens are designated based upon the most current literature and information. These include confirmed human carcinogens and suspected human carcinogens. These chemical categories are based on either:

- Limited epidemiologic evidence and experience of clinical reports of single assess
- Demonstration of carcinogens in one or more animal species by appropriate methods.

The worker potentially exposed to a known human carcinogen must be properly equipped to insure virtually no contact with the chemical constituents. In the case of a suspected human carcinogen, worker exposure by all routes must be carefully controlled by the use of personal and respiratory protection and through administrative or engineering controls.

Table 3-1 represents the strictest set of guidelines currently established by either the ACGIH or OSHA and the chemical hazards of PCBs.

3.7 Biological Hazards

Ticks. Various species of ticks are indigenous to the Cherry Point area of North Carolina. Ticks are vectors of many different diseases including; rocky mountain spotted fever, Q fever, tularemia, Colorado tick fever, and lyme disease. They attach to their host's skin and intravenously feed on its blood creating an opportunity for disease transmission. Covering exposed areas of the body and the use of tick repellent are two ways to prevent tick bites. Periodically during the work day employees will inspect themselves for the presence of ticks.

Poisonous Plants. Poison ivy, poison oak, and poison sumac are identified by three or five leaves radiating from a stem. Poison ivy is in the form of a vine while oak and sumac are bush-like. All produce a delayed allergic hypersensitivity. The plant tissues have an oleoresin, which is active in live, dead, and dried parts. The oleoresin may be carried through smoke, dust, contaminated articles, and the hair of animals. Symptoms usually occur 24 to 48 hours after exposure resulting in burning or stinging, and weeping and/or crusted blisters. Should exposure to any of these plants occur, wash the affected area with a mild soap and water, but do not scrub the area. The best antidote for poisonous plants is recognition and avoidance.

Snakes. Poisonous snake indigenous to the Cherry Point area are copperheads, water moccasins and rattlesnakes. The degree of toxicity resulting from snakebites depends on the potency of the venom, the amount of venom injected, and the size of the person bitten. Poisoning may occur from injection or absorption of venom through cuts or scratches.

The most effective way to prevent snakebites is to avoid snakes in the first place. Personnel should avoid walking at night or in high grass and underbrush. Visual inspection of work areas should be performed prior to activities taking place. The use of leather boots and long pants will be required, since more than half of all bites are on the lower part of the leg. No attempts at killing snakes should be made; many people are bitten in such an attempt.

Flying Insects. Flying insects such as mosquitos, wasps, hornets and bees may be encountered while site activities occur. Table 3-3 discusses problems associated with them.

**Table 3-1
Exposure Guidelines and Health Information**

Exposure Guidelines			
Compound	ACGIH TLV	OSHA PEL	NIOSH REL
Chlorodiphenyl (42% chlorine)	1 mg/m ³	1 mg/m ³	0.001 mg/m ³
Chlorodiphenyl (54 % chlorine)	0.5 mg/m ³	0.5 mg/m ³	0.001 mg/m ³
Health Information			
<p>Carcinogenicity: The IARC and NTP list PCBs as an IARC probable carcinogen (overall evaluation is 2A; limited human data; sufficient animal data) and NTP anticipated carcinogen, respectively. Summary of Risks: PCBs are potent liver toxins that can be absorbed through unbroken skin in toxic amounts without immediate pain or irritation. PCBs have low acute toxicity, but can accumulate in fatty tissue and severe health effects may develop later. Generally, toxicity increases with a higher chlorine content; PCB-oxides are more toxic. The toxic action on the liver also increases with simultaneous exposure to other liver toxins, e.g. chlorinated solvents, alcohol, and certain drugs. Pathological pregnancies (abnormal pigmentations, abortions, still births, and underweight births) have been associated with increased PCB serum levels in mothers; PCBs can be passed in breast milk. PCBs can affect the reproductive system of adults. Medical Conditions Aggravated by Long-Term Exposure: Skin, liver, and respiratory disease. Target Organs: Skin, liver, eyes, mucous membranes, and respiratory tract. Primary Entry Routes: Inhalation, dermal contact, ingestion. Acute Effects: Exposure to PCB vapor or mist is severely irritating to the skin, eyes, nose, throat, and upper respiratory tract. Intense acute exposure to high concentrations may result in eye, lung, and liver injury. Systemic effects include nausea, vomiting, increased blood pressure, fatigue, weight loss, jaundice, edema, and abdominal pain. Cognitive, neurobehavior and psychomotor impairment and memory loss have also been seen after acute exposure. Chronic Effects: Repeated exposure to PCBs can cause chloracne; redness, swelling, dryness, thickening and darkening of the skin and nails; swelling and burning of the eyes, and excessive eye discharge; distinctive hair follicles; gastrointestinal disturbances; neurological symptoms including headache, dizziness, depression, nervousness, numbness of the extremities, and joint and muscle pain; liver enlargement; menstrual changes in women; and chronic bronchitis. Cancer, primarily liver, is also a possible result of exposure, but data is inconclusive.</p> <p>FIRST AID - Eyes: Do not allow victim to rub or keep eyes tightly shut. Rinsing eyes with medical oil (olive, mineral) initially may remove PCB and halt irritation better than water rinsing alone. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. Skin: Quickly remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. Multiple soap and water washings are necessary. Avoid the use of organic solvents to clean the skin. For reddened or blistered skin, consult a physician. Inhalation: Remove exposed person to fresh air and support breathing as needed. Ingestion: In most cases, accidental PCB ingestion will not be recognized until long after vomiting would be of any value. Never give anything by mouth to an unconscious or convulsing person. Vomiting of the pure substance may cause aspiration. Consult a physician. Note to Physicians: Monitor patients for increased hepatic enzymes, chloracne, and eye, gastrointestinal, and neurologic symptoms listed above. Diagnostic tests include blood levels of PCBs and altered liver enzymes.</p>			

**Table 3-2
Cold Weather Work/Warm-Up Regimen^a**

Air Temperature - Clear Sky	Wind Speed									
	Not Noticeable		5 mph		10 mph		15 mph		20 mph	
	Maximum Work Period	Number of Breaks								
-15°F to -19°F	normal breaks	1	normal breaks	1	75 min.	2	55 min.	3	40 min.	4
-20°F to -24°F	normal breaks	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
-25°F to -29°F	75 min.	2	55 min.	3	40 min.	4	30 min.	5	nonemergency work should cease	
-30°F to -34°F	55 min.	3	40 min.	4	30 min.	5	nonemergency work should cease			
-35°F to -39°F	40 min.	4	30 min.	5	nonemergency work should cease					
-40°F to -44°F	30 min.	5	nonemergency work should cease							
-45°F and below	nonemergency work should cease									

^aThis table applies to moderate to heavy work activities with warm-up breaks, in a warm location, of 10 minutes. For light to moderate work, use the table entry which is one temperature range warmer than the actual temperature range.

Table 3-3 Flying Insects

Organism	Description	Habitat	Problem	Severity	Protection
Homert	One inch long with some body hair. Abdomen is mostly black.	Round, paperlike nest hanging from trees, shrubs, or under eaves of buildings.	One nest may contain up to 100,000 homerts which will attack in force at the slightest provocation.	Severe pain, allergic reactions similar to bees.	Do not come near or disturb nest. If a homert investigates you, do not move.
Mosquito	Small, dark, fragile body with transparent wings. From 1/8 to 1/4 inch long.	Where water is available for breeding.	Bites and sucks blood. Itching and swelling result.	Can transmit encephalitis and other diseases. Scratching causes secondary infections.	Use plenty of insect repellent and wear gloves.
Wasp	Very thin waist. Color can be black, yellow or orange with stripes.	Underground nest. Paper-like honeycomb nest in abandoned buildings hollow trees, etc.	Stings. Some species will attack if you get too close to the nest.	Severe pain, allergic reactions similar to bees. Can be fatal.	Avoid Nest. Do not swat at them.
Bee	Generally has yellow and black stripes and two pair of wings.	Hollow logs, underground nest, old buildings,	Stings when annoyed. Leaves venom sac in victim.	If person is allergic, nausea, shock, constriction of the airway can result. Death may result.	Be careful and watch where you walk. Cover exposed skin. Avoid areas where bees are swarming. Avoid wearing sweet fragrances and bright clothing. Move slowly or stand still when bees are swarming about you.

4.0 Hazard Control Program

The following procedures are mandatory for all IT and subcontractor personnel entering the exclusion zone. All site visitors entering EZs must also follow these procedures. Personnel not following the requirements of this SSHP will be warned. Continued refusal to follow these procedures will result in an escort from MCAS Cherry Point.

4.1 General Practices

Only authorized personnel will be permitted in the EZ. These authorized individuals must meet the training requirements specified in Section 9.0. All visitors will check in with the Project Engineer upon arriving at the site.

No food, beverages or tobacco products will be present, consumed or used in contaminated or potentially contaminated areas. Taking medication, smoking or applying cosmetics are also prohibited. These activities are allowed only in the established clean areas.

Before eating, drinking, or smoking employees will wash their hands and face and remove outer protective garments.

Containers will be moved only with the proper equipment and will be secured to prevent dropping or loss of control during transport.

Personnel will be prohibited from being transported by any means other than those prescribed for movement of personnel. When trucks or other heavy equipment enter or leave the site, an individual will direct the driver.

All containers of any chemical products will be properly labeled to comply with OSHA Hazard Communication Standard (29 CFR 1910.1200).

Work areas will be illuminated to a minimum of 5-foot candles. Supplementary lighting may be necessary at night, or in poorly lit areas.

When working around heavy equipment or materials, employees and visitors will adhere to the following precautions:

- Hard hats must be worn at all times on the site.
- Pay attention at all times.
- Maintain visual contact at all times.
- Establish hand signal communication when verbal communication is difficult. Determine one person per work group to give hand signals to equipment operators.
- Be aware of footing at all times.
- All heavy equipment will have backup alarms of some type.
- Use chain hoists, straps and any other equipment to safely aid in moving heavy materials.
- Use proper personal lifting techniques. Use your legs, not your back.
- Get help whenever you are in doubt about a material's weight.
- Never walk directly in back or to the side of heavy equipment without the operator's knowledge.
- Never walk underneath any suspended load.
- Only qualified people are to operate heavy equipment.

4.2 Buddy System

All on-site personnel will use the buddy system. Buddies will maintain visual contact with each other. Personnel must observe each other for signs of heat/cold stress or toxic exposure, such as:

- Changes in complexion and skin discoloration
- Changes in coordination or demeanor
- Excessive salivation and pupillary response
- Changes in speech pattern.

Personnel will inform their supervisor of nonvisual effects of toxic exposure such as:

- Headaches, dizziness, blurred vision
- Nausea

- Cramps
- Irritation of eyes, skin or respiratory tract.

4.3 Fall Protection

The walking and working surfaces may become wet and slippery during these tasks. Use extra caution when working on these surfaces. In addition, visible barriers will be erected around any open excavations or trenches to prevent personnel from falling into these areas.

4.4 Excavation Safety

All excavating and soil removal conducted by IT and subcontractors will comply with IT Procedures and OSHA regulations governing excavation and trenching.

All excavations will be performed from a stable ground position, and daily inspections of the excavation, if greater than four feet deep, will be made by a competent person who has received training in excavation safety. The inspector will determine the likelihood of a cave-in, and remedial action such as sloping or shoring will be taken if the walls appear to be unstable.

All spoil will be located at least 2 feet from the edge of the excavation to prevent it from falling back into the excavation. The excavation will be guarded on all sides by barricades or caution tape at least 2 feet from the edge.

Before excavating, the existence and location of underground pipe, electrical equipment, and gas lines will be determined. This will be done, if possible, by contacting the appropriate utility company and/or client representative to mark the location of the lines. If the client's knowledge of the area is incomplete, an appropriate device, such as a cable avoiding tool, will be used to locate the service line.

If excavation is located in the vicinity of overhead power lines, a distance of 15 feet must be maintained between the lines and any point on the equipment. If the lines have appreciable sag, or if windy conditions exist, this distance will be 20 feet.

Personnel entry into any excavation 4 feet deep or greater is only permitted if the walls are properly shored or sloped and a combustible gas/oxygen reading has been taken. A ladder shall

be provided and placed at an angle not more than 30 degrees from vertical, and secured as necessary. Ladder side rails shall extend at least 3 feet above the ground surface.

Caution tape, barricades, or other means must be used to define and restrict access to the area of excavation.

An excavation permit must be obtained from MCAS Cherry Point prior to any intrusive activities at either of the sites. At least seven calendar days must be allowed for the processing of the permit application.

4.5 Confined Space Entry

IT's procedure for confined space entry will be followed if such an activity is needed during the completion of this project. A confined space is defined as a space large enough and so configured that an employee can bodily enter and perform assigned work, has limited means for entry or exit, and is not designed for continuous employee occupancy. Contaminated soil excavations, storage vessel entries, and other confined space work may pose additional hazards such as air contamination, flammable or explosive atmosphere, and oxygen deficiency. Excavation entry may pose the possibility of engulfment. IT has detailed training for confined space entry, and only personnel properly trained shall supervise and participate in confined space entry procedures or serve as standby attendants.

All confined spaces are initially considered permit required. Under certain conditions, a space may be reclassified as a non-permit confined space provided the SSHC approves the reclassification and the space meets the criteria outlined in HS300 (See Appendix D - Confined Space Entry Procedure).

4.6 Hot Work

SSHC Responsibilities

- Based on fire potentials, the SSHC will establish approved areas for welding, cutting, and other hot work.
- The SSHC will be responsible for authorizing welding, cutting, and other hot work in areas not specifically designed or approved for such operations.

- The SSHC will ensure that only approved apparatus, such as torches, manifolds, regulators, or pressure reducing valves, and acetylene generators, be used on site.
- The SSHC will ensure that cutters or welders and their supervisors are properly trained in the safe operation of their equipment, the safe use of the process, and emergency procedures in the event of a fire.

Fire Prevention Precautions

- Cutting, welding, or other hot work shall be permitted only in areas that are or have been made firesafe.
- Cutting or welding shall NOT be permitted in the following situations:
 - In areas not authorized by the SSHC
 - In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside uncleaned or improperly prepared drums, tanks, or other containers, and equipment which has previously contained such materials.
 - In any area where combustible gas indicator readings are in excess of ten percent of the LEL.
 - On storage or process vessels or lines in service which contain flammable or combustible liquids, gases, vapors, or solids.

Preparation and Permits for Hot Work

- Before any welding, cutting, or other hot work is permitted, the area shall be inspected by the SSHC to ensure that the following requirements have been met:
 - Cutting and welding equipment to be used shall be in safe operating condition and in good repair.
 - Where practical, all combustible material shall be relocated at least 50 feet horizontally from the work site. Where relocation is impractical, combustibles shall be protected with flame-proofed covers or otherwise shielded.
 - Two fully charged and operable fire extinguishers, appropriate for the type of possible fire, shall be available at the work area. Where fire hose-lines are available, they shall be connected and ready for use.

- Fire Watchers shall be required whenever hot work is performed in hazardous locations.
 - Combustible gas indicator readings are taken and the work area is free of combustible gases and vapors.
 - The work area is free of toxic contaminants at concentrations in excess of established threshold limit values, or, all personnel who will work in the area have been provided respiratory protective devices and protective apparel appropriate for the degree of exposure.
 - When hot work is to be performed on tanks or other vessels that contain or have contained flammable or combustible liquids, the vessel shall be properly isolated, purged, and cleaned, as appropriate, to reduce the concentrations of flammable and toxic air contaminants to safe levels.
- A hot work permit will be completed by the SSHC, reviewed with personnel who will perform the hot work, and posted near the job site.
 - The hot work permit is good only for the date issued and is valid only for the eight-hour shift for which it is issued.
 - If at any time during the hot work operation a change in conditions at the work site is suspected, such a release of flammable gases or vapors in the work area, work shall be stopped immediately and the SSHC shall be notified. Such work stoppage invalidates the hot work permit, and a new permit shall be completed after inspections and test have been performed by the SSHC.
 - No erasures or changes of dates on hot work permits shall be permitted.
 - In addition to IT's hot work permit, one must also be obtained from MCAS Cherry Point.

5.0 Personnel Protective Equipment

The PPE outlined below has been selected according to the site characterization and analysis, job tasks, site hazards, intended use and duration of potential employee exposures. Maintenance and storage of PPE, decontamination, donning and doffing procedures, inspection and monitoring of effectiveness, and limitation are outlined in this section.

5.1 Respiratory Program

A comprehensive respiratory protection program has been established by IT and is required in all locations where use of such equipment is intended to lessen the potential for adverse health affects to any employee.

As part of the respiratory training program, each employee is instructed in the following elements:

- Nature of the respiratory hazard on the work site and the appraisal of potential consequences if the respiratory protection is not utilized
- Use and proper fitting of the respirator
- Cleaning, disinfecting, inspection, maintenance and storage of the respirator
- Proper selection, capabilities and their limitations.

Routinely used respiratory equipment will be inspected, cleaned and disinfected daily to help assure proper hygienic practices. An inspection of these breathing devices will include the following:

- Examination of the head straps for breaks, loss of elasticity, broken or malfunctioning buckles and other attachments
- Examination of the face-piece for excessive dirt, cracks, tears, distortion, holes or inflexibility
- Examination of the exhalation and inhalation valves for any foreign material, cracks, tears or distortion in the valve. Additional checks will be made to inspect for proper insertion, defective valve covers or improper installation

- Examination of air purifying elements for incorrect cartridge, expired shelf-life of the cartridge, cracks or dents in the cartridge or cartridge-holder
- Examination for proper insertion of the cartridges into the face-piece and a check of the gaskets inside the cartridge-holder
- Examination of air cylinders for adequate air volume. Only Grade D air will be utilized for breathing air. A certificate of analysis must be provided with Grade D air purchased from local vendors.

When Level C protection is required, respiratory cartridges will be changed daily or if breakthrough is suspected. All respirators will be inspected prior to each day's use. If broken or malfunctioning parts are found during the cleaning process, these parts will be replaced or new respiratory equipment will be issued to the user.

The respiratory protective equipment will be stored in an area protected from any mechanical damage. These devices will also be stored in a location that provides protection against dust, heat, excessive moisture, or damage by chemical contact. The storage area for the respirators should be in a readily accessible location.

- Only employees who have been trained to wear and maintain respirators properly will be allowed to use respiratory protection.
- Selection of respirators, as well as any decisions regarding upgrading or downgrading of respiratory protection, will be made by the H&S Manager or his designee.
- Qualitative positive and negative pressure tests will be performed each time the respirator is donned.
- Only employees who have been fit tested within the last 12 months will be allowed to work in atmospheres where respirators are required. Subcontractors will provide certificates of respirator fit test completed within the last 12 months for each employee on site.
- Respirator users will be instructed in the proper use and limitations of respirators.
- If an employee has difficulty in breathing during the fit test or during use, he will be evaluated medically as soon as possible to determine if he can wear a respirator safely while performing assigned tasks.

- No employee will be assigned to tasks requiring the use of respirators if, based upon the most recent examination, a physician determines that the health or safety of the employee will be impaired by respirator use.
- Contact lenses will not be worn while using any type of respiratory protection.
- Respirator prescription lens inserts will be utilized by personnel requiring vision correction.
- Air-supplied respirators will be assembled according to manufacturer's specifications. Hose length, couplings, valves, regulators, manifolds and all accessories will meet ANSI and the manufacturer's requirements.
- Respirators will be cleaned and sanitized daily after use.
- Respirators will be stored in a convenient, clean and sanitary location on site.
- Respirators will be inspected during cleaning. Worn or deteriorated parts will be replaced.
- Facial hair that might interfere with a good face-piece seal or proper operation of the respirator is prohibited.
- The SSHC will review the respiratory protection program daily to ensure employees are properly wearing and maintaining their respirators and that the respiratory protection is adequately protecting the employees.
- The H&S Manager and the Project Manager will evaluate the respiratory protection program monthly to ensure the continuing effectiveness.
- Respirators used for emergency response will be inspected weekly by the SSHC.

5.2 Levels of Protection

Specific levels of protection will be changed whenever site conditions change. They can either be increased to the next higher level or decreased to the next lower level. The SSHC can request a change in levels of protection by contacting the H&S Manager. If the need arises to protect employees, the SSHC can upgrade protection levels without input from the H&S Manager. He will then discuss the decision with the H&S Manager, Project Engineer, and Project Manager when they are available. Levels of protection will not be downgraded without prior approval from the H&S Manager.

The selection of the PPE was made after a thorough evaluation of the hazards involved at Sites 5 and 17 during each phase of the operation. Table 5-1 describes the PPE required for each task and Table 8-2 describes the action levels for upgrading. For example, a real time total dust concentration in excess of 0.5 mg/m^3 for a 5-minute period or four instantaneous peaks in any 15-minute period would require an upgrade from level D to level C PPE.

5.3 Using PPE

All persons entering the EZ will don the required PPE according to established procedures in this plan to minimize exposure potential. When leaving the EZ, PPE will be removed according to these established procedures to minimize the spread of contamination.

5.3.1 Donning Procedures

- Put on coveralls
- Put on boot covers and tape to coveralls
- Put on gloves
- Tape the coveralls over the gloves at the wrist
- Don respirator and check for secure fit
- Put hood or head covering over the respirator
- Put on remaining protective equipment, i.e. hard hat, safety glasses, etc.

One person will remain outside the work area to check that each person entering has the proper protective equipment. No persons will be allowed to enter an EZ improperly attired.

5.3.2 Doffing Procedures

Whenever a person leaves the work site, the following proper decontamination sequence will be followed:

- Upon entering the CRZ, rinse contaminated mud and debris from boots or remove boot covers.
- Clean reusable protective equipment (i.e., face shields, hard hat, etc.).
- Remove protective garments and equipment leaving inner gloves on. All disposable clothing should be placed in plastic bags and labeled as contaminated waste.
- Remove respirator.
- Remove and dispose of inner gloves.

- Proceed to the clean area and dress.
- Clean respirator with new latex gloves on and prepare for next use.
- Proceed to the sign out point.

All disposable equipment, garments, and PPE will be bagged in a 6 mil plastic bag and properly labeled for disposal.

**Table 5-1
PPE Selection Matrix**

<u>ACTIVITY</u>	<u>PPE</u>
Task 1 - Site Survey	Level D2-Modified
Task 2 - Excavation of contaminated soil	Level C
Task 3 - Placement of erosion and sediment controls	Level D
Task 4 - Dewatering of excavation	Level D1-Modified
Task 5 - Water/soil sampling	Level D2-Modified
Task 6 - Water treatment and discharge	Level D
Task 7 - Transportation and disposal of contaminated soil	Level D
Task 8 - Equipment Decontamination	Level D1-Modified
Task 9 - Backfilling and site restoration	Level D
Task 10 - Mobilization/demobilization	Level D

As site activities progress, levels of PPE are subject to change or modification. Upgrading of PPE can occur when action levels are exceeded or whenever the need arises to protect the safety and health of site personnel. Levels of protection will not be downgraded without prior approval from the H&S Manager.

Level C PPE

- Coverall or surgical scrubs
- Steel-toed boots
- Full face air purifying respirator with HEPA cartridges
- Hard hat
- Nitrile gloves (outer)
- Latex gloves (inner)
- Tyvek coveralls with hoods and elastic wrists and ankles
- Duct tape openings (ankles, wrist, and respirator)
- Hearing protection (if necessary)
- Latex boot covers.

Level D1-Modified

- Coverall
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (if necessary)
- Latex boot covers
- Nitrile gloves

Table 5-1
PPE Selection Matrix
(continued)

- Tyvek coveralls with hoods and elastic wrists and ankles
- Duct tape openings (ankles and wrists).

Level D2-Modified PPE

- Coverall
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (if necessary)
- Latex boot covers
- Nitrile gloves

Level D PPE

- Coverall or work clothes
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (if necessary)
- Leather palm gloves when handling materials

6.0 Site Control

Site control requires establishing specific measures to prevent unauthorized entry onto Sites 5 and 17 and to protect all personnel from recognized safety and health hazards. A construction security fence will be erected around the perimeter of each site to maintain daily security for each site.

No IT employee or subcontractor will be admitted onto MCAS Cherry Point without first obtaining an identification badge through the Pass Office.

Prior to the start of work, at a minimum of seven calendar days, the following information on each site employee must be furnished to the NTR in order to obtain the pass:

- Name of company
- Name of employee
- Social Security Number
- Date of birth
- United States citizenship.

Personnel must also bring a valid picture identification and proof of citizenship with them in order to be issued a pass.

Once the Pass is issued, the Project Manager and the Project Engineer may grant authorization to enter the site. Access to contaminated work areas is regulated and limited to authorized personnel. Only those who have completed the required training and medical requirements established in Sections 9.0 and 10.0 will be allowed to enter. Representatives from regulatory agencies will be permitted to enter the site at any time during business hours or at other reasonable times, by appointment, to conduct official business, provided they have completed the required training and medical requirements. Representatives of the news media and other visitors must receive authorization from the MCAS Cherry Point Public Affairs Officer, NTR and the Project Manager, before entry. The MCAS Cherry Point Fire Department Chief will require check-in and check-out at his office every day work is to be performed.

7.0 Decontamination

7.1 Contamination Control Zones

The SSHC will establish contamination control zones for the project based on the location of contamination, accessibility, and site control. Barrier tape or fencing will be affixed in readily visible locations to delineate the EZ, CRZ and SZ.

7.1.1 Exclusion Zone

An EZ is the area where contamination does or could occur during site activities. This zone has the highest potential for exposure to the contaminants by contact or inhalation. All employees will use proper personnel protective equipment when working in these areas. The EZ will be a defined area where there is a possible respiratory and/or contact health hazard. The location of the EZ will be identified by fencing or other appropriate means. An entry log is kept daily which records the time of entry into and exit from the EZ for each person.

7.1.2 Contamination Reduction Zone

Personnel and equipment decontamination will be performed in the CRZ. All personnel entering or leaving the EZ will pass through this area in order to prevent any cross-contamination and for the purpose of accountability. Personal protective outer garments and respiratory protection will be removed in the CRZ and properly labeled.

7.1.3 Support Zone

SZs are established in uncontaminated areas and are used for the storage of supplies and general administrative functions. The SZ will be located to prevent employees from being exposed to any dust levels above regulatory limits. Eating, drinking, or smoking will be permitted in the SZ only after washing face and hands.

7.2 Decontamination General Rules

- An area outside of the EZ will be designated as the break area. Employees will proceed through personal decontamination before eating, drinking or smoking. No eating, drinking or smoking will take place in the EZ.

- The SSHC will monitor the effectiveness of the decontamination procedures and if ineffective will take appropriate steps to correct any deficiencies or modify the plan as needed.
- Used coveralls, gloves and overboots will be dropped into a bag-lined garbage can for disposal at an approved facility.
- Spent disposable respirator cartridges will be dropped into a bag-lined garbage can.
- Clean respirators, hard hats, goggles and face shields will be placed on the work table at the clean end of the zone.
- Soiled boots, hard hats, respirators and other equipment will be inspected daily, washed and scrubbed in a detergent/water solution. After cleaning, equipment will be rinsed thoroughly in water and allowed to dry on a clean surface.
- If there is a rip or tear in the employee's protective clothing, that individual will remove the torn garment in the decontamination area and new protective clothing will be issued in order for the employee to return back to work. The same procedure will apply to defective respiratory equipment.

7.3 Equipment Decontamination

The purpose of the CRZ is to limit the spread of contamination by contaminated personnel, tools, equipment and materials from the EZ. Any person, tool, equipment or material from inside the EZ will be considered contaminated and must be cleaned before leaving the work site. Decontamination of all large equipment will be performed on site (prior to personnel decontamination). Visual verification that all equipment has been properly decontaminated will be the responsibility of the Project Engineer and the SSHC. All contaminated solvents and waters generated from the cleaning operation will be collected and containerized for disposal.

One or more of the following steps will be used to decontaminate equipment:

- Step 1 - water rinse (if ineffective, go to step 2)
- Step 2 - stream jet (if ineffective, go to step 3)
- Step 3 - scrubbing (if ineffective, go to step 4)
- Step 4 - cleaning agent/solvent (if ineffective, repeat steps 1-4).

Once the particular piece of equipment is adequately decontaminated per the Project Engineer and SSHC, the process will stop.

7.4 Personnel Decontamination

A personnel decontamination facility will be established within the CRZ to provide personnel controlled transition from the EZ to the SZ. A step-off area will be located at the entrance to the personnel decontamination facility from the EZ for the respirator and outer glove removal. A boot wash, hand wash, and emergency shower will also be provided in this area. Drums will be positioned within this area to dispose of nonreusable PPE . A trailer containing clean and PPE dressing rooms furnished with lockers and benches and divided by a shower room will be set directly next to the step-off area.

The clean dressing room will be the only access to the SZ from the EZ. Personnel will enter the EZ by removing their clothing in the clean dressing room, proceeding to the PPE dressing room where PPE is donned for performance of removal action activities. Personnel will exit the EZ by doffing PPE in the step-off area, proceeding to the showers, and getting dressed in the clean dressing room. At least one person will remain outside the work area to assist decontaminating personnel in the CRZ and to assist in case of an emergency.

The following proper decontamination sequence will be used for this project:

- Upon entering the CRZ, rinse contaminated mud, etc. from boots or remove boot covers.
- Remove protective garments and equipment leaving inner latex gloves on. All disposable clothing should be placed in plastic bags and labeled as contaminated waste.
- Reusable protective equipment must be cleaned at the job site.
- Remove respirator and then inner latex gloves.
- Proceed to shower and then to clean area to dress.
- Clean respirator and prepare for next use.
- Proceed to the sign out point.

All disposable equipment, garments and PPE will be bagged in a 6-mil plastic bag and properly labeled for disposal at the job site.

7.5 Decontamination During Medical Emergencies

The SSHC or emergency-care provider will quickly assess the extent of the injury or illnesses to determine if life-saving medical treatment is crucial or if the decontamination procedures will create additional injuries and aggravate the existing condition. Under such circumstances, decontamination procedures will be greatly modified, simplified, or eliminated completely.

Life threatening injuries will be attended to immediately. Respiratory equipment must be removed and outside garments can be removed or cut away if it does not cause delays in treatment or cause further injury to the individual. Care will be taken to minimize the spread of contamination to emergency response personnel and transport vehicle by placing towels, blankets or plastic beneath the victim.

8.0 Site Monitoring

8.1 Air Monitoring

Measurements of airborne VOCs will be conducted during site activities by using a PID with an 11.7 eV lamp. This monitoring will take place in order to verify the absence of VOCs and to trigger action levels (Refer to Table 8-1). Additional real-time air monitoring will be performed for total airborne particulates using a Miniram aerosol monitor. Results will be used to determine the effectiveness and/or need for dust control methods and to trigger action levels as specified in Table 8-2.

All air monitoring equipment will be maintained and calibrated according to the manufacturer's recommendations. Calibration will be done before and after use each day and under the approximate environmental conditions, the instrument will be used. All air monitoring calibration activities will be documented on the equipment calibration log.

If an instrument is found to be inoperative or suspected of giving erroneous reading, the SSHC shall be responsible for immediately removing the instrument from service and obtaining a replacement unit. The specific IT or subcontractor operation for which this equipment is essential shall cease until an appropriate replacement unit is obtained. The SSHC will be responsible for ensuring a replacement unit is obtained and/or repairs are initiated on the defective equipment.

When applicable, only manufacturer-trained and/or authorized IT personnel will be allowed to perform instrument repairs or preventive maintenance.

8.2 Personnel Air Sampling

Personnel air samples will be taken to quantify employees' exposure to PCBs once action levels are met or exceeded. All samples will be taken and analyzed according to NIOSH method 5503.

The sampling train for NIOSH 5503 consists of a glass fiber-filter, type AE, 13 mm diameter, without binders. The filter is inserted into an open face filter holder. Following the glass filter is a glass sorption tube, 7 cm long, 6 cm OD, 4 cm ID containing two sections of 30/48 mesh deactivated Florisil. The front section of the tube is preceded by glass wool and contains 100 mg and the backup section contains 50 mg of Florisil. The back section (50 mg Florisil) is used to detect breakthrough of the first section. Urethane foam will be located between the sections and

behind the backup section. A low-flow sampling pump will be in the sampling line following the Florisil tube.

Before obtaining any samples, the sampling pump will be calibrated with a primary air flow calibrator. For each sample, 30 liters of air will be drawn through the sampling train. (However, the method has been validated for total sample sizes ranging from 1 to 50 L.) The sampling rate will be either 60 mL/min for a maximum of 480 minutes, or 150 mL/min for a maximum of 200 minutes. The working range for this method is 0.01 to 10 mg/m³ for a 40 L sample.

After the sampling rate has been set, the ends of the Florisil tube will be broken off. The Florisil tube will then be connected in the sampling train, and sampling will commence. After a sample of sufficient volume has been drawn through the train, the glass filter will be transferred to a 7 mm vial, and the ends of the Florisil tube will be capped (plastic caps, not rubber).

To prepare the sample for analysis, the glass filter and the 100 ml florisil bed will be placed in the 7 mL vial, and 5 mL of hexane will be added. The 50 mg Florisil bed (i.e., the second stage in the glass tube) and the two urethane plugs will be placed in a 4 mL vial to which will be added 2 mL of hexane. The two vials will be allowed to stand for 20 min with occasional agitation. Aliquots of the hexane from the vials will be analyzed through standard GC/MS methods.

8.3 Other Hazardous Conditions

The SSHC will take affirmative action to limit exposures. If unknown chemicals or contamination is encountered, operations will cease until the situation is evaluated. The SSHC will contact the H&S Manager to evaluate any potentially hazardous situations, or any situation with elevated contamination levels. Operations will only be resumed if they can be accomplished in a safe manner.

8.4 Noise Monitoring

Noise monitoring will be conducted as required using a Quest 2400 noise meter or equivalent. Hearing protection is mandatory for all employees in noise hazardous areas or when operating heavy equipment. Noise monitoring will occur when new heavy equipment is brought on site and when new tasks are started that have not previously had their noise levels quantified.

8.5 Hearing Conservation

All on site personnel will wear hearing protection (E.A.R. foam inserts or equivalent) when operating heavy equipment or whenever noise levels exceed 85 dBA, according to IT Procedure HS402. All personnel required to wear hearing protection will receive baseline and an annual audiogram and training on the causes and prevention of hearing loss.

8.6 Record Keeping

The SSHC or his designee will be responsible for establishing and maintaining records of all required monitoring as described below:

- Date, time, location, pertinent task, and exposure information
- Description of the analytical methods, equipment used, calibration data
- Type of PPE worn
- Engineering controls used to reduce exposure
- Sampling location
- Work operations taking place during monitoring
- Meteorological data
- Signature of analyst/sample collector.

8.7 Notification

Within five working days after receipt of monitoring results, the SSHC and the home office H&S staff will ensure that each employee is informed in writing of the results which represent that employee's exposure. Monitoring results representative of an employee's exposure shall be reported to the affected employee on the IT Employee Notification of IH Monitoring Results Form.

Whenever the results indicate that the representative employee exposure exceeds the PEL, the Employee Notification of IH Monitoring Results Form shall state that the PEL was exceeded, and shall provide a description of the corrective action taken to reduce exposure to a level below the PEL. The USN will also be notified of exposure results exceeding the PEL.

IT will provide IH monitoring results to subcontractor companies, if the exposure of subcontractor employees to airborne contaminants is elevated. Notification of subcontractor personnel of IH monitoring results is the responsibility of the subcontractor.

**Table 8-1
Air Monitoring Frequency and Location**

WORK ACTIVITY	INSTRUMENT	FREQUENCY	LOCATION
Site Survey	Miniram dust monitor HNU Personnel sampling	N/A Periodically N/A	N/A BZ ¹ of employees N/A
Excavation of contaminated soil	Miniram dust monitor HNU Personnel sampling	Continuously Periodically One sample/shift ²	Work area BZ of employees BZ of employees
Placement of erosion and sediment controls	Miniram dust monitor HNU Personnel sampling	Continuously Periodically When action levels are exceeded	Work area BZ of employees BZ of employees
Dewatering of excavators	Miniram dust monitor HNU Personnel sampling	NA Periodically When action levels are exceeded	Work area BZ of employees BZ of employees
Water/soil sampling	Miniram dust monitor HNU Personnel sampling	Continuously Periodically When action levels are exceeded	Work area BZ of employees BZ of employees
Water treatment and discharge	Miniram dust monitor HNU Personnel sampling	Periodically Periodically N/A	Work area BZ of employees N/A
Transportation and disposal of contaminated soils	Miniram dust monitor HNU Personnel sampling	N/A N/A N/A	N/A N/A N/A
Erosion decontamination	Miniram dust monitor HNU Personnel sampling	Continuously N/A When action levels are exceeded	Work area N/A BZ of employees
Backfilling and site restoration	Miniram dust monitor HNU Personnel sampling	N/A N/A N/A	N/A N/A N/A
Mobilization/demobilization	Miniram dust monitor HNU Personnel sampling	N/A N/A N/A	N/A N/A N/A

¹Breathing Zone

²Frequency will be adjusted upon review of analytical results.

**Table 8-2
Action Levels**

Level C PPE

Analyte	Action Level	Required Action
Unknown VOC's O ₂ LEL Total Dust	≥1 ppm above background in Breathing Zone (BZ) ≥22% or ≤20% ≥10% of LEL ≥2.5 mg/m ³ ≥0.5 mg/m ³	Stop work* Stop work* Stop work* Stop work*/Initiate personnel sampling

Level D PPE

Analyte	Action Level	Required Action
Unknown VOC's O ₂ LEL Total Dust	≥1 ppm above background in ≥22% or ≤20% 10% of LEL ≥0.5 mg/m ³	Stop work* Stop work* Stop work* Level C PPE/ initiate personnel sampling

Support Zone

Analyte	Action Level	Required Action
Unknown VOC's	≥1 ppm above background in BZ	Evacuate support zone and re-establish perimeter of EZ.
Total Dust	≥0.5 mg/m ³ ppm above background in BZ	Evacuate support zone and re-establish perimeter of EZ.

*Contact with the H&S Manager must be made prior to continuance of work.

Four instantaneous peaks in any 15-minute period or a sustained reading for 5 minutes in excess of the action level will trigger a response.

No one is permitted to downgrade levels of PPE without authorization from the H&S Manager.

9.0 Employee Training

9.1 OSHA Training

IT trains all field personnel according to 29 CFR 1926.65 before their initial assignment to any project. The following criteria is used to determine the level of training for IT employees, visitors, and subcontractors engaged in site activities.

- Personnel engaged in hazardous substance removal or other activities which expose or potentially expose them to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off site, and three days of supervised field experience.
- Personnel who perform limited activities at the site and are not potentially exposed to contaminate levels above the PEL shall receive a minimum of 24 hours of instruction off site, and one day of supervised field experience.

9.1.1 40-Hour Training

The following is a general list of topics covered in the 40-hour course:

- General site safety
- Physical hazards (fall protection, noise, heat stress, cold stress)
- Key management positions responsible for site safety and health
- Safety, health and other hazards
- Use of PPE
- Work practices by which employees can minimize risks from hazards
- Safe use of engineering controls and equipment on site
- Medical surveillance requirements including recognition of symptoms and signs which might indicate over exposure to hazards
- Worker Right-to-Know (Hazard Communication)
- Engineering controls and safe work practices
- Components of the site H&S program

- Decontamination practices for personnel and equipment
- Confined space entry procedures
- ERP.

9.1.2 24-Hour Training

The same topics presented in the 40-hour course are reviewed in the 24-hour course with less time spent on each topic.

9.1.3 Supervisor Training

Site supervisory personnel shall receive eight additional hours of specialized training on program supervision. The following topics are discussed:

- Overall safety and health program
- Personal protection equipment program
- Spill containment program
- Air monitoring techniques.

9.1.4 Refresher Training

Personnel covered by Sections 9.1.1 and 9.1.2 are required to complete eight hours of refresher training annually on the following topics:

- Safe work practices
- Chemical hazard awareness
- Hearing conservation
- Hazard communication
- Respirator refresher
- Confined space entry procedures update.

9.1.5 Supervised Field Experience

Personnel covered by Section 9.1.1 will receive a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor. A minimum of one day is required for personnel who fall under the requirements of 9.1.2.

9.2 Tailgate Safety Meetings

The SSHC conducts a tailgate safety meeting the beginning of each shift or whenever new employees arrive at the job site once the job commences. The topics discussed at the tailgate safety meeting include H&S considerations for the day's activities, necessary protective equipment, problems encountered and new operations. Attendance records and meeting notes are maintained with the project files.

9.3 Material Safety Data Sheets

MSDSs will be obtained for every chemical product used on site. This information will be made readily available to all employees upon request and stored in a central location. MSDSs will be reviewed with all site employees during site specific training.

9.4 Site Specific Training

IT provides site specific training for all personnel assigned to projects falling within the scope and application of 29 CFR 1926.65. The content of the training will be derived from information contained within this SSHP. All workers must also read and sign the SSHP acknowledging acceptance of site rules and understanding of site hazards before being permitted to enter the exclusion zone. Emergency procedures contained within Section 11.0 will be rehearsed during this training.

9.5 First Aid and CPR

At least one person trained in a minimum of both American Red Cross first-aid techniques and CPR will be on site whenever activities occur. Administration of first aid will be on a purely voluntary basis. Section 12 of this SSHP discusses the Bloodborne Pathogen Exposure Control Plan which will be followed during this project.

9.6 Instructors

The IT Training Division, headquartered in Irvine, California, teaches the 40-hour classes using certified instructors. When training needs exceed the capacity of the Training Division, IT uses outside institutions. IT Training Division is recognized by USEPA and listed in the Federal Register (53 FR 3982). Only similarly recognized outside training institutions are used.

10.0 Medical Surveillance

IT will utilize the services of a Board-Certified Occupational Medicine physician for the medical surveillance requirements of this PCB soil removal action. Dr. David Barnes (below) will review all medical examinations and will be available for medical consultation on an "as-needed" basis.

Dr. David Barnes
4360 Chamblee Dunwoody Road, Suite 207
Atlanta, Georgia 30341
(404) 455-0818 and (800) 229-3674

10.1 Medical Examination

As required by IT Policy and Procedure HS100 all personnel on site will have successfully completed a preplacement or periodic/updated physical examination. The contents of this examination has been determined by Dr. David Barnes.

10.1.1 Preplacement Exam

This examination has been designed to meet 29 CFR 1926.65 requirements for hazardous waste site operations.

The IT medical surveillance program examination consists of:

- Medical and occupational history questionnaire which includes information on past gastrointestinal, hematologic, renal cardiovascular, reproductive, immunological and neurologic problems.
- Physical examination.
- Blood pressure measurements.
- CBC and differential to include hemoglobin and hematocrit determinations, red cell indices, and smear of peripheral morphology.
- Blood urea nitrogen and serum creatinine.
- SMAC 24
- Pulmonary function test.

- Audiogram.
- EKG for employees over 35 years old or when other complications indicate the necessity.
- Drug and alcohol screening.
- Visual acuity.

The following information is provided to the examining physician:

- Description of employee's duties
- Anticipated chemical and asbestos exposure and levels
- Description of the PPE to be used
- Information from previous medical exams.

The medical surveillance provided to the employee includes a judgment by the medical examiner of the ability of the employee to use either positive- or negative-pressure respiratory equipment. Any employee found to have a medical condition which could directly or indirectly be aggravated by exposure to these chemical substances or by the use of respiratory equipment will not be employed for the project. A copy of the medical examination is provided at the employee's request.

The employee will be informed of any medical conditions that would result in work restriction or that would prevent them from working at hazardous waste sites.

10.1.2 Annual Exam

All IT employees receive an annual update exam meeting the requirements of 29 CFR 1926.65. The results of these exams are compared to previous results and the baseline physical to determine if any effects due to exposure have occurred. Appropriate actions are taken as recommended by the physician should the results indicate an exposure; otherwise, employees are cleared for continued work.

10.1.3 Exit Exam

IT offers exit physical exams for all employees involved in the medical surveillance program who are leaving the company for any reason to ensure they are in good health.

10.2 Subcontractor Requirements

Subcontractors will certify that all their employees have successfully completed a physical examination by a qualified physician on the Certification Form (Appendix B). The physical examinations will meet the requirements of 29 CFR 1926.65 and 29 CFR 1910.134 Respiratory Protection. Subcontractors will also supply copies of the medical examination certificate for each employee they have on site.

10.3 Medical Records

Medical and personal exposure monitoring records will be maintained according to the requirements of 29 CFR 1926.65 and will be kept for a minimum of 30 years. Confidentiality of employee medical records will be maintained.

11.0 Emergency Procedures

IT develops each SSHP to allow hazardous waste operations to proceed without adverse impacts on the safety and health of the worker, the environment and the community. The emergency procedures contained within this section will be rehearsed during site specific training and once a month thereafter.

11.1 General

The Project Engineer and SSHC will establish evacuation routes and assembly areas for the site. All personnel entering the site are informed of these routes and assembly areas. A site plan will be prepared marking the evacuation routes and will be posted at conspicuous locations prior to site activities.

The Project Engineer and SSHC will evaluate the site for the potential for fire, explosion, chemical release or other catastrophic events. As part of site specific training, site workers are instructed to report unusual events, activities, chemicals and conditions to the SSHC.

11.2 Emergency Equipment

Emergency equipment will be located in readily accessible uncontaminated locations. A complete first-aid kit and a fire extinguisher will be readily available on site for the team's use in the event of an emergency. The fire extinguisher will be located not more than 25 feet from the work activity. In addition, an eyewash will be readily available and must be capable of washing both eyes at once and delivering at least 0.4 gallons per minute for at least 15 minutes. At a minimum, the following emergency equipment will be maintained at both Sites 5 and 17:

- Two 10 A:B:C fire extinguishers
- Large industrial first-aid kit
- Pressurized emergency eye wash and shower unit
- Surgical gloves
- Blanket
- Air horn
- Telephone
- Emergency vehicle.

11.3 Emergency Response

The objective of emergency response actions is to minimize adverse health risks to site workers, the environment and the local community. The SSHC will have the authority to commit resources as needed to contain and control released material and to prevent its spread to off-site areas. The MCAS Cherry Point Fire Department Chief, Mr. Cecil Moore, will be the point of contact for all emergency situations and will assume the responsibility of the on-scene Coordinator in the event of a major emergency.

11.4 Safety Signals

Vehicle, tractor and portable gas-operated horns are used for safety signals as follows:

- 1) Long Blast: Warning alarm - prepare for Emergency Response
- 2) Multiple Short Blasts: Activation alarm - initiate Emergency Response activities as directed by SSHC or as discussed in Tailgate Safety Meeting.

Gas operated horns will be located in various areas on site including:

- Vehicles or heavy equipment which do not have a fixed operable horn
- CRZ
- Support zone trailer.

11.5 Site Evacuation Plan

In the event of a large fire, explosion, or toxic vapor release, the site alarm system will sound (multiple short blasts) and the following steps will be initiated:

- Stop all site activities and evacuate to the predetermined up-wind rally point
- The SSHC will designate an employee to contact the NTR and the MCAS Cherry Point Fire Department Chief and give all pertinent information including:
 - Time/type of incident
 - Wind direction
 - Opinion on necessity of community evacuation.
- The NTR will be responsible for coordinating community evacuations if necessary
- All personnel in the EZ will exit through the CRZ if possible, and perform a rough decon (removal of outer clothing and scrub boots)
- A head count will be taken at the rally point

- The SSHC will then determine the required response action
- A response team may then be assembled to search for missing personnel or correct the problem.

11.6 Fire

Any fire should be immediately reported to the SSHC, Project Engineer, and the MCAS Cherry Point Fire Department. If the fire is in the support zone, fire extinguishers will be used to contain or extinguish the fire. Fires in the Contamination Reduction Zone or the Exclusion Zone require immediate input from the SSHC before initiating a response.

Immediate fire fighting should be attempted only on fires occurring in the support zone. The desired response depends upon type and size of fire:

- **Small fires**
 - Extinguish if possible
 - Notify MCAS Cherry Point Fire Department
 - Notify Project Engineer and SSHC
 - Notify NTR.
- **Moderate fires**
 - Extinguish if possible
 - Notify MCAS Cherry Point Fire Department
 - Notify Project Engineer and SSHC
 - Alert site workers
 - Notify NTR.
- **Large fires**
 - Notify MCAS Cherry Point Fire Department
 - Notify Project Engineer and SSHC
 - Notify NTR.

11.7 Spill Response

If a spill of hazardous material occurs, the following actions will be taken:

- Notify the SSHC and Project Engineer immediately (the Project Engineer will notify the NTR and MCAS Cherry Point Fire Department Chief)
- Take immediate measures to control and contain the spill within site boundaries
- Keep unnecessary personnel away, isolate the hazardous area, and deny entry
- Stay upwind and keep out of low-lying areas
- Allow no flares, smoking, or flames in hazard area
- For liquids, keep combustibles away from the spilled material
- Take necessary steps to clean up the spill and all contaminated material.

11.7.1 Small Dry Spills

Shovel contaminated materials into dry containers and cover. Use care not to make material airborne. Label the containers as to contents and remove to designated staging area.

11.7.2 Small Liquid Spills

Absorb the liquid with sand, clean fill, or other noncombustible, absorbent material. Place contaminated material into a container and label the contents prior to transporting to the designated staging area.

11.7.3 Transportation-Related Spills

In the event that hazardous substances will be transported off site, IT will employ the use of a qualified transportation company. This company will possess a U.S. EPA-certified emergency response plan which must include a contingency plan for spills.

11.8 Adverse Weather Conditions

In the event of adverse weather conditions, the SSHC will determine if operations can continue without the potential for injury to personnel. Conditions that may cause concern as well as assist in the determination of whether or not to continue field operations include, but are not limited to, the following:

- Potential for heat stress
- Severe thunderstorms
- Hailstorms
- Poor visibility
- Hurricanes.

If a warning of gale force winds is issued for the vicinity, the SSHC will direct necessary precautions to minimize the danger to persons and protect the work and any nearby government property. Precautions will include, but are not limited to, closing openings, removing loose materials, tools, and equipment from exposed locations and removing or securing temporary work.

11.9 Medical Emergency

If a person working in an area is physically injured, American Red Cross first-aid procedures will be followed. Depending upon the severity of the injury or illness, emergency medical response may be obtained accordingly. All persons responding, both on site and off site, will be informed of the site safety and health hazards associated with contaminated personnel. If the person can be moved, that person will be taken to a location where emergency first aid treatment can be administered. During a life threatening emergency situation where a person is contaminated, this person will first be transported to the Naval Hospital with Chief Moore's oversight. Non-contaminated life threatening emergencies will go to Craven Regional Medical Center.

If the injury to the worker is of chemical nature, the following first-aid procedures will be instituted as soon as possible:

- Eye Exposure - If contaminated material gets into the eyes, the eyes will be flushed immediately at the eyewash station using copious amounts of water while lifting up the lower and upper eyelids.
- Skin Exposure - If contaminated sludge or corrosive liquid material gets on the skin, the affected area will be washed with soap or mild detergent.
- Inhalation - If an individual inhales a volume of toxic or corrosive vapors, the employee will be removed to fresh air at once. If breathing has stopped, artificial respiration will be performed on the affected individual until medical attention can arrive on scene and transport the patient to the nearest medial facility.

- **Ingestion** - In the event a person ingests a toxic liquid or solid material, medical attention will be obtained at once.

Emergency medical personnel will be summoned without delay in the event of a medical emergency.

11.10 Reporting Injuries and Illnesses

Employees will report all injuries to their supervisor immediately and report illnesses as soon as the employee knows he/she is sick. Supervisors will submit completed "Supervisor's Report of Injury" to the IT H&S Department within 24 hours of the occurrence. If there is any indication that the illness is work-related, the supervisor will submit a completed "Supervisor's Report of Injury" to H&S Department within 24 hours after notification by the employee.

11.11 Emergency Procedure Critique

The emergency procedures established in this section will be reviewed monthly and, as necessary, be amended to keep it current with new or changing site conditions or information.

In the event that these procedures are used to respond to an emergency situation, a critique and follow-up investigation of the response action will be made. The SSHC and Project Engineer will evaluate the effectiveness of the response and if modifications need to be made. This critique will be submitted to the NTR, MCAS Cherry Point Fire Chief, and H&S Manager upon its completion.

11.12 Emergency Information

11.12.1 Public Agencies

FIRE	Cherry Point MCAS (Chief Cecil Moore) Emergency	(919) 466-3333 911
POLICE	Cherry Point MCAS Emergency	(919) 466-3615 911
HOSPITAL (minor injuries) (major injuries)	Craven Regional Medical Center Emergency	(919) 633-8111 911

HOSPITAL LOCATION MAP See Appendix A

11.12.2 Key Personnel

IT Program Manager	Stevan Demase	412 372-7701
IT Project Manager	Harry Dravecky	412 372-7701
IT Program H&S Manager	Warren Houseman	412 372-7701

12.0 Exposure Control Plan

This Exposure Control Plan presents health and safety guidelines for voluntary first aid and CPR care providers. In order to meet the requirements of OSHA 29 Code of Federal Regulations (CFR) §1910.151, during day shift operations, at least one person on site will be adequately trained in first aid and CPR, in the requirements of the Bloodborne Pathogens Standard as listed in 29 CFR §1910.1030, IT Procedure HS512, and in the contents of this plan.

12.1 Definition

Bloodborne pathogens are those agents (i.e., bacteria, virus, fungi) found in blood, blood components, certain body fluids, and other materials, objects, or surfaces that have had contact with blood that are capable of causing human disease or death to unprotected people who came into contact with blood or blood-affected items. Diseases caused by bloodborne pathogens include, but are not limited to, hepatitis B virus (HBV), human immunodeficiency virus (HIV), hepatitis C, malaria, and syphilis. The most significant and of greatest concern are HBV and HIV.

12.1.1 Hepatitis B Virus

HBV is the major bloodborne pathogen hazard that first aid/CPR care providers are more likely to encounter. The HBV can remain infectious for up to 10 days even in dried blood. The virus adversely affects 8,000 to 10,000 workers annually resulting in approximately 200 deaths each year.

12.1.1.1 Hepatitis Exposure Symptoms

Hepatitis means "inflammation of the liver" causing severe liver damage or cirrhosis. Exposure symptoms include fever, fatigue, nausea, vomiting, muscle aches, loss of appetite, and jaundice (yellowing of the eyes or skin). Hepatitis diagnosis is difficult because some symptoms are similar to the flu and may remain mild for an extended period of time.

Presently, no cure exists for hepatitis, but it can be prevented with a vaccination.

12.1.2 Human Immunodeficiency Virus

HIV attacks and deteriorates the body's immune system and eventually weakens it to the point that infection sets in causing the disease Acquired Immune Deficiency Syndrome (AIDS). HIV

is primarily transmitted through sexual contact, but may also be transmitted through contact with blood and body fluids. HIV is not transmitted by touching or working with people who are HIV-positive.

12.1.2.1 Human Immunodeficiency Virus Exposure Symptoms

HIV leads to AIDS-related illnesses which eventually cause neurological problems, cancer, pneumonia, and death. People carry the virus for many years of their lives without experiencing any symptoms. Upon development, symptoms may include weight loss, skin lesions, dry cough, fever, fatigue, diarrhea, or swelling of the lymph glands.

Presently, no cure exists for HIV or AIDS and no vaccination is currently available.

12.2 Exposure Determination

The purpose of the guidelines in this plan are designed to limit occupational exposure of site workers to infectious blood materials which could result in disease or possibly death. The contents of this plan are intended to protect the IT employees trained in first aid and CPR that are responsible for administering medical assistance to site workers.

12.2.1 Means of Transmission

The major activity that may expose any of these IT employees to bloodborne pathogens is their response and care to on-site personal injuries, or decontamination of equipment/surfaces contaminated by blood or other potentially infectious materials during the incident.

These designated IT employees could be subject to bloodborne pathogens during rendering of first aid or CPR by accidental exposure due to:

- Punctures through the skin with a contaminated sharp object (i.e., scissors)
- Contact or absorption of blood or blood-contaminated objects through open or broken skin (i.e., cuts, scratches, rashes)
- Blood splashes to their eyes, nose, or mouth or other mucous membranes.

Workers can reduce their risk of contacting HBV or HIV by implementing the recommended work practices (outlined in this plan) before, during, and after responding to emergency medical incidents involving personal injuries.

12.3 Measures for Prevention

The establishment of work practice controls is an integral part of an effective exposure control plan in preventing accidental infection of employees. These work practices are designed to protect employees from reasonably foreseeable occupational exposures to bloodborne pathogens from blood and other potentially infectious material. The work practice controls outlined in this section are applicable to the administration of first aid in emergency situations and subsequent cleanup only.

12.3.1 Universal Precautions

Universal precautions is an approach to infection control which operates on the assumption that all human blood and bodily fluids are to be treated as if they are known to be contaminated with HIV, HBV, or other infectious diseases. Universal precautions shall be implemented whenever there exists a foreseeable potential for contact with blood or bodily fluids.

12.3.2 Engineering Controls

Due to the remote location of the worksite, the nature of work in outdoor locations with potential exposure to airborne chemical contaminants, and the potential for exposure being limited to emergency situations, the implementation of engineering controls is not feasible. Exposure control shall be accomplished through implementation of work practice controls and use of personal protective equipment.

12.3.3 Work Practice Controls

Work practice controls shall be instituted whenever foreseeable potential contact with, or exposure to, blood and bodily fluid exists. Examples of situations in which these controls are to be implemented include, but are not limited to, accidents or injuries in which administration of first aid is required, application of bandages to minor cuts and abrasions of another person, and contact with sores, wounds, or broken skin.

Following are specific work practice controls that shall be implemented:

- Open wounds or cuts will be promptly bandaged.
- Wash hands and face as soon as possible after administering first aid or CPR. If wash facilities are not readily available, stock disposable one-time use towelettes.

- No eating, drinking, or smoking is allowed in any work area where a potential exists for occupational exposure to blood borne pathogens.
- Non-disposable equipment or materials that have or may have blood or infectious fluid contact must be washed immediately after their use. (A 1 to 10 solution of bleach and water is recommended proper decontamination.)
- Any clothing that becomes contacted with blood or infectious fluids shall be removed as soon as possible after administering first aid or CPR.
- No personal clothing that becomes contacted with blood or infectious fluids shall be laundered off-site.
- Ensure that first-aid kits on-site are equipped with a pair of surgical gloves and CPR mouthpieces.

12.3.3.1 Minimization of Contact

Direct contact with blood and bodily fluids should be kept to an absolute minimum, as required in a particular situation. In situations where direct contact is likely, personal protective equipment shall be worn to help prevent infection.

Based upon professional judgment, an employee may choose to temporarily forego the use of PPE if he determines that the use of PPE will further jeopardize his well-being or that of the injured worker. This limited application must be carefully evaluated by the employee.

If this does occur, IT is obligated to investigate and document the circumstances in an effort to provide alternative means to avoid further occurrence.

12.3.4 Personal Protective Equipment

The following are specific personal protective equipment items that shall be implemented:

- Always wear hand (i.e. latex or nitrile surgical gloves) and eye (i.e. safety glasses, goggles) protection to administer or apply first aid or CPR.
- Always use CPR mouthpieces or ventilation devices.
- Inspect PPE prior to use to ensure it is in good working order and without flaws.
- Do not reuse gloves once removed.

- After use, remove gloves from top to bottom inside-out, not allowing unprotected skin to contact the exterior of the gloves.

12.3.5 Waste Handling

Disposable items that have or may have blood contact must be bagged separately from other trash. These wastes must be placed in leak proof containers or bags and labeled.

A collection container for contaminated articles will be available on-site. Wastes used in medical emergency treatment (i.e. gloves, towels, gauze) shall be disposed in the infectious waste container(s). The container will be replaced as needed and not be overfilled.

12.3.6 Waste Disposal

The waste will remain on site in approved container(s) until an approved disposal facility capable of receiving medical wastes is identified. Disposal of the infectious waste container(s) shall be in accordance with applicable local, state, and federal regulations.

12.4 Medical Requirements

The medical requirements of the exposure control plan include provision of a Hepatitis B vaccination to all exposed employees and post-exposure procedures and evaluation.

12.4.1 Hepatitis B Vaccination

All potentially exposed employees will have made available to them at no cost a Hepatitis B vaccination. The employee will also receive training as to the vaccine's efficacy, safety, benefits, and consequences prior to administration. The vaccination series shall be initiated prior to assignment and shall be administered under the supervision of a licensed physician. Employees may at their own discretion decline the vaccination, in which case documentation of declination will be completed and employees may be assigned immediately. If an employee covered by this exposure plan decides to accept the vaccination at a later date, the vaccination will be offered at that time at no cost to the employee.

12.4.2 Post-Exposure Procedures and Evaluation

Subsequent to all reported exposure incidents, a confidential medical evaluation and follow-up shall be made available to each employee exposed in the incidents.

12.4.2.1 Documentation Procedures

Documentation of the exposure incident shall be recorded as soon as possible, and include the route(s) of exposure, the circumstances surrounding the incident, and the identification of the source individual.

12.4.2.2 Blood Testing**12.4.2.2.1 Source Individuals**

As soon as feasible, the source individual in an exposure incident will be asked to consent to a blood test to determine HBV and HIV infectivity. Where applicable laws require employee consent, documented consent shall be obtained prior to testing. If an employee refuses the blood test, documentation of the refusal will be made. Documentation of the test results shall be made available to the exposed employee(s). All results should be kept confidential, as criminal and civil penalties may be charged against persons negligently or wilfully releasing such information, depending on local laws.

12.4.2.2.2 Exposed Employees

Exposed employees will be asked to consent to a blood test for HBV and HIV serological status. If consent to HIV testing is denied, the blood sample will be preserved for 90 days, within such time the employee may elect to consent to the HIV test.

12.4.3 Post-Exposure Medical Evaluations

Exposed employees shall receive a healthcare professional's written opinion for post-exposure evaluations. The written opinion shall include the results of the evaluation and any medical conditions resulting from the exposure incident which requires further medical treatment.

12.5 Hazard Communication**12.5.1 Warning Labels**

Containers used for disposal of blood contaminated supplies and waste will be labeled in accordance with the word "biohazard."

12.5.2 Warning Signs

There are no designated areas for medical treatment on site, since first aid will be provided on an emergency basis only, and therefore warning signs are not applicable. In cases of potential exposure observers and non essential personnel should be verbally warned to keep a safe distance from injured personnel.

12.5.3 Employee Training Program

Employee training will be provided at the time of initial assignment and annually thereafter. Additional training will be given as changes in or modification to procedures occur.

The training program includes the following elements:

- A copy of 29 CFR §1910.1030 for review
- Explanations of epidemiology of bloodborne diseases, modes of transport, symptoms of infection
- Explanation of the exposure control plan, methods used to recognize tasks with potential exposure
- Explanations of use and limitations of control measures
- Information on the Hepatitis B vaccination, medical evaluation, post-exposure follow-up
- Explanation of warning signs and labels.

12.6 Recordkeeping

12.6.1 Training Records

All employees selected to attend the training program that covers the contents of this plan shall sign the Acknowledgment Form and the Training Attendance Form.

The training record will contain the date; training outline; name and qualifications of the trainer, and names and job titles of attendees.

At the completion of the training program, all participants must take and pass the training quiz.

The training records will be maintained by the IT Training Department for at least three years from the training date.

12.6.2 Medical Records

Medical records necessary for IT designated employees must include documentation on HBV vaccination status, medical follow-up, post-exposure testing, and a medical professional's written evaluation.

12.6.2.1 Confidentiality

The employee medical records will be forwarded to EMR for inclusion in the employee's medical file:

ENVIRONMENTAL MEDICINE RESOURCES, INC.
4360 Chamblee Dunwoody Road, Suite 202
Atlanta, GA 30341

12.6.2.2 Maintenance and Transfer of Records

IT Corporation shall maintain the employee medical records for the duration of the employee's employment plus 30 years thereafter.

If, for whatever reason, IT Corporation no longer does business and no successor exists, IT Corporation will notify the Director of NIOSH in writing three months prior to the disposal of records. If so directed, the records shall be transferred to the Director of NIOSH.

12.6.3 Incident Recording

An incident that occurs as a result of rendering emergency medical care will be recorded on the OSHA 200 log as OSHA defines work-related injuries and illnesses.

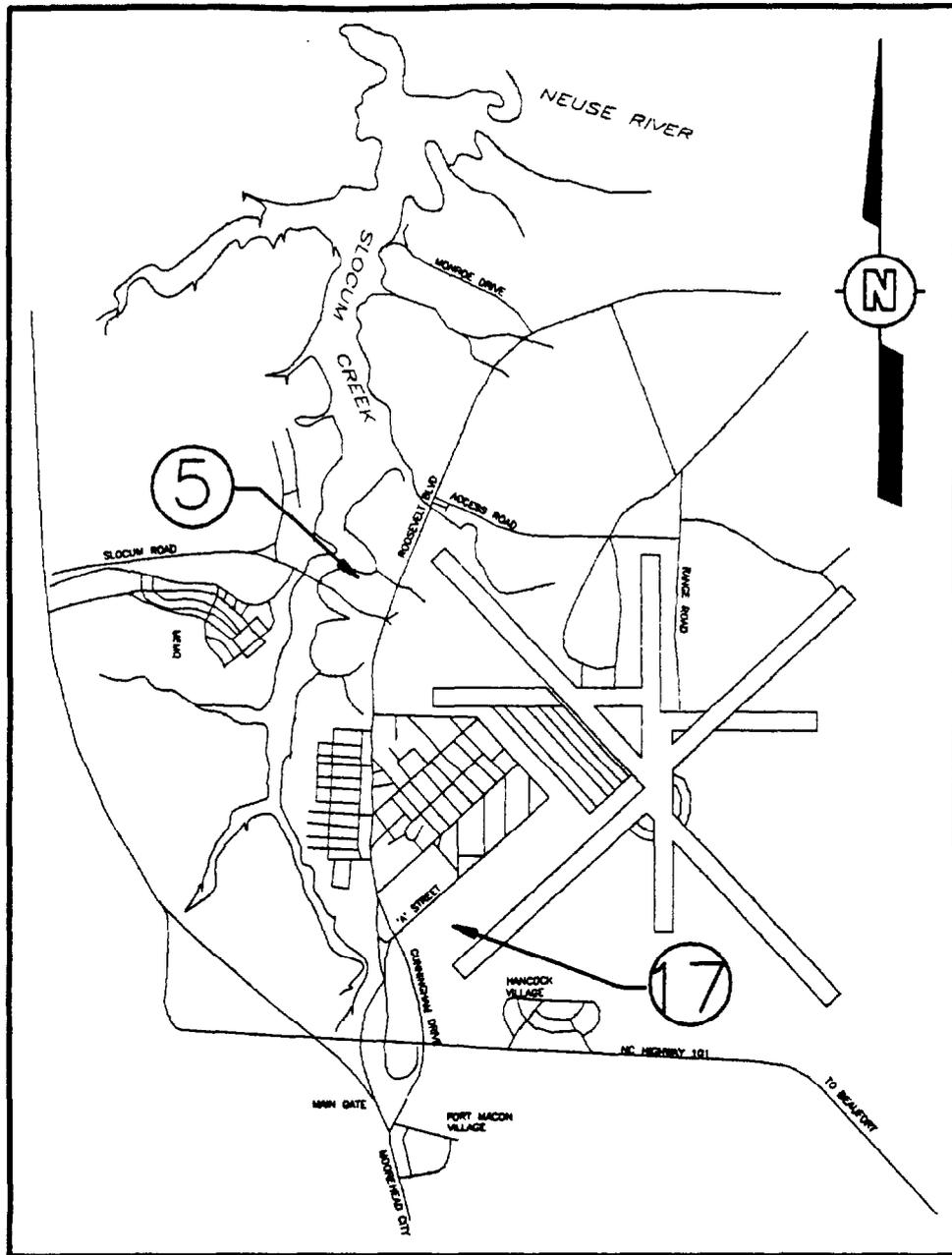
APPENDIX A
SITE & HOSPITAL LOCATION MAPS

DRAWING NUMBER 305929-A4

CHECKED BY
APPROVED BY

C.J.B.
10-19-93

BY



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FIGURE 1
SITE LOCATION MAP
 SITE 5 AND 17, MARINE CORPS AIR STATION
 CHERRY POINT, NORTH CAROLINA

PREPARED FOR
 DEPARTMENT OF THE NAVY
 NAVAL CONSTRUCTION BATTALION CENTER
 NAVAL FACILITIES ENGINEERING COMMAND
 PORT HUENEME, CALIFORNIA

(PLANS WERE PROVIDED TO
 IT CORPORATION BY THE NAVY)



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DRAWING NUMBER
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CHECKED BY

APPROVED BY

D.E.S.
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L.V.MN
BY

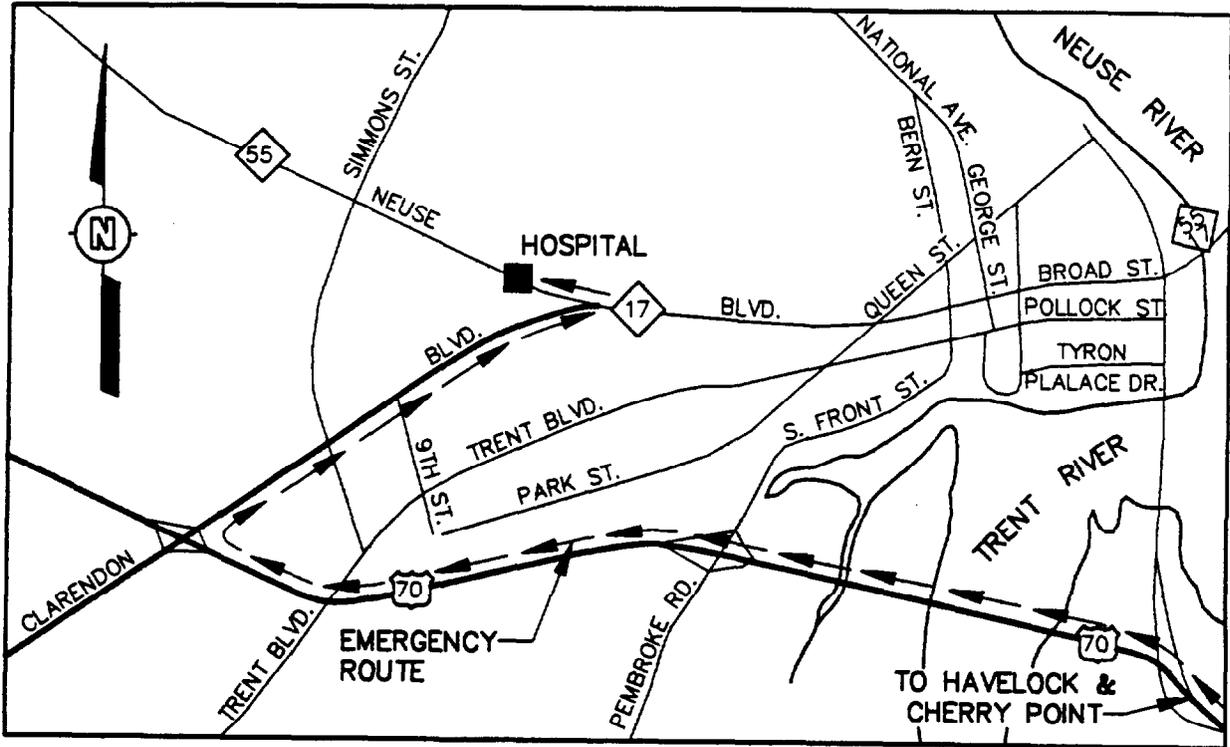


FIGURE 2

HOSPITAL LOCATION MAP

SITE 5 AND 17 MARINE CORPS AIR STATION
CHERRY POINT, NORTH CAROLINA

PREPARED FOR

DEPARTMENT OF THE NAVY
NAVAL CONSTRUCTION BATTALION CENTER
NAVAL FACILITIES ENGINEERING COMMAND
PORT HUENEME, CALIFORNIA



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TECHNOLOGY
CORPORATION

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**APPENDIX B
CONTRACTOR CERTIFICATION**

CONTRACTOR CERTIFICATION

I, _____ as an agent of _____, do hereby certify that the following employees have successfully completed a 40-hour training course which complies with the provisions of 29 CFR 1926.65. Each employee has successfully completed a medical examination which complies with the above regulation.

Individual copies of certification of successful completion of the required training and medical examination are attached for each employee.

Signature _____ Date _____

**APPENDIX C
ACTIVITY HAZARD ANALYSIS**

**ACTIVITY HAZARD ANALYSIS
SITE SURVEY/CLEARING**

**ACTIVITY HAZARD ANALYSIS
SITE SURVEY/CLEARING**

Activity	Potential Hazards	Recommended Controls
Surveying	Vehicular traffic	Orange reflective safety vests will be worn by the surveying crew while working in close proximity to traffic.
	Slip, trip, and fall hazards	Individuals must be aware of the terrain and look before stepping.
	Sharp objects	Individuals must be alert to sharp objects that may be lying under brush. Metal inserts may be used inside boots to make them puncture resistant.
	Poisonous plants, snakes, and insects	Individuals must be aware of the potential for these hazards to be present. Precautionary measures to be taken will be addressed in daily tailgate safety meetings.
	Heavy lifting	Any lifting over 60 lbs requires assistance or the use of a mechanical lifting device.
Falling trees	Dropping trees onto personnel	Only qualified personnel will drop trees.
		The work area shall be cleared to permit safe working conditions and an escape route planned before any cutting is started.
		Just before the tree or limb is ready to fall an audible warning shall be given to those in the area. All personnel in the vicinity shall be safely out of range.
		Employees shall work from the uphill side whenever possible.
		Prior to falling operations, the surrounding area, the shape of the tree, the lean of the tree, wind force and direction, and the location of other employees will be reviewed.
	Chainsaw operations	The chainsaw will not be fueled while running, when hot, or near open flame. The saw will not be started within 10 ft of a fuel container.

Activity	Potential Hazards	Recommended Controls
Falling trees	Chainsaw operations	The operator will hold the saw with both hands during all cutting operations.
		Operators must wear eye, ear, hand, foot and leg protection.
		The chainsaw must never be used to cut above the operator's shoulder height.
		The idle speed will be adjusted so that the chain does not move when the engine is idling.
		The operator will shut off the saw when carrying it over slippery surfaces, through heavy brush, and when adjacent to personnel.
		All chainsaws on site shall have an automatic chain brake or kick back device.
	Noise	Sound levels above 85 dBA mandates hearing protection.
Clearing brush and debris	Slip, trip and fall hazards	Individuals must survey the terrain and look before stepping.
	Sharp objects	Individuals must be alert to sharp objects that may be lying under brush. Metal inserts may be used inside boots to make them puncture resistant.
	Poisonous plants, snakes and insects	Individuals must be aware of the potential for these hazards to be present. Precautionary measures to be taken will be addressed in daily tailgate safety meetings.
	Use of machetes	Keep other personnel clear of swing area. Use extreme caution when using.

**ACTIVITY HAZARD ANALYSIS
EXCAVATION OF CONTAMINATED SOIL**

ACTIVITY HAZARD ANALYSIS EXCAVATION OF CONTAMINATED SOIL

Activity	Potential Hazards	Recommended Controls
Excavation of soil	Heavy equipment operations	Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventive maintenance procedures recommended by the manufacturer shall be followed.
		All lockout - tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
		Machinery and mechanized equipment shall be operated only by designated personnel.
		Getting off or on any equipment while it is in motion is prohibited.
		Machinery or equipment requiring an operator shall not be permitted to run unattended.
		Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
		All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.

Activity	Potential Hazards	Recommended Controls
Excavation of soil	Heavy equipment operations	Stop logs or barricades will be used when vehicles or mobile equipment are being used adjacent to an excavation
		All repairs on machinery or equipment will be made at a location which provides protection from traffic for repair persons.
		Bulldozer and scraper blades, end-loader buckets, and similar equipment will be either fully lowered or blocked when being repaired or when not in use.
		All self-propelled construction equipment shall be equipped with a back-up alarm.
	Fire	Each bulldozer, backhoe, or other similar equipment will be equipped with at least one dry chemical fire extinguisher having a minimum UL rating of 5 A:B:C.
	Contact with underground utilities	All underground utilities shall be located and marked prior to excavation operations. Excavation will progress slowly until the <u>exact</u> location is determined.
	Open excavations	IT Policy and Procedure HS307 "Excavation and Trenching" will be adhered to at all times.
	Contact with potentially contaminated materials	Real time air monitoring will take place. Proper personal protective clothing and equipment will be utilized.
	Heat/Cold Stress	Be aware of signs and symptoms. Observe work parties during likely heat/cold stress ambient conditions.

Activity	Potential Hazards	Recommended Controls
Excavation of soil	Noise	Hearing protection is mandatory above 85 dBA.
	Cave-ins	Excavation will be inspected daily by a competent person.
		Excavations greater than five feet deep shall be sloped or shored.
		Undercutting the side of an excavation is not permitted.
	Water	Ditches, dikes, or other means shall be used to prevent surface water from entering excavation.
		Employees will not be permitted to work in excavations with accumulated water.
	Falling materials	Protection will be provided for loose rock or soil falling into the excavation.
		Excavated material will be placed at least two feet from the edge of the excavation.
		Personnel will stand away from vehicles being loaded or unloaded.
Loadout and disposal of soil	Noise	Noise levels above 85 dBA mandates hearing protection.
	Fire	Each bulldozer, backhoe, or other similar equipment will be equipped with at least one dry chemical fire extinguisher having a minimum UL rating of 5 A:B:C.
	Truck and equipment traffic	Site personnel will wear orange safety vests to identify themselves to traffic.
		Loadout area will be properly demarcated.

Activity	Potential Hazards	Recommended Controls
Loadout and disposal of soil	Slip, trip, and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip, and fall hazards. Look where you step, ensure safe footing when climbing on/off equipment etc.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Beware of contact points. Stay alert at all times!
	Strains/sprains	Use proper lifting techniques. Lifts greater than 60 lbs require assistance or mechanical equipment. Size-up the lift. Recommend wearing a back support if possible. When pulling on materials, pull in a straight line. Do not twist and pull simultaneously.
	Ropes, slings, chains, and hooks	The use of ropes, slings, and chains shall be in accordance with the safe recommendations of their manufacturer.
		Rigging equipment shall not be loaded in excess of its recommended safe working load.
		The use of open hooks is prohibited in rigging to lift any load.
		Hooks, shackles, rings, pad eyes, and other fittings that show excessive wear or that have been bent, twisted, or otherwise damaged shall be removed from service.

Activity	Potential Hazards	Recommended Controls
Loadout and disposal of soil	Ropes, slings, chains, and hooks	Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service.
		Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored so as not to present a hazard.
		Taglines shall be used to control the loads being handled by hoisting equipment.
	Hoisting equipment	All hoisting equipment shall be capable of passing a performance (operating) test prior to being placed into service.
		At no time shall the hoisting equipment be loaded in excess of the manufacturer's rating.
		While hoisting equipment is in operation, the operator shall not perform any other work and he/she shall not leave his/her position at the controls until the load has been safely landed or returned to the ground. Materials will not be suspended or moved over personnel.
		A standard hand signal system shall be used on all hoisting equipment.
	Bees, spiders, and snakes	Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Cut hazards	Wear adequate hand protection.
	Falling objects	Hardhat, stay alert and clear of materials suspended overhead, steel-toed boots.

Activity	Potential Hazards	Recommended Controls
Loadout and disposal of soil	Scaffolding	IT Policy and Procedure HS308 "Scaffolding" will be adhered to at all times.
		Scaffolds and their components will be capable of supporting without failure at least 4 times the maximum anticipated load.
		Scaffolds will be plumb and level.
		Scaffolds will bear on base plates upon sills of other adequate foundation.
		Working levels of work platforms will be fully planked or decked.
		All planking of platforms will be either overlapped a minimum of 12 inches or secured from movement.
		Scaffold planks will extend over their end supports not less than 6 inches nor more than 18 inches.
		Planking on scaffolds will extend from the toeboard to not more than 14 inches from the face of the structure unless standard guardrails are installed or personal fall protection systems are used.
		Planking will be supported or braced to prevent excessive spring or deflection; secured and supported to prevent loosening, tipping, or displacement.
		Work platforms will be securely fastened to the scaffold.
		An access ladder or equivalent safe access will be provided.
		Climbing of braces is prohibited.

Activity	Potential Hazards	Recommended Controls
Loadout and disposal of soil	Scaffolding	When the scaffold height exceeds 4 times the minimum scaffold base dimension (including the width added by outriggers) the scaffold will be secured to the structure.
		Sections of metal scaffold will be securely connected and all braces will be securely fastened.
		Scaffolds will be properly braced by cross, horizontal, or diagonal braces or a combination of these braces, so that vertical members are securely together laterally and the cross braces will be of such a length so that they will automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid.
		Frames will be placed one on top of the other with coupling or stacking pins to provide vertical alignment of the legs.
		If uplift may occur, panels will be locked together vertically by pins or equivalent means.

**ACTIVITY HAZARD ANALYSIS
PLACEMENT OF EROSION AND SEDIMENT CONTROLS**

**ACTIVITY HAZARD ANALYSIS
PLACEMENT OF EROSION AND SEDIMENT CONTROLS**

Activity	Potential Hazard	Recommended Controls
Placement of erosion and sediment controls	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift. Recommend wearing a back support if possible.
	Slip, trip and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
	Lighting	Adequate lighting will be provided to ensure a safe working environment.
	Strain/sprains	When pulling or lifting, do not turn or twist your back.
		Use the proper tool for the task being performed.
	Contact with potentially contaminated material	Appropriate PPE protection will be required.
		Real-time air monitoring will take place during intrusive activities.
		Keep airborne particulates to a minimum.
		Practice good housekeeping, avoid spreading potentially contaminated materials.
	Knife cuts	Cutting strokes will always be away from the body.
		Leather gloves will be worn when cutting.
		Place knife in sheath on holder when not in use.
		Unused knives will never be left with cutting edges exposed.

Activity	Potential Hazard	Recommended Controls
Placement of erosion and sediment controls	Knife cuts	Never use a knife that is defective or has a broken blade or handle.
		Never use a knife as a prybar or screwdriver.
		Don't use a dull blade; replace or have sharpened prior to use.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Stay alert at all times!
	Flying debris	Wear safety glasses at all times.
	Fire	A dry chemical fire extinguisher with a minimum UL rating of 5 A:B:C will be readily available.
	Ropes, slings, chains, and hooks	Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to insure that it is safe. Defective rigging equipment shall be tagged and removed from service.
		Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored so as not to present a hazard.
		The use of topes, slings, chains, and hooks shall be in accordance with safe recommendations of their manufacturer.
		Taglines shall be used to control the loads being handled by hoisting equipment.
	Hoisting equipment	All hoisting equipment shall be capable of passing a performance (operating) test prior to being placed into service.
		At no time shall the hoisting equipment be loaded in excess of the manufacturers rating.

Activity	Potential Hazard	Recommended Controls
Placement of erosion and sediment controls	Hoisting equipment	While hoisting equipment is in operation, the operator shall not perform any other work and he/she shall not leave his/her position at the controls until the load has been safely landed or returned to the ground.
		A standardized hand/signal system shall be used on all hoisting equipment.
	Ropes, slings, chains, and hooks	The use of ropes, slings, and chains shall be in accordance with the safe recommendations of their manufacturer.
		Rigging equipment shall not be loaded in excess of its recommended safe working load.
		The use of open hooks is prohibited in rigging to lift any load.
		Hooks, shackles, rings, pad eyes, and other fittings that show excessive wear or that have been bent, twisted, or otherwise damaged shall be removed from service.

**ACTIVITY HAZARD ANALYSIS
DEWATERING OF EXCAVATION**

ACTIVITY HAZARD ANALYSIS DEWATERING OF EXCAVATION

Principal Steps	Potential Hazards	Recommend Controls
Dewatering of excavation	Contact with potentially contaminated materials	Real-time air monitoring will take place.
		Good housekeeping will be stressed to safeguard against cross contamination of near by areas and eliminate safety hazards.
		All site personnel will practice good personal hygiene by utilizing the decon facility on site.
		The work area will be demarcated. All unnecessary personnel will be kept out of the work area and in an upwind location.
	Noise	Noise levels above 85 dBA mandates hearing protection.
	Slip, trip and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Beware of contact points.
		Stay alert at all times!
	Strains and sprains/heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs requires assistance or mechanical equipment; size up the lift. Recommend wearing a back support if possible.
	Cut hazards	Wear adequate hand protection.
	Falling objects	Hardhats, remove unsecured tools and materials before operating equipment.
		Stay clear of materials suspended overhead.
	Biological hazards - bees, spiders, and snakes	Inspect the work area carefully and avoid placing hands and feet into concealed areas.
	Working at elevated heights/falls	Personnel working at heights of 6 feet or more must be secured with fall protection.

Principal Steps	Potential Hazards	Recommended Controls
Dewatering of Excavation	Fire	Real-time air monitoring will take place to determine oxygen content and lower explosive limit.
		No smoking or open flames within 50 ft. of the work area. (Work area will be posted.)
		Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
		All hoses, couplings, fixtures etc. shall be properly bonded and grounded.
		IT Corporation's HS314 "Hot Work in Hazardous Locations" Policy and Procedure shall be adhered to at all times.
	Electrical safety	Electrical equipment will be locked out and tagged.
	Staging equipment	Signal person will assist in positioning equipment.
	Uneven terrain and poor ground support	Inspections or determinations of road conditions and structures shall be made in advance to assure that clearances and load capacities are safe for the passage or placing of any machinery or equipment.
	Vacuum truck operation	No vehicle shall be placed into service until it has been inspected by a mechanic and found to be in safe operating condition.
		Vehicles not meeting safe operating conditions shall be removed from service, repaired or replaced, and reinspected before being placed in service again.
		No vehicle shall be left unattended until after the motor has been shut off, the key removed, parking brake set, and gear engaged in low, reverse, or park.

Principal Steps	Potential Hazards	Recommended Controls
Dewatering of Excavation	Vacuum truck operation	Machinery or equipment will not be operated in a manner that will endanger persons or property, nor will the safe operating speeds or loads be exceeded.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventive maintenance procedures recommended by the manufacturer shall be followed.
		A lockout - tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
		Machinery and mechanized equipment shall be operated only by designated personnel.
		All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
		All repairs on machinery or equipment will be made at a location which provides protection from traffic for repair persons.
		All self-propelled construction equipment shall be equipped with a back-up alarm.
		All on site personnel shall be briefed on the safe work practices associated with vacuum truck operations.
	Hazard communication	All containers shall be labeled as to contents and disposed of properly.
	Spills	Absorbent/neutralization material and 55 gallon drums will be kept available where leaks, spills, or ruptures may occur.
		Spilled materials shall be cleaned up immediately.
	Ladders	Ladder safety will be discussed at the Morning Tailgate Safety Meeting.

Principal Steps	Potential Hazards	Recommended Controls
Dewatering of Excavation	Ladders	Ladders will be inspected prior to each use.
		Faulty ladders will be tagged and taken out of service.
		Ladders will be secured by top, bottom, and intermediate fastenings as required.
		Personnel working at heights of 6 feet or more must be secured with fall protection (safety belt/lanyard).
	Unattended worker	"Buddy System" - visual contact will be maintained with personnel engaged in the transfer/removal of the UST.
	Structural collapse	Inspect the integrity of the UST before climbing or working on it.
	Lighting	Adequate lighting will be provided to ensure a safe working environment.
	Confined Spaces	IT Policy and Procedure HS300 - "Confined Spaces, Industrial" will be adhered to at all times.

**ACTIVITY HAZARD ANALYSIS
WATER/SOIL SAMPLING**

ACTIVITY HAZARD ANALYSIS WATER/SOIL SAMPLING

Activity	Potential Hazards	Recommended Controls
Staging equipment	Slip, trip and fall hazards	Determine best access route before transporting equipment.
		Good housekeeping, keep work area picked up and clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
		Look before you step, insure safe and secure footing.
	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift. Recommend wearing a back support if possible.
	Falling objects	Stay alert and clear of materials suspended overhead. Use steel-toed boots and hard hat.
	Flying debris, dirt, dust etc.	Use safety glasses/goggles. Ensure that eye wash is in good working order.
	Pinch points	Keep hands, fingers, and feet clear of moving/suspended materials and equipment.
		Beware of contact points.
		Stay alert at all times!
	Bees, spiders and snakes	Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Cut hazards	Wear adequate hand protection. Use care when handling glassware.
	Fire	Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Fire/chemical exposure	All solvents will be transported in UL/FM approved containers and sources of ignition will be prohibited.
		Initial real time air monitoring will take place.
	Contact with moving equipment/vehicles	Work area will be barricaded/demarcated.

Activity	Potential Hazards	Recommended Controls
Staging Equipment	Contact with moving equipment/vehicles	Equipment will be laid out in an area free of traffic flow.
	Hazard communication	Label all containers as to contents and dispose of properly.
		Obtain Material Safety Data Sheets for solvents, etc. that are being used.
	Noise	Sound levels above 85 dBA mandates hearing protection.
Sample Collection	Working at elevated heights/falls	Ladders will be secured by top, bottom, and intermediate fastenings as required.
		Personnel working at heights of 6 feet or more must be secured with fall protection (safety belt/lanyard).
	Electrical shock	All electrical circuits will be deenergized and locked out.
	Bees, spiders and snakes	Inspect work areas carefully and avoid placing hands and feet into concealed areas.
	Cross-contamination and contact with potentially contaminated materials	Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.
		Only essential personnel will be in the work area.
		Initial real-time air monitoring will take place before and during sampling activities.
		All personnel will follow good hygiene practices.
		Proper decontamination procedures will be followed.
		All liquids and materials used for decontamination will be contained and disposed of in accordance with Federal, State and Local regulations.
	Cut hazards	Use care when handling glassware.
		Wear adequate hand protection.
	Hazard communication	Label all containers as to contents.

Activity	Potential Hazards	Recommended Controls
Sample Collection	Strains/sprains	Use the proper tool for the job being performed.
		Get assistance if needed.
		Avoid twisting/turning while pulling on tools, grates, manway covers, etc.
	Spills/residual materials	Absorbent material and containers will be kept available where leaks or spills may occur.
	Lighting	Adequate lighting will be provided to insure a safe working environment.
	Unattended worker	"Buddy System" - visual contact will be maintained with the sampling technician during sampling activities.
	Confined space	IT Policy and Procedure HS300 - "Confined Spaces, Industrial" will be adhered to at all times.
	Contact with potentially contaminated materials	Real-time air monitoring will take place. Appropriate PPE will be utilized.
		Good housekeeping will be stressed to safeguard against cross contamination of nearby areas and eliminate safety hazards.
		All site personnel will practice good personal hygiene by utilizing the decon facility on site.
		The work area will be demarcated. All unnecessary personnel will be kept out of the work area and in an upwind location.
		IT Policy and Procedure HS601 - "Respiratory Protective Devices" will be adhered to at all times.
Moving and shipping collected samples	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift. Recommend wearing a back support if possible.
	Pinch points	Keep hands, fingers, and feet clear of moving/suspended materials and equipment.
		Beware of contact points.
		Stay alert at all times!

Activity	Potential Hazards	Recommended Controls
Moving and shipping collected samples	Cut hazards	Wear adequate hand protection. Use care when handling glassware.
	Hazard communication	Label all containers as to contents and associated hazards.

**ACTIVITY HAZARD ANALYSIS
WATER TREATMENT**

ACTIVITY HAZARD ANALYSIS WATER TREATMENT

Activity	Potential Hazards	Recommended Controls
Operation of water treatment plant	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift. Recommend wearing a back support if possible.
	Slip, trip and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
	Fueling	Only UL/FM approved safety cans shall be used to store fuel.
		Do not refuel equipment while it is operating.
		Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Faulty or damaged equipment	Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventive maintenance procedures recommended by the manufacturer shall be followed.
		A lockout-tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
	Unqualified operators	Machinery and mechanized equipment shall be operated only by designated personnel.

Activity	Potential Hazards	Recommended Controls
Operation of water treatment plant	Out of control equipment	Machinery or equipment requiring an operator shall not be permitted to run unattended.
		Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
	Noise	Sound levels above 85 dBA mandates hearing protection.
	Activation during repairs	All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Stay alert at all times!
	Falling objects	Hardhats, remove unsecured tools and materials before operating equipment.
		Stay alert and clear of materials suspended overhead.
	Flying debris	Safety goggles/splash shield will be used.
	Contact with potentially contaminated materials	The SSHP will determine the appropriate protective clothing and equipment.
	Confined space	IT Policy and Procedure HS300 "Confined Spaces, Industrial" will be adhered to at all times.
	Hot work	IT Policy and Procedure HS314 "Hot Work in Hazardous Locations" will be adhered to at all times during any operations involving hot work.
General maintenance and repair of water treatment plant	Equipment Operations	All lockout - tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.

Activity	Potential Hazards	Recommended Controls
General maintenance and repair of water treatment plant	Equipment Operations	Machinery and mechanized equipment shall be operated only by designated personnel.
		Machinery or equipment requiring an operator shall not be permitted to run unattended.
		Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
		All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
		All repairs on machinery or equipment will be made at a location which provides protection from traffic for repair persons.
	Confined space	Policy and procedures for confined spaces, will be adhered to at all times.
	Contact with process chemicals	Proper protective clothing and equipment will be used.
	Contact with potentially contaminated materials	Real time air monitoring will take place. If necessary proper personal protective clothing and equipment will be utilized.
		Good Housekeeping will be stressed to safe guard against cross contamination of surrounding areas and eliminate safety hazards.
		All site personnel will practice good personal hygiene.
		The work area will be demarcated. All unnecessary personnel will be kept out of the work area.

Activity	Potential Hazards	Recommended Controls
General maintenance and repair of water treatment plant	Slip, trip and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Beware of contact points.
		Stay alert at all times!
	Fire	Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Strains and sprains	Use proper lifting techniques, lifts greater than 60 lbs. requires assistance or mechanical equipment. Size up the lift. Recommend wearing a back support if possible
	Noise	Noise levels above 85 dBA mandates hearing protection.
	Equipment Operations	Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventative maintenance procedures recommended by the manufacturer shall be followed.
	Ropes, slings, chains and hooks	The use of ropes, slings and chains shall be in accordance with the safe recommendations of their manufacturer.

Activity	Potential Hazards	Recommended Controls
General maintenance and repair of water treatment plant	Ropes, slings, chains and hooks	Rigging equipment shall not be loaded in excess of its recommended safe working load.
		The use of open hooks is prohibited in rigging to lift any load where there is danger of relieving the tension on the hook due to the load or hook catching or fouling.
		Hooks, shackles, rings, pad eyes and other fittings that show excessive wear or that have been bent, twisted or otherwise damaged shall be removed from service.
		Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to insure that it is safe. Defective rigging equipment shall be removed from service.
		Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored so as not to present a hazard.
		Taglines shall be used to control the loads being handled by hoisting equipment.
	Hoisting equipment	All hoisting equipment shall be capable of passing a performance (operating) test prior to being placed into service.
		At no time shall the hoisting equipment be loaded in excess of the manufacturers rating except during performance tests.
		While hoisting equipment is in operation, the operator shall not perform any other work and he/she shall not leave his/her position at the controls until the load has been safely landed or returned to the ground.
		A standard signal system shall be used on all hoisting equipment.

Activity	Potential Hazards	Recommended Controls
General maintenance and repair of water treatment plant	Pinch points/cuts	Adequate hand protection and observe contact points.
	Electrical hand tools/electrocution	Ground fault circuit interrupters inspect extension cords, hand tool inspection, lockout-tagout procedure.
	Contact with glues, solvents, etc.	Be familiar with the materials you are working with. (MSDSs)
	Noise	If noise levels exceed 85 dBA wear hearing protection.
	Heavy lifting	Safe lifting procedures. Loads over 60 lbs require assistance or mechanical lifting device.
	Slip, trip, and fall hazards	Good housekeeping
	Confined spaces	Follow policy and procedures for confined spaces.
	Excavation and trenching	Follow policy and procedures for safe trench excavation.
	Hot work	Hot work permits.
Welding and Cutting	U.V. light and fire	Utilize appropriate eye protection. Provide fire watch. Obtain hot work permit. Torches must have anti-flashback device.
	Pressurized cylinders	Properly store and secure compressed gas cylinders.
Handling sharp objects	Cuts	Wear appropriate hand protection.
Grinding/sawing	Flying particles	Proper eye protection.
Working on elevated heights	Falls	Lanyards, lifelines, and ladder/scaffolding safety.
	Falling objects	Overhead protection hardhats
Material storage	Flammable and combustible liquids	Store in NO SMOKING AREA and 50 ft from combustible construction materials.
		Fire extinguisher readily available.

Activity	Potential Hazards	Recommended Controls
Material storage	Flammable and combustible liquids	Properly grounded and bonded.
	Round stock	Secure from rolling, work from the top of the stack.
	Slip, trip, and fall hazards	Good housekeeping
	Sprains and strains	Safe lifting procedures
	Pinch points/cuts	Adequate hand protection and observation of contact points.
	Hazard communication	Proper labeling/MSDSs

**ACTIVITY HAZARD ANALYSIS
TRANSPORTATION AND DISPOSAL
OF CONTAMINATED SOIL**

ACTIVITY HAZARD ANALYSIS TRANSPORTATION AND DISPOSAL OF CONTAMINATED SOIL

Activity	Potential Hazards	Recommend Controls
Staging equipment	Slip, trip and fall hazards	Determine best access route before transporting equipment.
		Good housekeeping, keep work area picked up and clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
		Look before you step, insure safe and secure footing.
	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift. Recommend wearing a back support if possible.
	Falling objects	Hardhat, stay alert and clear of materials suspended overhead, steel-toed boots.
	Flying debris, dirt, dust etc.	Safety glasses/goggles, eye wash
	Pinch points	Keep hands, fingers, and feet clear of moving/suspended materials and equipment.
		Beware of contact points.
		Stay alert at all times!
	Bees, spiders and snakes	Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Cut hazards	Wear adequate hand protection.
	Fire	Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Contact with potentially contaminated materials	Real time air monitoring will take place.
	Contact with moving equipment/vehicles	Work area will be barricaded/demarcated.

Activity	Potential Hazards	Recommended Controls
Staging equipment	Contact with moving equipment/vehicles	Equipment will be laid out in an area free of traffic flow.
	Noise	Noise levels above 85 dBA mandates hearing protection.
Loadout and disposal of contaminated soil	Noise	Noise levels above 85 dBA mandates hearing protection.
	Heavy equipment operations	Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventive maintenance procedures recommended by the manufacturer shall be followed.
		A lockout - tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
		Machinery and mechanized equipment shall be operated only by designated personnel.
		Getting on or off any equipment while it is in motion is prohibited.
		Machinery or equipment requiring an operator shall not be permitted to run unattended.
		Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
		All machinery or equipment will be shutdown and positive means taken to prevent its operation while repairs or manual lubrications are being done.

Activity	Potential Hazards	Recommended Controls
Loadout and disposal of contaminated soil	Heavy equipment operations	All repairs on machinery or equipment will be made at a location which provides protection from traffic for repair persons.
		All self-propelled construction equipment shall be equipped with a back-up alarm.
	Fire	Each bulldozer, backhoe, or other similar equipment will be equipped with at least one dry chemical fire extinguisher having a minimum UL rating of 5 A:B:C.
	Truck and Equipment Traffic	Site personnel will wear orange safety vests to identify themselves to traffic.
		Load out area will be properly demarcated.
	Slip, trip and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip, and fall hazards. Look where you step, ensure safe footing when climbing on/off equipment etc.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Beware of contact points. Stay alert at all times!
	Strains/sprains	Use proper lifting techniques. Lifts greater than 60 lbs require assistance or mechanical equipment. Size-up the lift. Recommend wearing a back support if possible. When pulling on materials, pull in a straight line. Do not twist and pull simultaneously.
	Ropes, slings, chains, and hooks	The use of ropes, slings, and chains shall be in accordance with the safe recommendations of their manufacturer.
		Rigging equipment shall not be loaded in excess of its recommended safe working load.

Activity	Potential Hazards	Recommended Controls
Loadout and disposal of contaminated soil	Ropes, slings, chains, and hooks	The use of open hooks is prohibited in rigging to lift any load where there is danger of relieving the tension on the hook due to the load or hook catching or fouling.
		Hooks, shackles, rings, pad eyes, and other fittings that show excessive wear or that have been bent, twisted, or otherwise damaged shall be removed from service.
		Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to insure that it is safe. Defective rigging equipment shall be removed from service.
		Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored so as not to present a hazard.
		Taglines shall be used to control the loads being handled by hoisting equipment.
	Hoisting Equipment	All hoisting equipment shall be capable of passing a performance (operating) test prior to being placed into service.
		At no time shall the hoisting equipment be loaded in excess of the manufacturer's rating except during performance tests.
		While hoisting equipment is in operation, the operator shall not perform any other work and he/she shall not leave his/her position at the controls until the load has been safely landed or returned to the ground.
		A standard signal system shall be used on all hoisting equipment.
	Heat/cold stress	Be aware of possible signs and symptoms of these conditions.
	Bees, spiders, and snakes	Inspect work area carefully and avoid placing hands and feet into concealed areas.

Activity	Potential Hazards	Recommended Controls
Loadout and disposal of contaminated soil	Cut hazards	Wear adequate hand protection.
	Falling objects	Hardhat, stay alert and clear of materials suspended overhead, steel-toed boots.
	Dump truck operations	Dump truck bodies shall be fully lowered or blocked when maintenance is being performed or when not in use.
		Dump trucks will have back-up alarms.
		A signal person will be used when the point of operation is not in full view of the vehicle, machine or equipment operator; vehicles are backed more than 100 ft; terrain is hazardous; or 2 or more vehicles are backing in the same area.
		Operators of dump trucks will leave the cab while being loaded.
		Dump trucks will not be loaded in a manner that obscures the operator's view ahead or to either side or that interferes with the safe operation of the vehicle.
		The load on every truck will be distributed, checked, tied down, or secured.
		Loads will be covered when there is a hazard of flying/falling dirt, rock, debris, or material.
		All dump trucks will be equipped with a holding device to prevent accidental lowering of the body.
		All hoist levers will be secured to prevent accidental starting or tripping of the mechanism.
		Trip handles for tailgates will be arranged to keep the operator in the clear.

**ACTIVITY HAZARD ANALYSIS
EQUIPMENT DECONTAMINATION**

**ACTIVITY HAZARD ANALYSIS
EQUIPMENT DECONTAMINATION**

Activity	Potential Hazards	Recommended Controls
Job setup for decontamination of equipment	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift. Recommend wearing a back support if possible.
	Slip, trip and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
	Cut hazards	Wear adequate hand protection.
	Lighting	Adequate lighting will be provided to ensure a safe working environment.
	Strains/sprains	When pulling or lifting, do not turn or twist your back.
		Use the proper tool for the task being performed.
	Contact with potentially contaminated materials	Appropriate PPE protection will be required.
		Real time air monitoring will take place during decontamination activities.
		Keep airborne particulates to a minimum.
		Practice good housekeeping, avoid spreading potentially contaminated materials.
	Fueling	Only UL/FM approved safety cans shall be used to store fuel.
		Do not refuel equipment while it is operating.
		Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.

Activity	Potential Hazards	Recommended Controls
Job setup for decontamination of equipment	Faulty or damaged equipment	Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventive maintenance procedures recommended by the manufacturer shall be followed.
		A lockout - tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
Pressure washing equipment	High pressures	IT Policy and Procedure HS303 "Hydroblasting" shall be adhered to at all times.
	Unqualified operators	Machinery and mechanized equipment shall be operated only by designated personnel.
	Out of control equipment	Machinery or equipment requiring an operator shall not be permitted to run unattended.
		Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
	Noise	Sound levels above 85 dBA mandates hearing protection.
	Activation during repairs	All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Stay alert at all times!

Activity	Potential Hazards	Recommended Controls
Pressure washing equipment	Falling objects	Hardhats, remove unsecured tools and materials before operating equipment.
		Stay alert and clear of materials suspended overhead.
	Flying debris	Splash shield will be used.
	Contact with potentially contaminated materials	Appropriate PPE will be required.
	Hot work (hot water/steam cleaning)	IT Policy and Procedure HS314 "Hot Work in Hazardous Locations" will be adhered to at all times during any operations involving hot work.
Stage-setup equipment for pumping liquids	Pinch points	Keep hands, fingers, and feet clear of moving parts.
	Heavy lifting	Any lifting over 60 lbs requires assistance or the use of a mechanical lifting device.
	Moving equipment	Signal person will assist in positioning equipment.
	Contact with potentially contaminated materials	Real time air monitoring will take place. Appropriate PPE protection will be required.
Pumping liquids	Faulty equipment	Equipment will be inspected prior to being placed into service and at the beginning of each shift.
	Pressurized systems	All discharge hoses and connections shall be routinely inspected.
	Noise	Sound levels above 85 dBA mandates hearing protection.
	Fire	A dry chemical fire extinguisher with a minimum UL rating of 5 A:B:C will be readily available.

Activity	Potential Hazards	Recommended Controls
Pumping liquids	Refueling	Proper bonding and grounding. Only UL/FM approved safety cans will be used.
Loadout of equipment	Noise	Noise levels above 85 dBA mandates hearing protection.
	Heavy equipment operations	Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventive maintenance procedures recommended by the manufacturer shall be followed.
		A lockout - tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
		Machinery and mechanized equipment shall be operated only by designated personnel.
		Getting on or off any equipment while it is in motion is prohibited.
		Machinery or equipment requiring an operator shall not be permitted to run unattended.
		Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
		All machinery or equipment will be shutdown and positive means taken to prevent its operation while repairs or manual lubrications are being done.
		All repairs on machinery or equipment will be made at a location which provides protection from traffic for repair persons.

Activity	Potential Hazards	Recommended Controls
Loadout of equipment	Heavy equipment operations	All self-propelled construction equipment shall be equipped with a back-up alarm.
	Fire	Each bulldozer, backhoe, or other similar equipment will be equipped with at least one dry chemical fire extinguisher having a minimum UL rating of 5 A:B:C.
	Truck and Equipment Traffic	Site personnel will wear orange safety vests to identify themselves to traffic.
		Load out area will be properly demarcated.
	Slip, trip and fall hazards	Good housekeeping, keep work area picked up and as clean as feasible. Continually inspect the work area for slip, trip, and fall hazards. Look where you step, ensure safe footing when climbing on/off equipment etc.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment.
		Beware of contact points. Stay alert at all times!
	Strains/sprains	Use proper lifting techniques. Lifts greater than 60 lbs require assistance or mechanical equipment. Size-up the lift. Recommend wearing a back support if possible. When pulling on materials, pull in a straight line. Do not twist and pull simultaneously.
	Ropes, slings, chains, and hooks	The use of ropes, slings, and chains shall be in accordance with the safe recommendations of their manufacturer.
		Rigging equipment shall not be loaded in excess of its recommended safe working load.
		The use of open hooks is prohibited in rigging to lift any load where there is danger of relieving the tension on the hook due to the load or hook catching or fouling.

Activity	Potential Hazards	Recommended Controls
Loadout of equipment	Ropes, slings, chains and hooks	Hooks, shackles, rings, pad eyes, and other fittings that show excessive wear or that have been bent, twisted, or otherwise damaged shall be removed from service.
		Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to insure that it is safe. Defective rigging equipment shall be removed from service.
		Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored so as not to present a hazard.
		Taglines shall be used to control the loads being handled by hoisting equipment.
	Hoisting Equipment	All hoisting equipment shall be capable of passing a performance (operating) test prior to being placed into service.
		At no time shall the hoisting equipment be loaded in excess of the manufacturers rating except during performance tests.
		While hoisting equipment is in operation, the operator shall not perform any other work and he/she shall not leave his/her position at the controls until the load has been safely landed or returned to the ground.
		A standard signal system shall be used on all hoisting equipment.
	Heat/cold stress	Be aware of warning signs of these conditions
	Bees, spiders, and snakes	Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Cut hazards	Wear adequate hand protection.
	Falling objects	Hardhat, stay alert and clear of materials suspended overhead, steel-toed boots.

**ACTIVITY HAZARD ANALYSIS
BACKFILLING AND SITE RESTORATION**

ACTIVITY HAZARD ANALYSIS BACKFILLING AND SITE RESTORATION

Activity	Potential Hazards	Recommended Controls
Backfilling and site restoration	Heavy equipment operations	Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition.
		Equipment shall be inspected before being placed into service and at the beginning of each shift.
		Preventive maintenance procedures recommended by the manufacturer shall be followed.
		A lockout - tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
		Machinery and mechanized equipment shall be operated only by designated personnel.
		Getting off or on any equipment while it is in motion is prohibited.
		Machinery or equipment requiring an operator shall not be permitted to run unattended.
		Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
		All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
		All repairs on machinery or equipment will be made at a location which provides protection from traffic for repair persons.
		Bulldozer and scraper blades, end-loader buckets, and similar equipment will be either fully lowered or blocked when being repaired or when not in use.

Activity	Potential Hazards	Recommended Controls
Backfilling and site restoration	Heavy equipment operation	All self-propelled construction equipment shall be equipped with a back-up alarm.
	Fire	Each bulldozer, backhoe, or other similar equipment will be equipped with at least one dry chemical fire extinguisher having a minimum UL rating of 5 A:B:C.
	Open excavations	IT Policy and Procedure HS307 "Excavation and Trenching" will be adhered to at all times.
		Excavations will be backfilled as soon as possible.
	Dump truck operations	Dump truck bodies shall be fully lowered or blocked when maintenance is being performed or when not in use.
		Dump trucks will have back-up alarms.
		A signal person will be used when the point of operation is not in full view of the vehicle, machine or equipment operator; vehicles are backed more than 100 ft; terrain is hazardous; or 2 or more vehicles are backing in the same area.
		Operators of dump trucks will leave the cab while being loaded
		Dump trucks will not be loaded in a manner that obscures the operator's view ahead or to either side or that interferes with the safe operation of the vehicle.
		The load on every truck will be distributed, checked, tied down, or secured.
		Loads will be covered when there is a hazard of flying/falling dirt, rock, debris, or material.
		All dump trucks will be equipped with a holding device to prevent accidental lowering of the body.
		All hoist levers will be secured to prevent accidental starting or tripping of the mechanism.

Activity	Potential Hazards	Recommended Controls
Backfilling and site restoration	Dump truck operations	Trip handles for tailgates will be arranged to keep the operator in the clear.
	Contact with moving equipment	Ground personnel shall wear reflective vests.
	Noise	Noise levels above 85 dBA mandates the use of hearing protection.

**ACTIVITY HAZARD ANALYSIS
MOBILIZATION/DEMobilIZATION**

ACTIVITY HAZARD ANALYSIS MOBILIZATION/DEMobilIZATION

Principal Steps	Potential Hazards	Recommended Controls
Installation of office and support structures	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift. Recommend wearing a back support if possible.
	Slip, trip, and fall hazards	Good housekeeping, keep work area picked up and clean as feasible. Continually inspect the work area for slip, trip and fall hazards.
	Noise	Hearing protection is mandatory above 85 dBA.
	Falling objects	Hardhat, stay alert and clear of materials suspended overhead, steel-toed boots.
	Flying debris, dirt, dust etc.	Safety glasses/eye wash.
	Pinch points	Keep hands and feet clear of moving/suspended materials and equipment.
		Stay alert at all times!
		Beware of contact points.
	Fire	Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	High winds	Mobile/portable facilities shall be anchored to withstand high winds.
Utilities	Proper installation	Above and underground utilities shall be located. A qualified person shall install required utilities in compliance with national, state, and local codes.

APPENDIX D
CONFINED SPACE ENTRY PROCEDURE

Approved by *[Signature]***PROCEDURE**(subject) **CONFINED SPACES****1.0 PURPOSE AND SUMMARY**

This procedure describes the procedures for identifying and working within confined spaces throughout IT and for complying with OSHA regulations 29 CFR 1910.146. Additional requirements for special confined space applications can be found in the following procedures:

- HS301 Confined Spaces, Marine
- HS302 Confined Spaces, Leaded Product

Key provisions of this procedure include the following:

- Identification and posting of confined spaces at IT facilities.
- HASP requirements.
- Entry permit requirements for confined space entries.
- Testing and monitoring.
- Personal protective equipment, including lifelines and harnesses.
- Lighting.
- MSDS requirements.
- Rescue and emergency services and procedures.
- Communication between entrants and attendants.
- Duties of personnel.
- Training requirements.
- Entrant location tracking systems.
- Recordkeeping and retention.
- Annual program review.

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3.0 RESPONSIBILITY MATRIX

- 3.1 **Procedure Responsibility.** The Corporate Director, Health and Safety is responsible for the issuance, revision and maintenance of this procedure.
- 3.2 **Action/Approval Responsibilities.** The Responsibility Matrix is Attachment 1.

4.0 DEFINITIONS

- 4.1 **Acceptable entry conditions** means the conditions that must exist in a permit space to allow entry so that employees involved with a permit-required confined space entry can safely enter into and work within the space.
- 4.2 **Attendant** means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the IT permit space program.
- 4.3 **Authorized entrant** means an employee who is authorized by IT to enter a permit space.
- 4.4 **Blanking or blinding** means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
- 4.5 **Confined space** means a space that:
- 4.5.1 Is large enough and so configured that an employee can bodily enter and perform assigned work;
 - 4.5.2 Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, pits, and excavations are spaces that may have limited means of entry); and
 - 4.5.3 Is not designed for continuous employee occupancy.
- See also definition 4.21.
- 4.6 **Double block and bleed** means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.
- 4.7 **Emergency** means any occurrence (including any failure of hazard control or monitoring equipment) or event, internal or external, to the permit space that could endanger entrants.
- 4.8 **Engulfment** means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

- 4.9 **Entry** means 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.
- 4.10 **Entry Permit (Attachment 3)** means the written or printed document that is provided by IT to allow and control entry into a permit space and that contains the information specified in Paragraph 4.1 of this section.
- 4.11 **Entry Supervisor** means the person (such as the supervisor, foreman, or crew chief) 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.
- 4.12 **Hazardous atmosphere** means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:
- 4.12.1 **Flammable gas, vapor, or mist in excess of 10 percent of its lower explosive limit (LEL);**
- 4.12.2 **Airborne combustible dust at a concentration that meets or exceeds its LEL;**
- NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.**
- 4.12.3 **Atmospheric oxygen concentration below 20.0 percent or above 23.5 percent.**
- 4.12.4 **Atmospheric concentration of any substance for which a dose or a published exposure guideline is available (Permissible Exposure Limit, PEL, from OSHA, Threshold Limit Value, TLV, from ACGIH, and Recommended Exposure Limits, REL, from NIOSH), and which could result in employee exposure in excess of its dose or permissible exposure limit.**
- 4.12.5 **Any other atmospheric condition that is immediately dangerous to life or health.**
- 4.13 **Hot work permit** means IT written authorization to perform hot operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition. This is a separate document from the entry permit.
- 4.14 **Immediately Dangerous to Life or Health (IDLH)** means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.
- 4.15 **Inerting** means the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.



- 4.16 **Isolation** means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy, including hydraulic or electric; blocking or disconnecting all mechanical linkages; or physically restraining moving parts.
- 4.17 **Line breaking** means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.
- 4.18 **Non-permit confined space** means 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.
- 4.19 **Oxygen deficient atmosphere** means an atmosphere containing less than 20.0 percent oxygen by volume.
- 4.20 **Oxygen-enriched atmosphere** means an atmosphere containing more than 23.5 percent oxygen by volume.
- 4.21 **Permit-Required Confined Space (PRCS)** means a confined space that has one or more of the following characteristics:
- 4.21.1 Contains or has a potential to contain a hazardous atmosphere;
 - 4.21.2 Contains a material that has the potential for engulfing an entrant;
 - 4.21.3 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; or
 - 4.21.4 Contains any other recognized serious safety or health hazard.
- 4.22 **Prohibited condition** means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
- 4.23 **Rescue service** means the personnel designated to rescue employees from permit spaces.
- 4.24 **Retrieval system** means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.
- 4.25 **Testing** means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.



5.0 TEXT

5.1 Scope and Applicability

This procedure contains the requirements for performing work in confined spaces throughout IT Corporation, specifically including construction.

5.2 Evaluate the Workplace

All facilities or project locations owned or operated by IT Corporation (including joint ventures) shall be evaluated to identify the presence of permit-required confined spaces. All such spaces shall be posted with a sign bearing the following or similar warning: "DANGER-
-PERMIT-REQUIRED CONFINED SPACE. DO NOT ENTER".

5.3 Non-Permit Confined Spaces

All confined spaces shall be initially considered permit-required confined spaces. Such spaces can be reclassified as non-permit confined spaces only under the following conditions:

- 5.3.1 Site-specific approval of an IT HS professional;
- 5.3.2 All contaminants, contaminated soils, and vessels containing contaminants have been removed;
- 5.3.3 All actual or potential atmospheric hazards have been eliminated, with testing verification;
- 5.3.4 Ventilation is not required to maintain control of atmospheric hazards;
- 5.3.5 All recognized hazards, including engulfment, within the confined space have been eliminated;
- 5.3.6 The confined space shall be re-evaluated (and reclassified to permit-required, if needed) whenever the use or configuration of the space changes in any way that might increase the hazards to the entrants. All entrants shall exit the space immediately when hazards are noted;
- 5.3.7 The entry supervisor shall make the certification that all hazards have been removed on the Entry Permit (Attachment 3); and
- 5.3.8 The Entry Permit (Attachment 3) shall be posted at the entrance to the confined space.

5.4 Permit-Required Confined Spaces

All confined space entries shall be considered permit-required until/unless the space meets the requirements in section 5.3.



5.4.1 Procedures and Practices for Permit Space Entry

Prior to beginning any confined space entry operation, a Health and Safety Plan (HASP) shall be developed and approved per IT Procedure HS052 requirements. The HASP must specifically address the following areas:

- Specify acceptable entry conditions. IT requires that combustible vapors shall not exceed 10.0 percent of the LEL and oxygen levels be between 20-23.5 percent by volume. Appropriate toxic gas/vapor action levels shall also be established (Level A or IDLH conditions require Corporate HS approval).
- Confined space isolation procedures.
- Lockout, tagout, tryout and return to service procedures for potential sources of hazardous energy at the specific project location (see also IT procedure HS315 Control of Hazardous Energy Sources).
- Procedures and equipment for purging, inerting, flushing or ventilating the space for the control of atmospheric hazards. Continuous mechanical ventilation shall be used whenever entrants are in the PRCS.
- Procedures for inspecting, monitoring and testing the confined space to verify that acceptable conditions exist prior to and throughout the entry operation. This includes:
 - Specific atmospheric tests to be performed and frequency of tests (NOTE: Confined spaces shall be tested as often as necessary to verify entrant safety, whenever operations or conditions change [e.g., temperature change or product agitation, etc.], and no less often than hourly.);
 - Specific testing equipment required;
 - For confined spaces that cannot be completely isolated (e.g., sewers, etc.), continuous testing with real-time direct reading instruments shall be required; and
 - Priority for atmospheric hazard testing shall be oxygen, combustible gases, then toxic gases/vapors.
- Personal Protective Equipment:
 - Protective suits, boots, and gloves - including specification of the material of construction.
 - Face, head, and foot protection.

- Specify chest or parachute harness with approved lifelines at least one-half inch in diameter and 2,000 pounds test and meeting ANSI A10.14 requirements. (NOTE: Wristlets may be used only when an IT HS professional finds that a harness presents a greater hazard to the employee and wristlets are the safest, most effective alternative.) All lifelines shall be secured to a mechanical device or fixed point outside the confined space. Mechanical extraction devices shall be used for all vertical entry permit spaces greater than five (5) feet deep.
- Respiratory protection, per IT procedure HS601.
- Material Safety Datasheets (MSDS) to be provided to the medical facility when treating injured/exposed entrants.
- Lighting equipment required to safely illuminate the work and provide emergency egress.

NOTE: Lighting and electrical equipment shall be of the appropriate National Electrical Code (NEC) rating. Rating should be Class I, Division I unless the space specifically meets other rating class requirements.

- Protective barriers to be used to protect entrants from external pedestrian, vehicle or equipment hazards.
- Ingress and egress equipment such as ladders.
- Rescue and emergency services, procedures, equipment, and Exposure Control Plan (see IT Procedure HS512). The HASP must specify whether IT or another source will provide these services and equipment, and how to summon them. IT shall provide rescue services unless the client has a qualified rescue team in-plant which is available to IT and has been informed of the hazards of the confined space to be entered.
- Communications equipment to provide continuous communication between entrants and attendants. This can be done using the standard system of lifeline "tugs" below, so long as the attendants continuously hold the lifelines in their hands.

Lifeline "Tug" Signals

- 1 Tug = Are you OK?
- 2 Tugs = Yes, I am OK.
- 3 Tugs = Exit the confined space immediately.



Any other signal, or an unclear signal, shall require immediate exit of the PRCS.

Other standard hand signals are provided in Attachment 2.

An alternative system would be to provide all entrants and attendants with an air powered horn. Substituting horn blasts for tugs, equivalent signals to the lifeline "tug" signals, would be standard. Any other or uncertain signals require immediate exit.

If this is not practical or possible, powered communication equipment with the appropriate NEC rating shall be provided.

- Prescribe the number of attendants and other outside support personnel. Each confined space being entered shall have a minimum of one (1) dedicated attendant and one other support person (who may have other duties) within sight or call.
- Designate the duties of entrants, attendants, and entry supervisors as described below.

Duties of authorized entrants

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space.
- Alert the attendant whenever:
 - (1) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
 - (2) The entrant detects a prohibited condition; and
- Exit from the permit space as quickly as possible whenever:
 - (1) An order to evacuate is given by the attendant or the entry supervisor,
 - (2) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation,
 - (3) The entrant detects a prohibited condition, or
 - (4) An evacuation alarm is activated.

Duties of attendants

- Know the hazards that may be faced during entry, including



- information on the mode, signs or symptoms, and consequences of the exposure.
- Is aware of possible behavioral effects of hazard exposure in authorized entrants.
 - Continuously maintains an accurate count of authorized entrants in the permit space so that the means used to identify authorized entrants accurately identifies who is in the permit space.
 - Remains outside the permit space during entry operations until relieved by another attendant.
 - Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
 - 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:
 - (1) If the attendant detects a prohibited condition;
 - (2) If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;
 - (3) If the attendant detects a situation outside the space that could endanger the authorized entrants; or
 - (4) If the attendant cannot effectively and safely perform all prescribed duties.
 - Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
 - Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:
 - (1) Warn the unauthorized persons that they must stay away from the permit space;
 - (2) Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and
 - (3) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
 - Performs non-entry rescues.

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

Duties of Entry Supervisors

- Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- 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.
- Terminates the entry and cancels the permit as required.
- Verifies that rescue services are available and that the means for summoning them are operable.
- Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- 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.
- Documents on the entry permit any incidents or circumstances requiring review of the confined space entry program. Such incidents include:
 - (1) Unauthorized entry;
 - (2) The detection of a condition/hazard not authorized by the permit;
 - (3) The occurrence of an injury or near-miss during entry;
 - (4) A change in use or configuration of the space; or
 - (5) Employee complaints about the program.
- Prescribes procedures for coordination of entry when personnel from multiple employers will work simultaneously. IT subcontractors shall follow IT procedures.

5.4.2

Permit System

Before entry is authorized, the Entry Supervisor shall complete and sign an Entry Permit (Attachment 3) to document that all pre-entry requirements in



the approved HASP have been met and that acceptable entry conditions exist. The completed permit shall be posted at the primary entrance to the confined space.

All Entry Permits are valid for a maximum of one (1) work shift, and shall be cancelled by the Entry Supervisor when the shift ends, confined space operations are complete, or whenever a prohibited condition arises in or near the space. All confined spaces shall be securely closed or barricaded whenever the entry permit is cancelled.

Entry Permits must be completely executed and include the following information:

- Identify the permit space to be entered;
- Purpose of the entry;
- Date and duration of the permit;
- Authorized entrants by name;
- Authorized attendants by name;
- The name and signature of the Entry Supervisor originally authorizing entry;
- The name and signature of the current Entry Supervisor;
- The hazards of the permit space to be entered;
- Measures used to isolate the permit space and control hazards;
- Acceptable entry conditions;
- Time and results of periodic atmospheric tests with the initials of the tester;
- Available rescue services and equipment, and how to summon;
- Communication procedures;
- Personal protective equipment, testing equipment and communications equipment; and
- Any additional permits issued to authorize work in the permit space.

Supplemental information regarding the location of each entrant shall be provided as described below:



- The current entry status of all entrants shall be logged on the Field Activity Daily Log (FADL), with a new entry made whenever the entry status of an entrant changes.
- Each entrant shall securely affix a tag bearing their name to the outside lifeline fitting which is attached to a secure point.

5.4.3

Training

- General

Prior to assignment to confined space entry work, all employees shall receive training in the hazards of confined spaces, work practices to control these hazards, and duties to be performed. Employee proficiency shall be established by testing and/or practical demonstration.

The IT Training Department shall maintain training records to include employee name and signature, date of training, and signature of the trainer.

Basic training requirements shall include:

- Entrants/Attendants: Hazards & Protection or Hazards Protection Limited & Site Remediation & Confined Space Update (or equivalent). Note that H&P done prior to April 1993 requires Confined Space Update.
- Entry Supervisors and/or Personnel Conducting Atmospheric Testing: Qualified Person (or equivalent).
- Rescue Service Personnel: Personnel assigned to provide emergency entry and rescue services shall be trained annually in the proper use of personal protective and rescue equipment. Such training shall include a simulated rescue exercise. In addition, rescue personnel shall be trained in the hazards and proper work practices for handling blood or other potentially infectious materials while providing first aid or CPR, and comply with the other requirements of IT Procedure HS512. All rescue personnel shall have current training and certification for first-aid and CPR.

Equivalent training must be approved by the IT Training Department prior to assignment to entry duties.

Personnel assigned to attendant duties shall be trained in non-entry rescue procedures.

- **Site-Specific**

Health and Safety Plan orientation and Tailgate Safety meetings will be used to provide site-specific training.

5.5 Retention of Inspection and Test Logs

A copy of all Entry Permits and other documents related directly to the PRCS entry (e.g., hot work permits, FADLs, etc.) shall be forwarded to the local or project HS Department.

5.6 Confined Space Entry Program Review

Annually in January, the HS professional responsible for each location performing confined space entry operations shall review all entry permits for incidents or problems occurring during entry. Incidents or problems include injuries, accidents, unauthorized entries, or any other event potentially indicating that improvements can be made in the confined space entry program. After review with appropriate operations personnel, recommendations for program

revision shall be forwarded to the Corporate HS office for review by the Corporate Safety Council.

6.0 EXCEPTION PROVISIONS

Variances to this procedure (HS300) may be requested in accordance with the requirements of IT Procedure HS013 Health and Safety Procedure Variance.

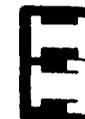
7.0 CROSS REFERENCES

HS013 Health and Safety Procedure Variance
HS052 Health and Safety Plans
HS301 Confined Spaces, Marine
HS302 Confined Spaces, Leaded Product
HS315 Control of Hazardous Energy Sources
HS512 Bloodborne Pathogens
HS601 Respiratory Protective Program

8.0 ATTACHMENTS

1. **Responsibility Matrix**
2. **Hand Signals**
3. **Entry Permit**

INTERNATIONAL TECHNOLOGY CORPORATION



INTERNATIONAL
TECHNOLOGY
CORPORATION

CONFINED SPACES Responsibility Matrix

ATTACHMENT 1

Action	Procedure Section	Local HS	Corp HS	Training Dept.	Location Manager	Entry Supy	Manager
Identify and post all PRCs at IT facilities	5.2	X			X		
Develop HASP, including establishing acceptable entry conditions	5.4.1	X					X
Approve HASP prior to work:	5.4.1	X					X
If IDLH or Level A:	5.4.1	X	X				X
Provide adequate supplies of required equipment (e.g., rescue, air testing) at location	5.4.1				X		
Train adequate personnel in each category	5.4.3				X		
Retain training records	5.4.3			X	X		
Complete HASP requirements for entry, executive entry permit, and test/monitor	5.4.1					X	
Cancel entry permits	5.4.2					X	
Reclassify PRCs as non-permit-required	5.3					X	
Retain documents	5.5	X					
Program review	5.6	X	X		X		

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 Revision No. 1
 Date 04/29/93
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HAND SIGNALS

ATTACHMENT 2

- THE VERY NATURE OF OUR WORK REQUIRES THE USE OF PROTECTIVE CLOTHING THAT IN ITSELF MAY RESTRICT OUR ABILITY TO COMMUNICATE ORALLY.
- IN AS MUCH AS CERTAIN VITAL COMMUNICATIONS ARE NECESSARY FOR A SAFE EFFICIENT OPERATION, A LIMITED NUMBER OF HAND SIGNALS HAVE BEEN DEVISED TO HELP RESOLVE THIS PROBLEM.
- SIGNALS COVERING TWO CATEGORIES, THOSE FOR PERSONAL SAFETY AND FOR OPERATIONAL USE WILL BE DISCUSSED.

Personal Safety

- IMMEDIATE PERSONAL SAFETY PROBLEMS COULD INCLUDE BREATHING AIR SYSTEM MALFUNCTION, LIFELINES PROBLEMS AND GENERAL DISTRESS.
THE FOLLOWING SIGNALS WILL BE USED FOR ALL IT EMPLOYEES
 - BREATHING AIR PROBLEMS



**ONE HAND HOLDING THROAT
INDICATES A BREATHING
AIR PROBLEM**



**BOTH HANDS HOLDING THROAT
INDICATES A SERIOUS
BREATHING AIR PROBLEM,
SUCH AS NO AIR ,
VAPORS GETTING THROUGH, ETC.**



HAND SIGNALS (con't)

- **LIFE LINE TEST**

ONE TUG ON EITHER END OF A LIFE LINE MUST BE ANSWERED BY TWO TUGS. IF A TUG IS NOT ANSWERED IT INDICATES A FOULED LINE MAN MUST BE REMOVED AND LINE CLEARED.

THREE TUGS , OR A STEADY PULL ON THE LINE INDICATES THAT THE MAN SHOULD LEAVE THE CONTAMINATED AREA.

- **GENERAL PROBLEM**



BOTH HANDS RAISED ABOVE THE HEAD ARE INDICATIVE OF SOME TYPE OF PROBLEM WHICH MAY REQUIRES EXIT FROM THE AREA AND REMOVAL OF PROTECTIVE CLOTHING.

ONCE THE SIGNAL IS RECEIVED AND UNDERSTOOD, THE PROBLEM CAN POSSIBLY BE FURTHER CLARIFIED BY POINTING TO AFFECTED AREA.



HAND SIGNALS (con't)



INDEX FINDER TWIRLING IN AN UPWARD MOTION WHILE OPEN PALM COVERS THE FINGER: OPEN SLOWLY

INDEX FINDER TWIRLING IN A DOWNWARD MOTION WHILE OPEN PALM COVERS THE FINGER: CLOSE SLOWLY



WHILE OPENING OR CLOSING VALVES, VENTS, ETC., THE FOLLOWING CAN BE USED:



INDEX FINGER TWIRLING IN AN UPWARD MOTION: OPEN NORMALLY



INDEX FINGER TWIRLING IN A DOWNWARD MOTION: CLOSE NORMALLY



Operational Safety HAND SIGNALS (con't)



**1 HAND MADE INTO FIST
WITH THUMB DOWN :
CLOSE EMERGENCY**



**1 HAND MADE INTO FIST WITH
THUMB UP: OPEN EMERGENCY**

**CHECKING FOR MATERIAL IN A VESSEL WHILE IN PROTECTIVE
CLOTHING CAN BE ANSWERED AS FOLLOWS:**



**TWO HANDS CLASPED IN FIST
WITH THUMBS POINTING UP:
VESSEL HAS MATERIAL IN IT.**



HAND SIGNALS (con't) Operational Safety

CHECKING FOR MATERIAL IN A VESSEL WHILE IN
PROTECTIVE CLOTHING CAN BE ANSWERED AS FOLLOWS:



**UMPIRE SIGNALING RUNNER SAFE:
VESSEL EMPTY**



HAND SIGNALS (con't)



**SLASHING SIGNAL ACROSS THROAT:
CLOSE DOWN WHATEVER YOU ARE DOING—STOP**



**FIST IN PUMPING MOTION:
CLOSE DOWN WHATEVER YOU ARE DOING—STOP**



**ENTRY PERMIT
PERMIT-REQUIRED CONFINED SPACE (PRCS)**

ATTACHMENT 3

Division/Location _____ Job No. _____
 Customer _____ Address _____
 Location of Job _____ Identity of PRCS _____
 Describe Hazards of PRCS (Chemical, Physical) _____

 Chemical introduced into Space _____

 Purpose This Permit Authorized _____

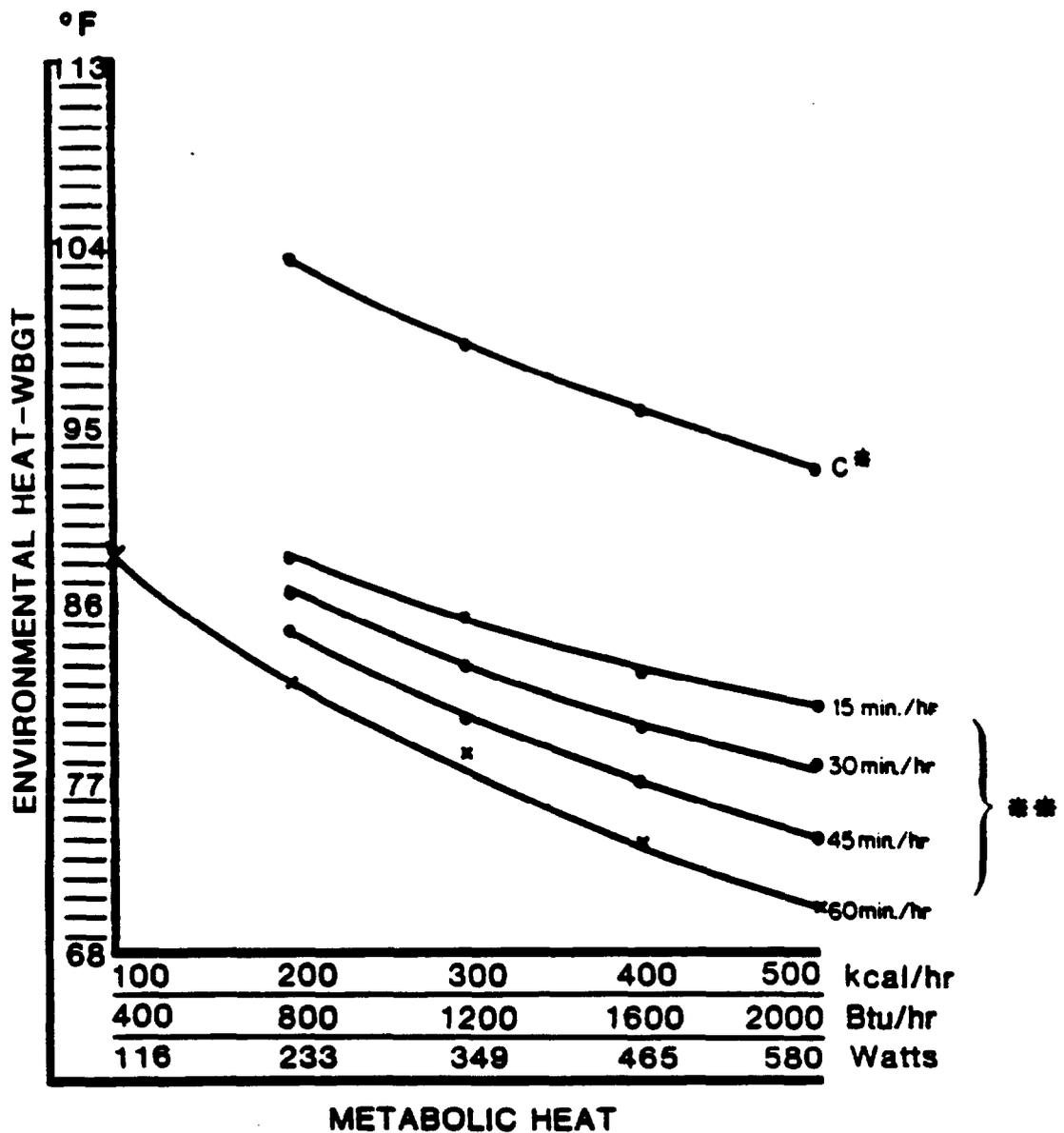
CHECKLIST	YES	DOES NOT APPLY	PERSONAL PROTECTIVE EQUIPMENT (Circle)
All lines leading to and from confined space have been blinded or disconnected			EYE/FACE Chemical Goggles Face Shield Safety Glasses
Electrical service disconnected or locked out			EXTREMITIES Hard Hat Gloves (Material _____) Hoods Boots (Material _____) Boots
All grounding and bonding cables in place			BODY Suit (Level _____, Material _____)
All lighting, fittings, power equipment, and extension cords are explosion-proof			RESPIRATORY SCBA Air Line Egress System Air Purifying (Cartridge _____) Powered Air Purifying (Cartridge _____)
Ground Fault Circuit Indicator (GFCI) checked and functioning			OTHER Hearing Protection Harness & Lifeline Chest or Parachute
All ignition sources have been isolated			RESCUE EQUIPMENT Mechanical Extraction Device First Aid Kit SCBA Other (Specify) _____
All respiratory equipment and alarms checked and functional			NON-IT RESCUE TEAM Instructions to Summon Rescue _____
All safety harnesses and life lines checked			COMMUNICATION Lifeline "Tag" Signals (See HASP) Air Powered Horn Signals (See HASP) Other _____
All required PPE checked and in use			_____
All entrants are confined space trained			_____
All entrants are trained in the use, care, and limitations of respirators and PPE			_____
Attendant trained in emergency procedures			_____
Attendant(s) trained in rescue procedures			_____
Outside rescue service will be used and they have been notified of this entry			_____
Appropriate rescue equipment available and checked			_____
Ventilation system in use and effective			_____
Entrant(s) can achieve a gas-tight seal with respirator			_____
Entrant(s) are not wearing contact lenses			_____
All tests have been completed and indicate that entrance requirements have been met			_____
Appropriate warning signs have been posted and unauthorized personnel have been excluded from the PRCS and area			_____

IF THE ANSWER TO ANY OF THE ABOVE QUESTIONS IS NO, ENTRY IS NOT PERMITTED.

OTHER PERMITS ISSUED FOR WORK IN PRCS: _____

OTHER HAZARD CONTROL PROCEDURES OR INSTRUCTIONS: _____

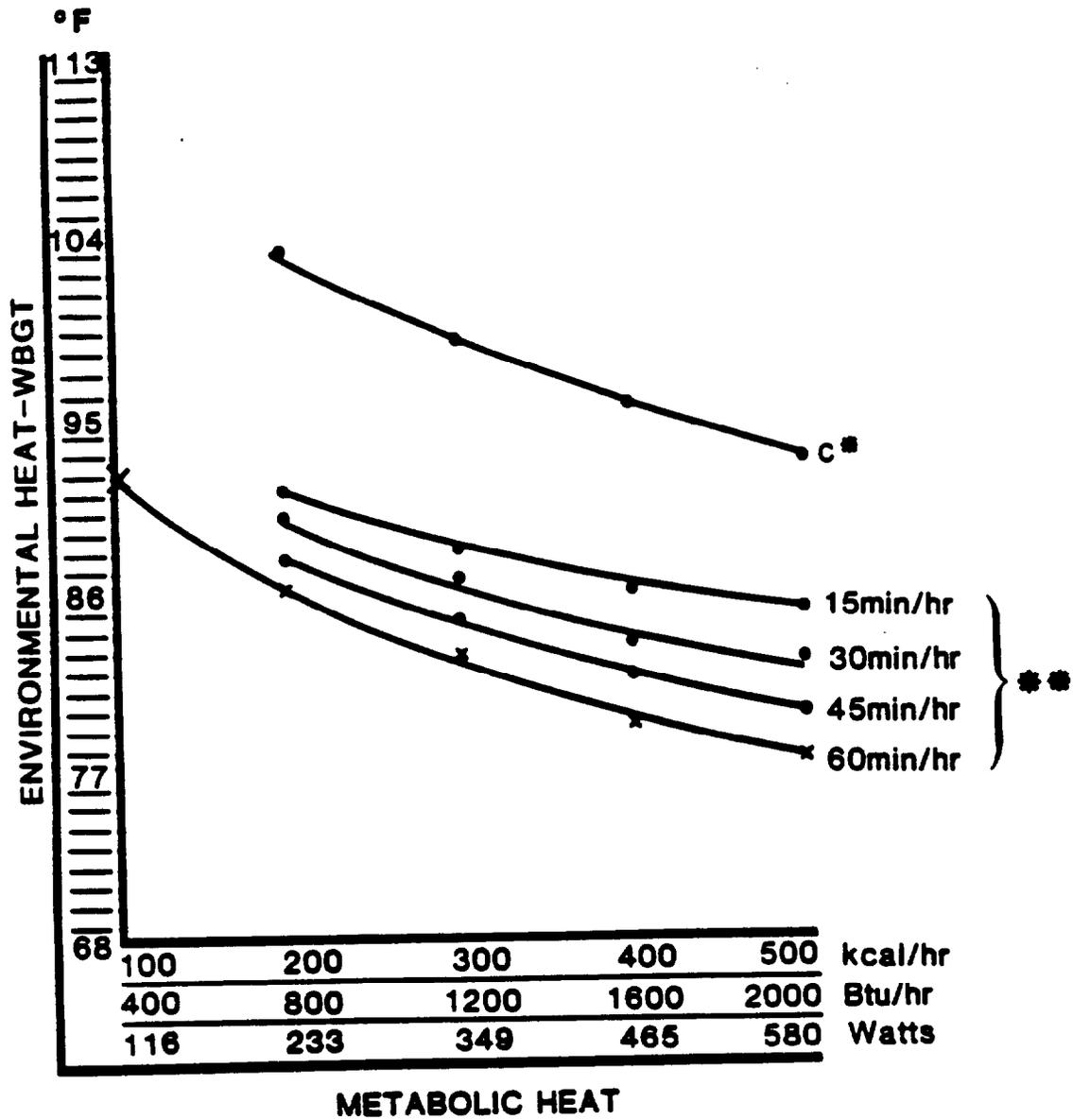
**APPENDIX E
RECOMMENDED HEAT STRESS GUIDELINES FOR
UNACCLIMATED/ACCLIMATED
WORKERS IN HOT ENVIRONMENTS**



Recommended Heat Stress Guidelines for Unacclimated Workers in Hot Environments

* C= Ceiling Limit - No work should be performed without body cooling provided

** Work-Rest Regimen - Minutes worked per hour



Recommended Heat Stress Guidelines for Acclimated Workers in Hot Environments

☼ C = Ceiling Limit - No work should be performed without body cooling provided

☼☼ Work-Rest Regimen = Minutes worked per hour

ASSESSMENT OF EMPLOYEE WORK LOAD IN HOT ENVIRONMENTS

A. BODY POSITION AND MOVEMENT	kcal/min
Sitting	0.3
Standing	0.6
Walking	2.0-23.0
Walking uphill	add 0.8 per meter rise

B. TYPE OF WORK	Average kcal/min	Range kcal/min
Hand work		
Light	0.4	0.2-1.2
Heavy	0.9	
Work One Arm		
Light	1.0	0.7-2.5
Heavy	1.8	
Work Both Arms		
Light	1.5	1.0-3.5
Heavy	2.5	
Work Whole Body		
Light	3.5	2.5-9.0
Moderate	5.0	
Heavy	7.0	
Very Heavy	9.0	

C. BASAL METABOLISM	1.0
----------------------------	-----

D. SAMPLE CALCULATION	Average kcal/min
Assembling work with heavy hand tools	
1. Standing	0.6
2. Two-arm work	3.5
3. Basal Metabolism	1.0

TOTAL	5.1 kcal/min x 60 = 306 kcal/hr
--------------	--

EMPLOYEE PHYSIOLOGICAL MONITORING RECORD FOR HEAT STRESS

Employee Name _____ Date _____ Employee SS# _____
Division _____ Start Time _____ Location _____
P.C.# _____ Stop Time _____ Job Number _____
Health & Safety Coordinator _____ Supervisor _____

TEMPERATURES

A. INITIAL READING

1. Ambient Air Temperature _____
2. Baseline Oral Temperature _____
3. WBGT _____

B. AFTER FIRST WORK PERIOD

1. Ambient Air Temperature _____
2. Oral Temperature _____
3. WBGT _____

C. AFTER SECOND WORK PERIOD

1. Ambient Air Temperature _____
2. Oral Temperature _____
3. WBGT _____

D. AFTER THIRD WORK PERIOD

1. Ambient Air Temperature _____
2. Oral Temperature _____
3. WBGT _____

E. AFTER FOURTH WORK PERIOD

1. Ambient Air Temperature _____
2. Oral Temperature _____
3. WBGT _____

F. AFTER FIFTH WORK PERIOD

1. Ambient Air Temperature _____
2. Oral Temperature _____
3. WBGT _____

HEART RATE

A. INITIAL READING

1. Baseline Heart Rate _____ B/min

B. AFTER FIRST WORK PERIOD

1. Heart Rate _____ B/min

C. AFTER SECOND WORK PERIOD

1. Heart Rate _____ B/min

D. AFTER THIRD WORK PERIOD

1. Heart Rate _____ B/min

E. AFTER FOURTH WORK PERIOD

1. Heart Rate _____ B/min

F. AFTER FIFTH WORK PERIOD

1. Heart Rate _____ B/min