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FINAL HEALTH AND SAFETY PLAN FOR TANK CLOSURE OF ABOVEGROUND STORAGE TANK 2505 (AST 2505) AND OIL AND WATER SEPARATOR REMOVAL CNC CHARLESTON SC

2/1/2002

SPECTRA TECH, INC.

FINAL

HEALTH AND SAFETY PLAN

TANK CLOSURE OF ABOVEGROUND STORAGE TANK 2505 AND OIL /WATER SEPARATOR REMOVAL CHARLESTON NAVAL COMPLEX ANNEX CHARLESTON, SOUTH CAROLINA

February 2002

Submitted to:
Department of the Navy
Southern Division
Naval Facilities Engineering Command

Under Contract No. N62467-01-M-0366

Prepared by:
Solutions To Environmental Problems, Inc.
1006 Floyd Culler Court
Oak Ridge, Tennessee 37830

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Abbreviations and Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
AOC	Area of Concern
AST	Aboveground Storage Tank
CPR	cardio pulmonary resuscitation
EPA	U.S. Environmental Protection Agency
GFCI	ground fault circuit interrupter
HASP	health and safety plan
MSDS	material safety data sheet
OSHA	Occupational Safety and Health Administration
OWS	Oil/water Separator
PHA	preliminary hazard analysis
PPE	personal protective equipment
PPM	Parts per million
STEP	Solutions To Environmental Problems, Inc.
TWA	time weighted average

1.0 INTRODUCTION

This document has been prepared by Solutions To Environmental Problems, Inc. (STEP) to provide a Site Health and Safety Plan (HASP) for Tank Closure of Aboveground Storage Tank (AST) 2505 and Oil/Water Separator (OWS) Removal, Charleston Naval Complex Annex, Charleston, South Carolina. The project will be undertaken by STEP, under contract to the Department of the Navy, Naval Facilities Engineering Command. This project is located at Charleston Naval Complex Annex, Marine Corps Reserve Center.

The purpose of this document is to establish standard safety and health procedures for STEP and their subcontractors during this project. All project activities shall be performed in accordance with the STEP Safety and Health Program Manual; Occupational Safety and Health Administration (OSHA) Standards 29 CFR Part 1910 and 1926; applicable Environmental Protection Agency (EPA) requirements; and consensus standards. Where the word "shall" is used, the provisions of this plan are mandatory.

The levels of personal protection and the control measures specified in this plan are based on the best information available from reference documents and site characterization data. Therefore, these recommendations represent the minimum safety and health requirements to be observed by all personnel engaged in this project. Unforeseeable site conditions or changes in scope of work may warrant a reassessment of protection levels and controls stated. All adjustments to the HASP must have prior approval from Mr. Mike Palmer, CSP, CIH, CHMM, who provides direction for STEP safety management.

All personnel involved in this project must review this document carefully. Any questions or concerns that are not adequately addressed should be brought to the immediate attention of the STEP Site/Project Manager.

2.0 SITE DESCRIPTION AND SCOPE OF WORK

The Charleston Naval Complex Annex is located in North Charleston, South Carolina, on the Cooper River. This is approximately five miles north of the historical city of Charleston. The site of AST 2505 and OWS is located next to Building 2505 in Naval Annex-Zone K.

The scope of work for this project involves the closure of AST 2505 and removal of the associated oil/water separator, piping, and equipment. In addition, the scope of work includes securing the area in such a manner as to prevent product discharging into the sanitary sewer or storm drain, and permanently filling the oil change pit, oil drain sump, and oil pump pit. Once the repairs are complete, the area will be backfilled as necessary, and the site will be restored.

Location of the AST and OWS are shown in Figure 2-1.

3.0 SAFETY PROGRAM ADMINISTRATION

Mr. Mike Palmer, CSP, CIH, CHMM provides administration support for the STEP Safety Program. Mr. Palmer is certified by both the American Board of Industrial Hygiene and by the Board of Certified Safety Professionals. For the duration of this project, the STEP Project Manager, Mr. Roy Hoekstra, has been assigned the responsibility and accountability for compliance with project specific safety and health requirements. The Field Services Manager or an alternate will be present on the worksite during the

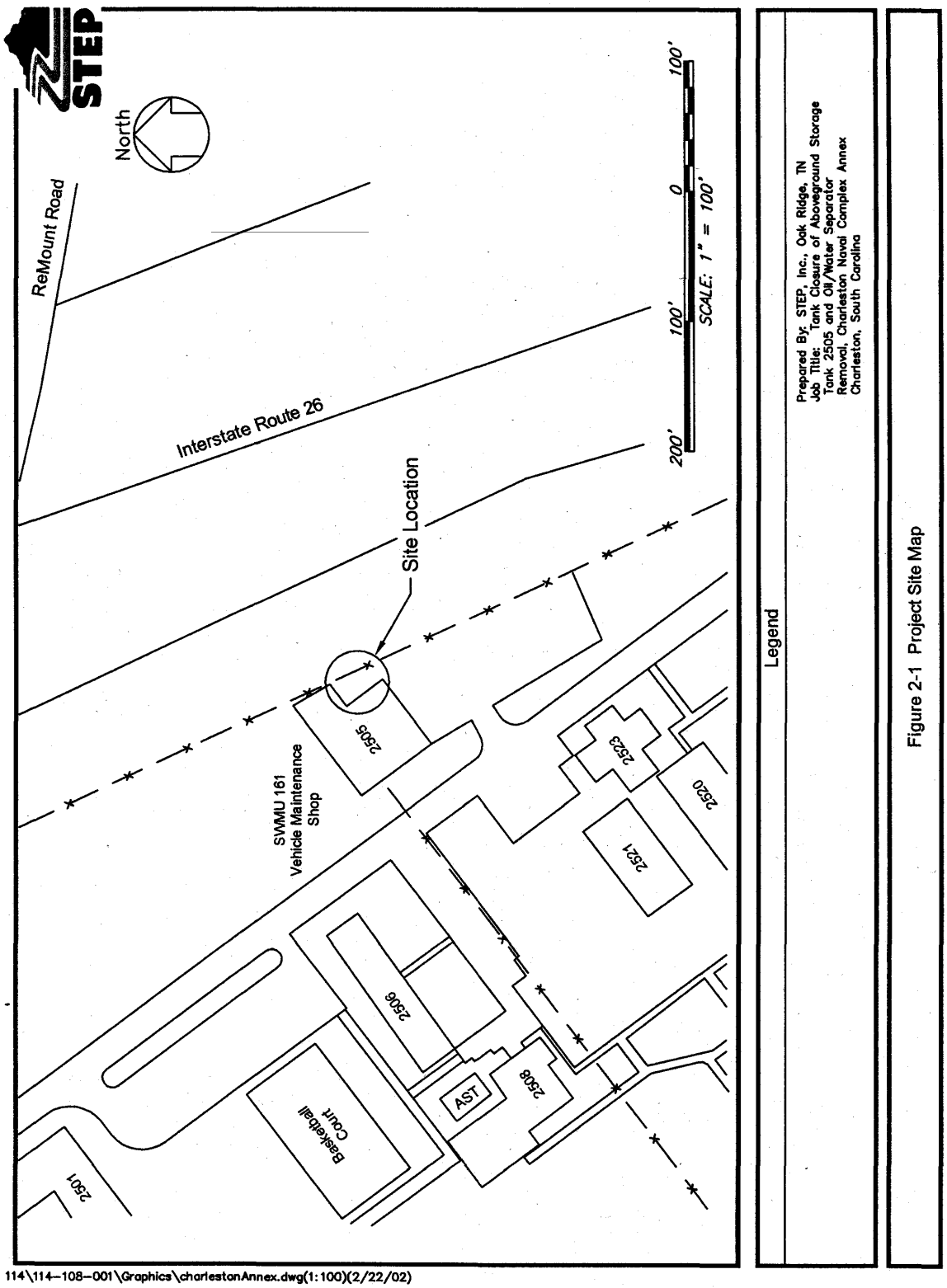


Figure 2-1 Project Site Map

performance of any project work activities. He/She will promote jobsite safety over production goals at all times. The Field Services Manager has been charged with the following daily project safety responsibilities:

- coordinating all planned work activities / tasks with site employees for safety input and planning;
- conducting all required weekly and daily inspections and implement prompt corrective action regarding safety and other noncompliance issues; and
- administering and actively promote daily safety meetings and pre-work safety briefings.

The Field Services Manager will be responsible for overall daily implementation of this plan and compliance with 29 CFR 1926 and 1910 requirements.

4.0 PROJECT SAFETY GOALS

It is STEP's policy to execute all reasonable precautions in the performance of work and to protect the environment, as well as the safety and health of employees and members of the public. STEP intends to comply with all applicable environmental, safety and health regulations and requirements. Without exception, worker safety and health will take precedence over production goals for the duration of the project. STEP safety performance goals for the project include:

- **no OSHA-recordable injury/illness**;
- **no "lost-time" injuries or accidents**;
- **no crane, rigging, or other heavy equipment accidents;**
- **no vehicle/equipment incidents resulting in personal injury or property damage**; **and**
- **no worker fatalities**.

Every attempt will be made by STEP and each employee to reduce the possibility of accident occurrence.

5.0 SAFETY BRIEFING/MEETINGS

5.1 Site Orientation Briefing

The STEP Field Services Manager will conduct initial site entry safety briefings to apprise visitors and workers of hazards to be encountered at the job site and to review the required safety precautions/control measures to be utilized. This briefing will include a review of the activity hazard analysis (AHA) (Appendix A) and attendance will be documented on the AHA Log. Training and medical surveillance requirements will be reviewed, and verification of qualifications shall be performed prior to entry to the site. The initial access safety briefing will include as a minimum:

- a review of the preliminary hazard analysis, and other pertinent sections contained within this plan;
- a review of posted permits applicable to the visitor or worker during their site access;
- review of hazards which may be encountered on site that day; and
- emergency notification procedures.

5.2 Pre-Work Briefings

Prior to initial job task assignments, each employee will be required to review this HASP.

5.3 Weekly Safety Meetings

The STEP Field Services Manager will conduct and document a weekly safety meeting of approximately 15 minutes duration. These meetings will be conducted at the beginning of the scheduled work shift and will address safety and fire prevention issues pertaining to the upcoming operations. At a minimum, the issues and objectives of the meetings will be concerned with an overview of the work planned, potential hazards associated with the work and suggested methods for reducing or controlling the hazards.

Past inspection findings, corrective actions taken, and lessons learned will also be addressed. An attendance roster will be maintained weekly for documentation purposes. Copies of the safety meeting records will be maintained at the job site.

6.0 SAFETY INSPECTIONS

The STEP Field Services Manager has been delegated responsibility for conducting daily formal job site inspections to ensure compliance with the safety program. The safety inspections will be conducted to identify non-compliance items including: unsafe equipment/tools; unsafe conditions (hazardous materials, atmospheric, etc.); and unsafe acts. These inspections will be conducted to include immediate work areas and all equipment/materials storage or staging areas (inclusive of vehicles, tool boxes, and storage trailers). In addition, the STEP Field Services Manager shall conduct a formal weekly job site inspection and document the results of that inspection on the Weekly Jobsite Checklist (Attachment A).

Imminent danger findings shall result in immediate work suspension of the affected operation until such dangers are corrected. Other findings shall be corrected immediately or preventive measures taken to protect the employees. Any identified non-compliance items or safety violations by employees will be recorded on an inspection report, in accordance with STEP's Corporate Safety Program, and will be submitted with the Daily Activity Report. File copies will also be maintained at the job site office for review, and shall be reviewed with affected employees during pre-work briefings and weekly safety meetings.

6.1 Initial Equipment Inspection

Prior to initial entry to the project site, all equipment must be inspected for safety conformance to include proper operation and functioning. The Project Manager, or designated alternative, shall be responsible for the initial inspection prior to use on site. The items to be inspected shall include all equipment, backhoes, welding/cutting equipment, hoisting and rigging devices and apparatus, and all portable electric tools. All heavy construction equipment, including rental equipment, shall be identified with STEP or their subcontractor's name. Prior to use, the equipment operator is required to complete a daily equipment inspection checklist. A copy of this form is provided in Attachment B of this plan.

Defective or otherwise unsafe equipment or tools shall be tagged "DO NOT USE". Items tagged "DO NOT USE" shall either be repaired and made acceptable or shall be removed from the site. All repaired items shall be inspected prior to entering the site. Any hoisting/rigging equipment or other equipment that cannot be repaired shall be destroyed or otherwise made inoperable to prevent inadvertent use by others at another project. The Project Manager shall maintain equipment inspection reports and equipment inventory data at the job site trailer for review.

7.0 JOB SITE POSTING

In areas where anticipated hazards may occur, warning signs shall be posted to promote worker and visitor awareness. The following posted signs are anticipated for this project:

Signs Posted	(✓) If applicable
"Construction Area-Hard Hat & Safety Glasses Required"	✓
"Authorized Personnel Only"	✓
"Excavation Area – Open Trench"	✓
"Excessive Noise – Hearing Protection Required"	✓

The following information will be posted at the indicated job site locations:

SIGN	LOCATION POSTED
State of South Carolina Department of Labor Posting	Job Site
State of South Carolina Workman's Compensation Posting	Job Site
Employee Right to Know Laws and MSDS	Job Site
Site-Specific and Corporate Safety Program	Job Site
Required Excavation Permit (Utilities)	Job Site

8.0 HAZARD ANALYSIS

A preliminary hazard analysis (PHA) has been performed to identify the safety concerns for tasks outlined in the project scope of work. The preliminary hazards identified for this project include the following.

- Chemical Hazards
- Physical Hazards
- Operational Hazards

In addition to the PHA, each task has been evaluated to identify specific activity hazards. An Activity Hazard Analysis (AHA) for scheduled tasks is provided in Appendix A.

8.1 Hazard Control Measures

Personnel hazard exposure mitigation/reduction control measures to be implemented during performance of work tasks in completion of the project shall include:

- **Administrative controls** (i.e., worker training, safety meetings/briefings, AHA briefings, work area hazard postings, competent person surveillance, inspections, management oversight, and industrial hygiene monitoring);
- **Engineering controls** (i.e., ventilation); and
- **Personal protective equipment (PPE)** (i.e., hard hat, safety glasses, hearing protection, hand protection, foot protection, respiratory protection, tyvek or other protective clothing).

8.2 Chemical Hazards

Worker exposure to dust, sediment, soil, and water containing metals and petroleum distillates is possible during excavation activities. Exposure to these chemical compounds in the form of fumes, mists, vapors, and liquids may cause health problems by inhalation, absorption, contact, or ingestion. Unprotected exposure to these hazards may cause a variety of toxic effects. Workers will be apprised of the potential hazards, and the specific control measures necessary to avoid or minimize exposure.

8.2.1 Chemical Exposure Hazards

Some chemical exposure effects, such as burning eyes, coughing, nausea, and skin rashes, may become obvious during or shortly after an exposure. These effects are termed "**acute**". These effects may be temporary and reversible, or they may be more serious and cause permanent disability or death.

Some chemicals can cause permanent health damage without any short-term warning signs. This is particularly true for repeated exposures to low levels of very toxic chemicals. These "**chronic**" health effects, such as cancer, liver damage, or respiratory disease, may not manifest themselves for several years or even decades after exposure. The susceptibility of an individual to adverse health effects from chemical exposure may be influenced by a number of personal factors including smoking, alcohol consumption, medication use, nutrition, age, sex, fitness, and genetic predisposition.

8.2.2 Primary Routes of Exposure

The primary exposure route of concern on this project is **inhalation**. With a surface area of 70 to 100 m^2, the lungs are extremely vulnerable to chemical agents. Direct **contact** by gaseous, liquid, or solid substances is another important route of exposure. Some chemicals directly injure the skin. This local effect is true of strong acids and bases and many organic chemicals that contact the skin. Some pass through the skin into the bloodstream where they are transported to vulnerable organs. Skin **absorption** is enhanced by abrasions, cuts, heat, and moisture and may occur as a result of direct contact or as a vapor. Although **ingestion** should be the least significant route of exposure on this project, it may occur if standard operating procedures are not observed. Personal habits such as chewing gum or tobacco, drinking, eating, and smoking may provide a route of entry for chemicals.

8.2.3 Exposure Limits

Contaminant	Exposure Limit/Action Level
Petroleum Distillates	TWA - 100 ppm / TWA - 50 ppm

TWA = time weighted average
PPM = parts per million

8.2.4 Petroleum Distillates

As stated, personnel exposures to fumes, mists, vapors, and liquids may be possible during various stages of this project. The use of personal protective equipment, following provisions of this plan, and observing safe work practices are expected to reduce the risk of exposure.

In addition to these precautions, the Field Services Manager shall implement the following control measures to ensure compliance with OSHA 1926.65 and USACE EM385-1-1, Section 28:

- ensure workers have received Hazard Communications training in accordance with the STEP Corporate Hazard Communications Program and meet the training requirements outlined in this plan;
- ensure workers are medically qualified and have received a quantitative fit test using an air-purifying respirator in accordance with the STEP Respiratory Protection Program;
- ensure personnel are currently included in the STEP Corporate Medical Surveillance Program;
- ensure personnel use appropriate personal protective equipment (PPE); and
- conduct personnel exposure monitoring and perimeter environmental monitoring as outlined in this plan.

8.3 Physical Hazards

Personnel performing work tasks during this project may anticipate potential exposures to physical agents. These may include hazards such as noise, and temperature extremes (heat stress). Control measures will be implemented to minimize or prevent exposures to such physical hazards when identified. However, variations in individual susceptibility may result in low tolerance leading to unexpected annoyance, aggravation of a pre-existing condition, or physiological damage - even with controls implemented. Individuals may also be hyper-susceptible or otherwise unusually responsive to some physical agents because of genetic factors, age, personal habits (smoking, alcohol or drug use), medication, or previous exposures. In case of such conditions, an occupational physician should evaluate the extent to which such workers require additional protection.

8.3.1 Noise

Anticipated work activities on-site may routinely involve the use of noise-producing equipment (construction equipment, decontamination activities, etc.) that may present a noise hazard exposure to workers. Safeguarding personnel from potential injury due to

noise exposure will be implemented by the Field Services Manager in the following manner.

- Sound level measurements may be taken to determine work areas and equipment that may subject personnel to hazardous noise.
- Personnel subjected to excessive noise shall be trained in the hazards associated with acute and chronic noise exposures.
- Suitable hearing protection devices shall be used by personnel when exposed to excessive noise.
- Work areas with noise levels greater than an 8-hour time weighted average (TWA) of 85 dBA will be posted as a high noise area, requiring the use of hearing protection. Specific precautions to be taken for noise exposures shall be in compliance with OSHA 29 CFR 1926.101.
- Whenever possible, removal or reduction of noise hazards will be accomplished through the implementation of administrative and engineering controls.

8.3.2 Heat Stress

Site operations may be conducted during periods of hot ambient temperatures. Since workers may not be acclimated to heat, during periods with ambient temperatures exceeding 72.5^{o}F, a potential for heat stress exists. The use of PPE, work tasks involving strenuous activities, and elevated ambient temperatures can further increase potential heat stress hazards.

Measures to prevent or minimize heat stress hazards include personnel monitoring, work/rest periods, sufficient supplies of electrolyte fluid be provided for use during rest periods, and adherence to American Conference of Governmental Industrial Hygienists (ACGIH) guidelines. Work/rest periods may require adjustment based on results of personnel monitoring (i.e., pulse rate or body temperature).

The warning symptoms of heat exhaustion include fatigue; loss of strength; reduced accuracy; loss of comprehension and retention; and reduced alertness and mental capacity. Heat stroke represents advanced stages of heat stress. Symptoms associated with heat stroke include hot, dry skin; elevated body temperature (>104^{o}F); rapid pulse rate; and advanced symptoms of dizziness, nausea, confusion, convulsions, coma, and possible death. Personnel exhibiting symptoms of heat stress shall be required to increase rest periods and consume electrolyte fluids. Personnel displaying heat stroke symptoms shall be removed from work areas immediately, and will be required to seek prompt medical attention. Heat stress monitoring will be coordinated and documented by the Field Services Manager.

8.3.3 Lightning

Due to the severe nature of lightning (may discharge up to 50,000 volts), all personnel shall remain indoors during periods of expected lightning.

8.4 Operational Hazards

During the course of the project activities, personnel will be subjected to a number of potential operational hazards. These hazards will be controlled through the identification and evaluation of potential hazards, and adhering to administrative controls, engineering controls, personal

protective equipment, and safe work practices. Operational hazards identified for this project include:

- fire/explosion hazards,
- heavy equipment hazards,
- material handling hazards,
- electrical hazards, and
- excavation hazards.

8.4.1 Fires/Explosions

Fire/explosion hazards could be encountered from the diesel fuel, gasoline, and waste oil located on site. A truck-mounted tank will be on site during the project for fueling, excavating and material hauling equipment. These hazards will be mitigated through the implementation of general safe work practices, worker hazard awareness training, the use of suitable protective systems / equipment, and strictly adhering to the following control measures.

- All personnel will know how to summon for emergency assistance from the local Fire Department (911).
- All flammable liquids and solvents to be used on-site shall be transported and stored in UL listed and FM approved containers.
- Suitable containers with lids shall be provided for collection of waste materials and trash.
- Combustible materials will be removed at regular intervals to avoid poor housekeeping conditions.
- Flammable and combustible materials will be stored away from sources of ignition.
- NO SMOKING is permitted inside work zones. Follow area postings.
- Electrical equipment will be inspected and maintained to ensure proper functioning and that service cords are not damaged.
- Fire extinguisher equipment shall be inspected routinely to ensure it is properly charged. Monthly inspection records shall be maintained for all fire extinguisher equipment.

8.4.2 Heavy Equipment

Heavy equipment to be utilized on this project will include a trackhoe, or similar excavating equipment. The potential hazards associated with the use of heavy equipment can generally be attributed to unsafe conditions involving the equipment or equipment components, or unsafe use of the equipment by the operator. Adhering to the following provisions will minimize these hazards:

- All heavy equipment shall be operated by experienced, qualified operators only. All high profile equipment shall be located and operated in a safe manner.
- Whenever heavy equipment is operated in an area where contact with energized lines (underground/aboveground) may be possible, the equipment shall be grounded to protect personnel from possible electrocution hazards.
- Utility clearances will be obtained prior to intrusive activities.
- Prior to entry to the site, all heavy equipment will be inspected by the Field Services Manager. All heavy equipment shall be inspected by the qualified equipment

operator on a daily basis for unsafe conditions including faulty components, worn/leaking hydraulic or fuel lines, missing pins/bolts or attachments.
- All inspection records (annual inspection certifications and daily inspection reports) shall be maintained on site by the equipment operator and must be immediately available for review.

8.4.3 Material Handling

A variety of materials and material handling equipment will be required during this project. Hazards presented to workers during material handling tasks include shifting, sliding, and falling of stored construction materials and equipment, or loads. Potential injuries and accidents resulting from these activities will be minimized by adhering to applicable provisions within 29 CFR 1926.250, and the following requirements.

- Worker hazard awareness will be promoted during pre-job orientation, and weekly toolbox safety meetings.
- Excavated soils and materials that may be contaminated are to be placed adjacent to the site. A distance of at least two feet from the excavation edge will be maintained for all stockpiled material to prevent displacement back into the trench.
- All stored materials will be stacked, racked, blocked, or interlocked to prevent sliding, falling, or collapse.
- Maximum safe loads will not be exceeded (equipment load capacities and safe transport load limits).
- Storage areas will be kept in good repair, and aisles and passageways shall be kept clear to provide free and safe movement of personnel and material handling equipment.
- Noncompatible materials will be segregated in storage.

8.4.4 Electrical

Work tasks during this project may subject personnel to possible electrical shock/burn hazards. Injuries may result due to faulty/damaged equipment, inadequate equipment grounding/bonding, wet environments, and unsafe acts committed by personnel using or working near energized electrical equipment. Potential hazards associated with electrical equipment will be mitigated by adherence with the following provisions.

- Prior to the commencement of construction site activities, any visible hazards such as overhead, aboveground and underground utilities shall be identified. Site drawings and excavation/penetration permit data shall be used for verification of electrical utilities.
- All electrically powered tools and equipment used on this project shall be inspected prior to each use, maintained to be safe, and adequate for the designated use.
- All drills, saws, grinders, and such shall be double-insulated and UL approved, or provided with a ground prong on the male plug. All temporary 120/125 volt, single-phase, 15 and 20-ampere receptacles and cord sets shall be protected by approved ground fault circuit interrupters (GFCI's).
- Grounding and bonding techniques are necessary to prevent the build-up of electrical potentials, which upon discharge could become a source of ignition/explosion. Therefore, grounding/bonding shall be utilized during fuel transfer activities from containers into equipment fuel tanks.

8.4.5 Excavations

Excavation operations will be required during this project. Trenching and loading excavated soils will be required. Potential hazards encountered during excavation operations include:

- falling, rolling, or sliding material or equipment;
- eater accumulation/seepage;
- soil sloughing/cave-ins;
- hazardous atmospheres;
- failure of protective systems;
- vehicular traffic;
- underground utilities; and
- falls.

To minimize personnel exposure to these potential hazards, strict adherence to the following excavation safety provisions will be observed.

- An Excavation/Penetration Permit shall be obtained prior to commencement of **any** excavation activities and the permit must be conspicuously posted at the point of entry to the excavation area. Prior to opening an excavation, the estimated location of utilities or any underground installation identified on the excavation/penetration permit must be determined and clearly marked. The precise location of underground utilities/installations will be determined using hand-excavating techniques or specially designed detection equipment. If there is a potential for a hazardous atmosphere in the excavation, a Confined Space Entry Permit must be completed, and all applicable requirements must be met prior to entry into the space.
- A Competent Person will assess potential hazards by completing a daily inspection checklist which will be posted at the excavation area. The inspection shall be made prior to the start of work, and as needed throughout the shift. Inspections shall be made after each rainstorm or other hazard-promoting event.
- Personnel protection from excavated materials, hand tools, and supplies falling or rolling into excavations will be provided by placing and keeping such materials at least 2 feet from the edge of excavations. Protection from equipment that may fall or roll into excavations will be provided by the use of retaining devices. Whenever mobile equipment is operated adjacent to an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system must be utilized such as barricades, hand or mechanical signals, or stop logs. Personnel are not permitted underneath loads handled by lifting or digging equipment.
- Personnel protection from cave-ins shall be provided by an adequate protective system in accordance with OSHA 29 CFR 1926, Subpart P. Protection systems include sloping and benching systems or support systems, shield systems and other protective systems. The Competent Person shall determine the appropriate type of protection system necessary based on the appendices and tables in 29 CFR 1926.652. Protection system components are to be inspected daily by the competent person. Any damaged material or equipment shall be immediately removed from service.
- Stairways, ladders, or ramps will be provided to facilitate ingress/egress for trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for personnel working in the excavation. Where personnel or equipment are permitted to cross over excavations, walkways or bridges with standard guardrails shall be provided. Adequate barriers (flagging placed 6 feet from excavation edges) and

posting of signs (Open Trench/Confined Space) shall be provided to warn personnel of potential hazards.

9.0 TRAINING

All employees engaged in activities on site will be required to attend and successfully complete the following basic safety training:

- Site Safety Plan Review/Orientation, and
- Hazard Communication.

Other task specific training may be required for work tasks that may present unusual or specific hazards to workers. Specific training requirements will be determined as required by the Project Technical Specifications and the Field Services Manager. Examples of task specific training that may be required include:

- 40-Hour Hazardous Waste Operations,
- 8-Hour HAZWOPER Supervisor,
- Excavation Competent Person,
- Respiratory Protection, and
- CPR/First-Aid.

10.0 GENERAL SAFE WORK PRACTICES

Site personnel and visitors shall be required to follow and maintain good hygiene/work practices that include the following.

- Unauthorized personnel are not allowed on-site.
- Work groups will always consist of at least two team members (buddy system).
- Smoking, eating, drinking, chewing gum or tobacco, taking medication, or any other hand-to-mouth activities will not be permitted within any flagged areas or exclusion zones.
- Wearing of contact lenses is strictly prohibited.
- Personnel under obvious influence of alcohol or controlled substances are not allowed on-site.
- Thoroughly wash hands, arms, and face before breaks, or any hand-to-mouth activity such as eating, drinking, smoking, or use of chewing tobacco.
- Personnel will discard and replace damaged, or heavily soiled protective clothing.
- Personnel shall notify the Field Services Manager of any defective monitoring, emergency, or other safety equipment.
- A supply of potable water, electrolyte replacement solutions, shaded areas, sufficient lighting, and sanitary facilities will be accessible to site personnel.
- All site personnel shall familiarize themselves with the provisions of this plan and emergency procedures by use of weekly safety meetings.

All personnel will be apprised of their rights and responsibilities pertaining to their own safety, and the safety of others at the job site. This will also include each employees right and responsibility pertaining to known or suspected “imminent danger” situations, and their responsibility to initiate immediate “STOP WORK” until the imminent danger issue(s) have been satisfactorily resolved by management.

11.0 MEDICAL SURVEILLANCE REQUIREMENTS

Consistent with the requirements of OSHA 29 CFR 1926.65 all personnel working within an exclusion zone shall participate in a medical surveillance program. The purpose of the program is to access and monitor employee health prior to employment, during the course, and at the end of work. Subcontractor personnel are required to have been certified by their employer that they are in compliance with this requirement.

The program will consist of scheduled baseline exams, follow-ups, termination exams, and other exams as needed. The basic exam protocol is outlined in the STEP Corporate Medical Surveillance Program.

11.1 Respirator Fit and Training

The use of respiratory protection equipment is not anticipated for this project. However, if conditions warrant the use of respiratory protection during phases of work on site, personnel shall be quantitatively fit tested for each type of respirator to be worn to ensure proper seal of the respirator face piece. A signed physicians statement certifying that the individual is medically qualified to perform the work and is physically capable of wearing a respirator shall be required prior to utilizing the equipment. Respirator use, selection, issuance, and maintenance requirements outlined in the STEP Corporate Respiratory Protection Program must be strictly enforced.

12.0 SITE CONTROL

The Field Services Manager will coordinate access control and security on site. Access to the site will be minimized as much as possible. Areas where work is in progress shall be flagged (or fenced) and posted as necessary. Additional work zones may be required depending on site conditions. Open trenches shall be protected when the site is unoccupied.

12.1 Visitors

Upon arrival, visitors will be logged-in by the Field Services Manager, and shall be allowed entrance only after undergoing a safety and emergency response orientation, and after verification of site/task specific training credentials. The orientation session includes a relevant briefing of site hazards, and includes a review of the “Emergency Response” section within this HASP.

Visitors are expected to comply with all relevant OSHA requirements such as medical surveillance, training, and respiratory protection.

13.0 ACCIDENT/INJURY REPORTING

Site personnel will immediately report any injury, accident, spills, or equipment failures (i.e., safety equipment, drill rigs, equipment, communication devices) to the Field Services Manager for prompt notification, reporting, and corrective action. Written reports will be prepared and filed immediately following an accident or injury. Injury and accident reports will become part of the permanent personnel file of involved employees. Additionally, any recordable accidents are to be reported to the STEP Corporate Safety Manager immediately - within two (2) hours. A written follow-up report (ENG Form 3394, Attachment E) will be completed and provided to the Resident Office within twenty- four (24) hours.

Monthly reporting of injury frequency and experience information will be maintained and provided in accordance with contract provisions. A comprehensive investigation of all accident/injuries shall be conducted by the Field Services Manager with findings documented and reported to both the STEP Corporate Safety Manager and Resident Office. Lessons learned will be discussed immediately following completion of the accident/injury investigation and reporting.

The STEP Field Services Manager (or designee) will be the First Aid/CPR qualified individual at the field site, and will be present at all times during the course of on site work. Any spills of chemicals (i.e., fuel, oil) on the ground are to be immediately contained and cleaned-up. All chemical spills will be documented in the daily report.

14.0 HAZARD COMMUNICATIONS

STEP intends to fully comply with all requirements of the OSHA Hazard Communication Standard 29 CFR 1926.59 and 1910.1200. The procedures by which hazard information exchange will take place concerning job hazards and names and characteristics of toxic materials introduced to the site are detailed in the STEP Corporate Hazard Communication Program.

15.0 PERSONAL PROTECTIVE EQUIPMENT

The Field Services Manager will be responsible for enforcing the appropriate use of personal protective equipment (PPE) for all personnel during the course of work, through a program of regular site surveillance and progressive disciplinary policy. Task-specific PPE will be used in accordance with the provisions contained within this Plan. At a minimum, hard hats, safety glasses, and ANSI-approved steel-toed boots will be mandatory in all flagged construction areas of this project. In addition, the following additional PPE may be required for specific job tasks.

- Respirators, when required, shall be supplied and used in accordance with OSHA 29 CFR 1926.103 and ANSI Z88.2. Respirator users must report to work clean shaven.
- Chemical resistant protective clothing (impervious suits, protective gloves, booties) may be required during hazardous work tasks.
- Hearing protection will be provided to all workers in areas where sound levels exceed 85 dBA;.
- Full-body harnesses with twin shock absorbing lanyards may be required when performing work which presents a fall hazard in excess of six feet.
- Appropriate hand protection shall be provided as necessary.

All personnel on-site performing work tasks shall utilize the level of protection as specified in this plan. This HASP requires the utilization of Level D, and Modified Level D according to specific tasks and concentrations of hazardous constituents. All PPE requirements for varied activities, tasks, and work zones are based upon the identified site-specific contaminants, and may require re-assessment necessitating upgrade or downgrade of PPE.

15.1 Level “D” PPE

General tasks which are not performed in an Exclusion Zone, and do not involve hazardous material exposures, will require the following minimum PPE:

- work shirt (with sleeves) and work pants;
- ANSI-approved work boots;
- hard hat (in posted areas); and
- approved safety glasses.

The following may also be included:

- leather gloves,
- protective goggles, and
- hearing protection (ear plugs/muffs).

15.2 Modified Level "D" PPE

Personnel and environmental monitoring for exposures to hazardous materials (i.e., petroleum hydrocarbons) will be performed for the purpose of evaluating the effectiveness, or necessity, of control measures implemented initially. Tasks presenting a skin contact exposure hazard will require the use of additional PPE. Therefore, modification to Level D PPE may be appropriate and could include the following PPE:

- work shirt (with sleeves) and work pants;
- ANSI-approved work boots;
- hard hat (in designated areas);
- approved safety glasses; and
- *No respiratory protection.*

The following may also be included:

- Tyvek or Saranex suit;
- boot/shoe covers;
- inner vinyl gloves and/or outer nitrile rubber gloves;
- shoe/boot covers and protective gloves used in conjunction with tyvek suits must be taped at the ankles and cuffs; and
- hearing protection (ear plugs/muffs).

Violation of PPE requirements will be subject to disciplinary policy.

16.0 PROTECTIVE CLOTHING DONNING/DOFFING PROCEDURES

The purpose of the protective clothing donning/doffing procedures is to ensure that on-site personnel are instructed in the proper way to don/doff protective clothing. Failure to adhere to these procedures may result in the protective clothing being ineffective against a potential contaminant. The following donning/doffing procedures are given as a guide and may be altered by the Field Services Manager if improvements can be made to the procedure and these changes are warranted in the field.

16.1 Protective Clothing Donning Procedure

a. Proceed to the PPE Storage area and dress out utilizing the Task-Specific required PPE. Always inspect protective gloves, boot/shoe covers, tyvek, and respiratory protective equipment for proper fit, integrity (i.e., rips, tears, holes), and proper functioning.

b. Tape protective gloves and shoe covers at the cuffs and ankles when wearing protective clothing, if within Task-Specific PPE requirements.

16.2 Protective Clothing Doffing Procedure

a. Wash/rinse (if necessary) excess dirt or debris from outer gloves/boots, and protective clothing prior to leaving the work zone.
b. Remove outer tape and outer layers of clothing (Saranex, glove, boot/shoe covers) placing disposable PPE in designated drums, and reusable PPE in designated locations.
c. Thoroughly wash hands and face prior to any hand-to-mouth activities including smoking, eating, drinking, etc.

17.0 DECONTAMINATION

The purpose of decontamination is to prevent contaminants that may be present on protective clothing and equipment from coming into contact with personnel as they doff PPE. Also, decontamination protects workers from hazardous substances that may contaminate and eventually permeate the PPE used; it protects personnel by minimizing the transfer of harmful materials into clean areas. Combining decontamination with the correct sequential method of removing PPE will minimize possible exposure to personnel leaving the work areas as well as off-site migration of contaminants.

Generally, decontamination is accomplished by starting at the first station with the most heavily contaminated item and progressing to the last station with the least contaminated item. Each item of PPE requires a separate station and shall be marked accordingly.

The purpose of equipment decontamination is to prevent exposure to personnel during loading, transporting and unloading at another site. It is also to prevent off-site migration of contaminant from one site to another. Also, in many cases, proper decontamination of equipment could eliminate the need to utilize PPE, or reduce PPE levels, during maintenance type activities.

17.1 Personnel Decontamination

Removal of loose mud or other substrate from personnel and equipment will be performed prior to leaving the exclusion zone. Additional material will be removed in the contamination reduction zone by brushing, or washing as necessary. Personnel will remove any disposable PPE and discard into provided containers/drums prior to leaving the contamination reduction zone. Personnel shall thoroughly wash hands and face before leaving the area and engaging in any hand-to-mouth activities (i.e., eating, drinking, or smoking).

17.2 Equipment Decontamination

All equipment shall be decontaminated at the job site, prior to removal from contaminated work areas. All equipment decontamination, of this nature, shall be performed by using wet-wipe methods or steam cleaner (large equipment, tools), if necessary, prior to removal from work areas. All equipment decontamination efforts shall be conducted in accordance with provisions within the contract specifications.

18.0 DISCIPLINARY POLICY

All STEP and lower-tier subcontractor employees shall be subject to the following progressive disciplinary policy, per contract specifications, for violation of "Imminent - Danger Violations" by OSHA regulations or rulings.
These include:

1. for first violation: two (2) days off without pay;
2. for second violation: one (1) week off without pay; and
3. for third violation: indefinite suspension from job site.

Note: For flagrant disregard/violation of policy/procedure personnel are subject to immediate and permanent suspension from the job site and termination of employment.

Violating any safety rules of a lesser nature will involve the following progressive disciplinary actions:

1. for first offense: documented verbal warning;
2. for second offense: written warning;
3. for third violation: three (3) days restricted from site; and
4. for fourth violation: indefinite restriction from site.

19.0 SAFE OPERATING CONDITIONS

STEP has the responsibility for providing and maintaining safe tools and equipment for field personnel. This responsibility includes, but is not limited to: certification of safe operating conditions for all power and non-power tools; assuring proper maintenance of earthmoving equipment, vehicles, protective devices for power hand tools, and other portable equipment; and tag out or removal of defective tools and equipment from the work area. All tools and equipment shall be covered under a regular inspection and control program. Prior to arrival and use at the project site, tools and power-operated equipment shall be inspected and checked for defective parts or operation. Only tools and equipment passing this inspection shall be assigned to this project. Subsequent site inspections of tools and all power-operated machinery will occur daily. Regular tool and equipment inspections will be performed for the duration of the project as required in STEP's Corporate Safety Program, Section 4.0. Employee exposure to airborne contaminants, and other potential health effects shall be monitored on site by the Field Services Manager. The Field Services Manager shall serve in the role of "Competent Person" during inspection of work site conditions and equipment.

20.0 SANITATION/ILLUMINATION

Restrooms and field washing facilities shall be available on site for use on this project. All personnel are expected to utilize good personal hygiene practices when exiting potentially contaminated work areas. Observing hygiene practices will minimize the potential migration of contaminants from "dirty" areas into "clean" areas. Following exit from contaminated work areas, personnel are expected to wash hands and face prior to engaging in any hand-to-mouth activities (i.e., eating, drinking, smoking, applying cosmetics).

The Field Services Manager will evaluate illumination levels and require the following illumination intensities for the specified work.

Intensity	**Area of Operation**
5 footcandles	General Construction Area
5 footcandles	Hallways/Aisles
10 footcandles	Equipment Operations (drill rig)

21.0 MONITORING/SAMPLING

Monitoring and sampling shall be conducted to evaluate potential physical, inhalation, ingestion, absorption, and contact hazards or exposures to personnel. The evaluation of hazards and exposures will determine the effectiveness of engineering controls, PPE requirements, and safe work practices. This will be achieved through various instantaneous and integrated sampling techniques for physical, and chemical hazard/exposure concerns.

Instantaneous monitoring equipment used by STEP will be operated in accordance with manufacturer specifications and operation procedures. A copy of the manufacturers' procedure or specification will be maintained at the project site for review, as necessary.

21.1 Industrial Hygiene Monitoring/Sampling Equipment

The following monitoring/sampling equipment may be used at the project site by STEP personnel in identifying, evaluating, and controlling contaminant exposure hazards.

- *Organic Vapor Monitor/Flame Ionization Detector* - used for pre-entry and periodic checks of confined areas
- *Sound Level Meter/Dosimetry* – may be used to obtain noise level or exposure data
- *Oxygen/Combustible Gas Meter* – used for pre-entry and periodic checks of confined areas

21.2 Industrial Hygiene Monitoring Action Levels

Industrial Hygiene Monitoring Action Levels

Industrial Hygiene Monitoring	Action Level	Response Actions
Organic Vapors (Petroleum Hydrocarbons and TCE)	50 ppm in breathing zone for >5 minutes.	Evacuate area until consultation with Corporate Safety Manager
Noise	TWA >85 dBA	Utilize Hearing Protection
Oxygen, Combustible Gas	<19.5% O_2 or ≥ 10% LEL	Evacuate excavation

21.3 Documentation of Monitoring

All industrial hygiene sampling data will be maintained in the project files. Monitoring results from direct-reading instruments will be documented in the project log. Personal monitoring results will be presented and explained to the employee within 48 hours of receipt of the results.

22.0 PROJECT DOCUMENTATION

Documents applicable to safety and health shall be the responsibility of the Field Services Manager and shall be maintained on site for review. The safety and health documents listed below shall be maintained on site during working hours. These records will be available for review and shall become part of the project historical files upon completion of the project.

- Approved HASP
- Site Monitoring/Calibration Records
- Training/Safety Meeting Attendance Rosters
- Accident/Illness Reports
- Daily Safety Inspection Reports
- Training Documentation Records
- Medical Documentation Records
- Job Site Inspection Records
- Equipment Inspection Records

23.0 EMERGENCY RESPONSE

The purpose of this section is to safeguard human health and the environment in the event of an emergency. This section also addresses the actions to be taken in response to an emergency. The responsibility of the day-to-day implementation of this Emergency response information lies primarily with the Field Services Manager. During an actual response situation, the Field Services Manager will serve as the Emergency Coordinator. Route and directions to the hospital is shown in Attachment C.

23.1 Pre-Emergency Planning

The following pre-emergency tasks shall be accomplished prior to commencement of work:

1. Telephones and emergency alarm devices will be located.
2. Emergency telephone numbers will be posted at accessible telephone locations.
3. A site map marked with planned evacuation routes, assembly points, emergency equipment, and supplies will be provided.
4. The emergency response plan will be reviewed and revised in the event of a failure of the plan in an emergency, changes in site conditions, or scope of work.

23.2 Emergency Medical Treatment and First Aid

In the event of an emergency involving personal injury or illness, first aid should be rendered by a CPR-trained person and Emergency Medical Services should be summoned. Personnel will be decontaminated (if injury/illness occurs in a contaminated area and PPE is being utilized) to the extent possible without further injury. Life saving and first aid procedures take priority over personal decontamination efforts.

23.3 Emergency Contact/Listing

Emergency Resources are as follows:

<u>Fire Department</u>	
Fire/HazMat Response (North Charleston)	911
Local (North Charleston)	911
<u>Police</u>	
Local (North Charleston)	911
<u>Ambulance/Hospital</u>	
Roper Hospital North (Primary)	(843) 745-2787
Roper Hospital North (Non-emergency)	(843) 744-2110
Charleston Memorial (Alternate)	(843) 577-0600
<u>Other Important Numbers</u>	
Poison Control Hotline	1-800-522-4611
EPA National Response Center	1-800-424-8802
PEER Occupational Medicine Services, Inc.	(865) 481-3013
STEP Field Services Manager	(865) 679-2098

STEP Corporate Safety Manager	(865) 777-1401
Dept. of Navy POC: Gabriel Magwood	(843) 820-7307
Marine Corps Reserve POC: SGT Danielson	(843) 743-5208
SCDHEC 24-hr Emergency	(888) 481-0125

24.0 REFERENCES

OSHA. 29 CFR Part 1910 and 1926 Standards;

STEP, Inc., 2001. *Corporate Safety and Health Program Manual*, August.

Appendix A

Activity Hazard Analysis

STEP, INC.
ACTIVITY HAZARD ANALYSIS LOG

24.1 Project Title: Tank Closure of Aboveground Storage Tank 2505 and Oil/Water Separator Removal, Charleston, South Carolina			
Contract No: N62467-01-M-0366	**Delivery Order #:**	**Revision #:0**	**Construction Phase: ALL**
I have read or been briefed on the attached AHA and understand the hazards associated with this job and will comply with the provisions set forth herein.			

#	Date	Time	Company Affiliation	Printed Name	Signature
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

STEP, INC.
ACTIVITY HAZARD ANALYSIS (AHA)
FOR CONSTRUCTION ACTIVITIES

Work Activity	Potential Hazard	Required Actions or Procedures
Mobilize/Demobilize	• Injury to head, eyes, foot, hand, and hearing	• Hard hats (ANZI Z87.1), safety glasses with sideshields, ANSI approved steel toed footwear required. • Leather or cotton gloves shall be worn when handling materials with rough or jagged surfaces. • Hearing protection required if exposed to high noise. *Rule of thumb – hearing protection required if you must raise your voice to be heard at 3 feet away.* • First-Aid/CPR trained individual must be onsite during performance of work. First-Aid kit and emergency reporting phone numbers must be accessible in the event of an emergency. • All accidents/injuries must be reported to the Safety Officer or Superintendent as soon as possible.
	• Back Injury	• Use proper lifting techniques - keep back straight when lifting, and bend at the knees. Maximum unassisted weight is 50 lbs.
	• Shifting/Falling Materials	• Materials will be stacked neatly and orderly away from the work area, vehicular traffic areas, and pedestrian travel areas.
	• Slips, Trips, Falls	• Housekeeping will be maintained at all times to remove obstructions and debris to prevent accidental slips, trips, and falls. • The construction area will be flagged and warning signs posted to identify the hazards posed in the area (i.e., “Construction Area - Hard Hat and Safety Glasses Required”; “Hearing Protection Required”; “Confined Space - Permit Required Prior To Entry”; “Open Excavation”; etc.)
	• Motorized Equipment Failure	• Trained, experienced, and authorized equipment operators only. • Daily operator checklist must be completed on all motorized equipment to ensure proper and safe functioning. • Set brake and chock wheels on equipment and haulage trucks when unattended.

STEP, INC.
ACTIVITY HAZARD ANALYSIS (AHA)
FOR CONSTRUCTION ACTIVITIES

Work Activity	Potential Hazard	Required Actions or Procedures
ALL TASKS	• Injury resulting from unknown hazard • Injury to head, eyes, foot, hands or chemical exposure	• The Field Services Manager shall conduct a pre-work safety orientation briefing to include a review of the project HASP, activity hazard analysis, and permits. • **Minimum PPE required** - Hard Hat, Safety Glasses with sideshields, ANSI approved steel-toed footwear. Cotton or leather gloves required when handling materials with sharp or jagged parts. • Task-specific training and medical surveillance verification performed by Safety Officer or Field Services Manager prior to start of work tasks.
	• Injury from defective or damaged equipment or tools	• Daily operator inspection required for all tools/equipment prior to use. Quarterly inspection of electrical cords, and ladders required by Safety Officer or other designated "Competent Person". • Inspect tools and equipment daily prior to use Defective tools and equipment shall be tagged immediately - DEFECTIVE: DO NOT USE, and shall be removed from the jobsite immediately. Tools and equipment which cannot be repaired shall be destroyed or otherwise made inoperable prior to removal from the site.
	• Injury or illness due to unsafe act or unsafe condition	• Weekly safety meetings conducted by the Safety Officer or Superintendent - all project personnel, including subcontractor personnel, are required to attend. An attendance roster will be maintained to provide documentation of the meetings. • Minimum 1 First-Aid/CPR & Bloodborne Pathogen trained personnel must be onsite during any work. • Workers shall report all injuries or incidents. If you are not sure of the hazards posed by your work task, and are not aware of the safety requirements in performance of the work, **ask the Field Services Manager.**
	• Electrical Shock	• Utility clearance must be obtained prior to any excavation activities. All above ground and/or overhead utilities must be located prior to commencing work. Safe equipment operating distances must be observed when working in proximity to overhead utilities.

STEP, INC.
ACTIVITY HAZARD ANALYSIS (AHA)
FOR CONSTRUCTION ACTIVITIES

Work Activity	Potential Hazard	Required Actions or Procedures
Hand and Mechanical Excavation	• Disturbing buried underground or above ground utilities	• Utility clearances are required prior to commencing excavation work. Review excavation/penetration permit, if required, prior to excavating soils. Locate all above ground utilities to maintain safe distances with equipment. Use hand tools, if feasible, to excavate in areas within 2 feet of known or suspected underground structures (i.e., gas, sewer, water, communications, electrical).
	• Electrical Shock	• Ground excavating equipment whenever the equipment is being operated in an area where contact with energized lines (aboveground/underground) may be possible - within 20 feet of energized lines). GFCIs are required for use on all electrical extension cord sets and power-tools. Electrical hand tools must be UL-approved and of the double-insulated type or provided with a male ground prong on the service cord.
	• Pedestrian or vehicular traffic	• Signs and barricades shall be posted at all points where pedestrian or vehicle traffic approaches the excavation.
	• Collapse of excavation	• All excavation shall be supervised at all times by an excavation competent person. Inspection of the excavation must be completed by the designated competent person prior to personnel entry daily and following any event that may affect the stability of the excavation or changed conditions within the excavation. • Spoils from the excavation must be kept a minimum of 2 feet from the nearest edge of the excavation to prevent accidental entry into the open excavation. • Equipment is to be restricted from working near the edge of an open excavation while personnel are in the excavation. • Personnel entry into excavations greater than 4 feet in depth shall be performed using protective systems (i.e., trench boxes, hydraulic shoring, benching, or sloping) in compliance with OSHA Standards. The designated competent person will be responsible for selection and implementation of protective system use.

STEP, INC.
ACTIVITY HAZARD ANALYSIS (AHA)
FOR CONSTRUCTION ACTIVITIES

Work Activity	Potential Hazard	Required Actions or Procedures
• Mobile Equipment Operation (All Phases)	• Excessive Noise	• Utilize hearing protection devices (ear plugs) when working around heavy equipment producing excessive noise. Safety Officer or Superintendent will conduct noise survey to determine specific hearing protection requirements. Follow requirements outlined in the Site HASP, and Corporate Hearing Conservation Program.
	• Personnel struck by equipment	• Back-up alarms required for all heavy equipment and haulage trucks. Spotter may be utilized in addition to of audible back-up alarms whenever necessary. • Maintain safe operating speeds. • Personnel working in proximity of heavy equipment will be required to wear orange vests to increase visibility. • Flagging and signs will be posted to identify and segregate heavy equipment hazard areas. Only trained and authorized personnel permitted within work areas. Pre-entry safety briefing to be conducted by the SESHR or other designated individual cognizant in site hazards.
	• Equipment failure resulting in personnel injury	• Operator must conduct daily inspection of equipment prior to use. Follow manufacturer recommended equipment check-out procedure, if applicable. • All safety equipment and guards must remain in place and operational. • Use of seat belts mandatory during operation of motorized equipment. • Maintain clear and adequate access ways, roadways, and work ways for safe vehicle equipment traffic. • Equipment operators are to be aware of overhead and side clearance

STEP, INC.
ACTIVITY HAZARD ANALYSIS (AHA)
FOR CONSTRUCTION ACTIVITIES

Work Activity	Potential Hazard	Required Actions or Procedures
• Welding/Cutting	• Eye & Skin Injury	• Approved welding hoods and/or burning goggles must be worn to protect the eye from injury. • Protect exposed skin from UV-rays produced by arc-welding activities. Use protective gloves, long sleeve shirts with collars, or welding jackets to protect hands, arms, and neck from exposure.
	• Burns due to contact with hot metal	• Shielding is to be used (whenever practical to protect the eyes of others in the area within 50 feet of welding operation).
	• Respiratory hazard	• Protective gloves required when performing hot work. Follow safe use procedures provided by the welding apparatus manufacturer. • Respiratory protection is required when performing welding operations involving galvanized or stainless metal. Use local exhaust whenever practical. See site Safety Officer for respiratory protection equipment requirements.
	• Fires	• Hot Work Permit required prior to commencement of ANY hot work. Follow requirements contained in the permit. • A trained fire watch must be present during and for a minimum of 30 minutes after work is performed. • A dry chemical fire extinguisher of at least 10 lbs. must be within 25 feet of any welding operations. • Inspect hot work equipment daily prior to use. Damaged or defective equipment must be tagged and removed for service/repair. • Hoses and welding leads should not be exposed to pinch points. Protect them from damage. • Remove combustible and flammable materials. See requirements on Permit.

STEP, INC.
ACTIVITY HAZARD ANALYSIS (AHA)
FOR CONSTRUCTION ACTIVITIES

Work Activity	Potential Hazard	Required Actions or Procedures
• Material Handling (General)	• Spills of fuel or other liquids	• Maintain a spill cleanup kit onsite during any operations. Equipment fueling vehicles must have a spill kit immediately available. • Report any spills immediately. Contain and cleanup any leak or spill if feasible. DO NOT PUT YOUR SAFETY AT RISK - DIAL 911, if necessary.
	• Fires from fueling of equipment	• No open flames, sparks, or smoking permitted within 50 feet of equipment fueling activities. Equipment engine must be turned off during fueling. • Bonding is required during gasoline dispensing operations. Bonding may be achieved by using a common bonding wire attached to the dispensing container and the equipment frame. Bonding may also be achieved by direct contact between the metal safety container and the equipment's metal fuel tank.
	• Overloading Haulage Trucks	• Plan route of travel – adhere to DOT requirement. Be aware of any height, width, and weight restrictions which may affect the safe transport of materials. • Know the capacity of the equipment being used to haul or transport of material. • Secure materials on flat trailers with chains, boomers, or nylon “tie-down” straps to prevent shifting, sliding, or falling during transport. • Secure materials in the “load-carrier” (trailer). No materials are allowed to extend outside the trailer. Material loads must not extend above the top of the trailer.

STEP, INC.
ACTIVITY HAZARD ANALYSIS (AHA)
FOR CONSTRUCTION ACTIVITIES

Work Activity	Potential Hazard	Required Actions or Procedures
Hoisting/Rigging (During Material Handling Tasks)	• Failure of slings, chokers, or other hoisting/rigging equipment	• All hoisting/rigging equipment must be inspected by the Project Supervisor prior to entry to the job site. • All hoisting and rigging equipment shall be inspected for excessive wear and defects **prior to**, **during**, and **after each use**. • Hoisting/Rigging equipment shall not be loaded in excess of its safe working load limit. • All Hoisting/Rigging equipment (i.e., synthetic slings, wire rope chokers, shackles) shall be marked with its working load limit.
	• Defective or unsafe hoisting and rigging equipment being used on the job site	• Job or shop hooks and links, or makeshift devices, formed from bolts, rods, etc., or other such attachments shall not be used. • All lifting equipment shall be brought to a designated staging area and inspected for excessive wear and defects prior to initial use on the job site. • Only equipment designed for hoisting and rigging shall be used in hoisting/rigging operations. • Wire ropes shall not be secured by knots or otherwise rigged to cause permanent distortion to the wire rope.
	• Failure of custom lifting devices	• Custom lifting devices shall be marked with the safe working load limit. A documented proof test is required prior to initial use onsite.
	• Slings or shackles coming loose from hooks	• Hooks used for hoisting/rigging operations shall be provided with safety latches.
	• Unqualified persons performing rigging operations	• Only trained and qualified persons shall engage in rigging and signaling activities. • Employees involved in hoisting and rigging activities shall receive awareness training in the limitations and proper use of the rigging equipment.

Work Activity	Potential Hazard	Required Actions or Procedures
Hoisting/Rigging - CONT. (During Material Handling Tasks)	• Unforeseen problems during a lift	• Each employee has the authority to stop a lift if any condition or situation occurs that could affect the safety or success of the lift.
	• Shifting load or uncontrolled load	• Whenever practical loads shall be rigged to fixed lifting points on the item/material being hoisted. Otherwise, loads shall be rigged to maintain balance during the hoisting/rigging operation. • All hoisting/rigging operations shall be performed under the direct supervision of the designated Hoisting/Rigging Supervisor. • All suspended loads shall be controlled using tag lines whenever feasible. Personnel assigned tag line duty shall remain a safe distance from suspended loads. NO PERSONNEL ARE ALLOWED UNDERNEATH SUSPENDED LOADS.
	• Overhead electrical	• Maintain safe distances from high voltage lines and mechanical pipe systems (crane grounding shall include use of a suitable ground rod and insulated 4/0 cable).

Attachment A

Weekly Jobsite Checklist

WEEKLY JOBSITE CHECKLIST

PROJECT NAME: **JOB/TASK #:**
PROJECT SUPERINTENDENT:

DESCRIPTION	YES	N/A	NO	IF NO, WHY
1.0 Project Administration: 1926, Subpart C				
1.1 OSHA and other required posters/signs posted?				
1.2 Do all employees meet the required training level?				
2.0 Housekeeping: 1926, Subpart C				
2.1 General orderliness of the site acceptable?				
2.2 Passageways and walkways clear?				
2.3 Containers with lids provided for trash?				
3.0 Medical Services and First Aid: 1926, Subpart D				
3.1 One employee on-site with current CPR/First Aid?				
3.2 First Aid kit provided and properly maintained?				
3.3 Emergency communication and numbers available?				
4.0 Sanitation: 1926, Subpart D				
4.1 Are the toilet facilities adequate and clean?				
4.2 Adequate supply of drinking water provided?				
5.0 Hazard Communication Program: 1926, Subpart D				
5.1 Is a hazardous material inventory available?				
5.2 Are MSDSs available for all hazardous materials on site?				
5.3 Are all chemical containers properly labeled?				
5.4 Have all employees been trained?				
6.0 Personal Protective Equipment, 1926, Subpart E				
6.1 Are approved hard hats worn by all personnel?				
6.2 Are eye and face protection provided and use enforced?				

DESCRIPTION	YES	N/A	NO	IF NO, WHY
6.3 Is hearing protection provided and use enforced?				
6.4 Are full body harnesses and shock absorbing lanyards provided when required?				
6.5 Is all equipment inspected regularly and maintained in a safe and sanitary condition?				
7.0 Fire Protection and Prevention: 1926, Subpart F				
7.1 Is the necessary fire fighting equipment provided?				
7.2 Access to hydrants and extinguishers kept open?				
7.3 "No smoking" areas posted and enforced?				
7.4 Are all combustible or flammable materials stored, dispensed, and used properly?				
8.0 Signs and Signals: 1926, Subpart G				
8.1 Are warning signs properly posted and visible?				
8.2 Is the construction area properly posted?				
9.0 Handling and Storage of Materials, Subpart H				
9.1 Is all material stacked, racked, blocked, or otherwise secured to prevent falling or collapse?				
9.2 Are correct lifting methods used?				
9.3 Is all rigging equipment properly used and inspected?				
10.0 Flammable gasses and liquids: 1926, Subpart H				
10.1 All containers and storage areas properly posted?				
10.2 Proper storage practices in place?				
10.3 Proper protection from fire hazards?				
11.0 Tools - Hand and Power: 1926, Subpart I				
11.1 Proper tools being used for the job?				
11.2 Proper inspection and maintenance of tools?				
11.3 Tools and cords in good condition? Free of defects?				
11.4 All mechanical safeguards in place?				
11.5 Ground Fault Circuit Interrupters being utilized?				

DESCRIPTION	YES	N/A	NO	IF NO, WHY
12.0 Welding and Cutting: 1926, Subpart J				
12.1 Power cables and hoses protected and in good repair?				
12.2 Welding screens or shields being utilized?				
12.3 Gas cylinders properly stored and used?				
13.0 Electrical, 1926, Subpart K				
13.1 Adequate wiring, well insulated, no frayed cords?				
13.2 Are extension cords (three wire type) designed for hard or extra hard usage?				
14.0 Scaffolding: 1926, Subpart L				
14.1 Erection by competent person?				
14.2 Are footings on a substantial base?				
14.3 Is scaffold tied to a structure or outriggers in place as required?				
14.4 Are guardrails, midrails, or toeboards provided?				
15.0 Floor and Wall Openings: 1926, Subpart M				
15.1 Are all wall openings guarded?				
15.2 Are open sided platforms 4ft. above the floor guarded?				
16.0 Cranes and Derricks: 1926, Subpart N				
16.1 Are rated load capacities, operating speeds, special instructions and hand signals posted on equipment?				
16.2 Are inspection and maintenance logs kept?				
17.0 Motor Vehicles and Heavy Equipment: 1926, Subpart O				
17.1 Lights, brakes, warning devices operative?				
17.2 Rollover Protection (ROPs) provided as required?				
17.3 Is all glass in good condition, back up signals operative, seat belts and fire extinguishers provided?				
18.0 Excavations - Shoring and Trenching: 1926, Subpart P				
18.1 Adequate access/egress provided every 25 feet?				
18.2 Is the excavation barricaded 6 feet from the edge?				

DESCRIPTION	YES	N/A	NO	IF NO, WHY
18.3 Are adequate control measures in place (i.e. shoring, sloping)?				
19.0 LADDERS: 1926, SUBPART X				
19.1 Are ladders regularly inspected?				
19.2 Are ladders properly secured to prevent falling?				
19.3 Do the side rails extend 36 in. above top of landing?				
Environmental Protection				
20.1 Sediment Controls in place (silt fence, haybales)?				
20.2 Equipment and vehicles free from fluid leaks?				
20.3 Spill kit on-site available for use?				
ADDITIONAL COMMENTS				

Attachment B

Equipment Daily Inspection Checklist

SOLUTIONS TO ENVIRONMENTAL PROBLEMS, INC.
DAILY EQUIPMENT CHECKLIST

Operator: _____
Equipment Type:_____

	Operational	
	Yes	No
1) Tires	☐	☐
2) Oil	☐	☐
3) Fuel System	☐	☐
4) Hydraulic Fluid	☐	☐
5) Hydraulic System (Pump, Hoses, Fittings)	☐	☐
6) Brakes – Including Parking Brake	☐	☐
7) Windshield:		
a) No Cracks	☐	☐
b) Clean (Clear Visibility)	☐	☐
c) Wipers Operational	☐	☐
8) Steering System	☐	☐
9) Seat Belts	☐	☐
10) Controls	☐	☐
11) Fire Extinguisher (Current Inspection – Monthly)	☐	☐
12) Horn	☐	☐
13) Back-up Alarm Functioning	☐	☐
14) Lights		
a) Head Lights	☐	☐
b) Tail Lights	☐	☐
c) Brake Signal	☐	☐
d) Turn Signals	☐	☐
15) Forks	☐	☐
16) Mast Components	☐	☐
17) Rated Load Capacity Posted	☐	☐

Comments

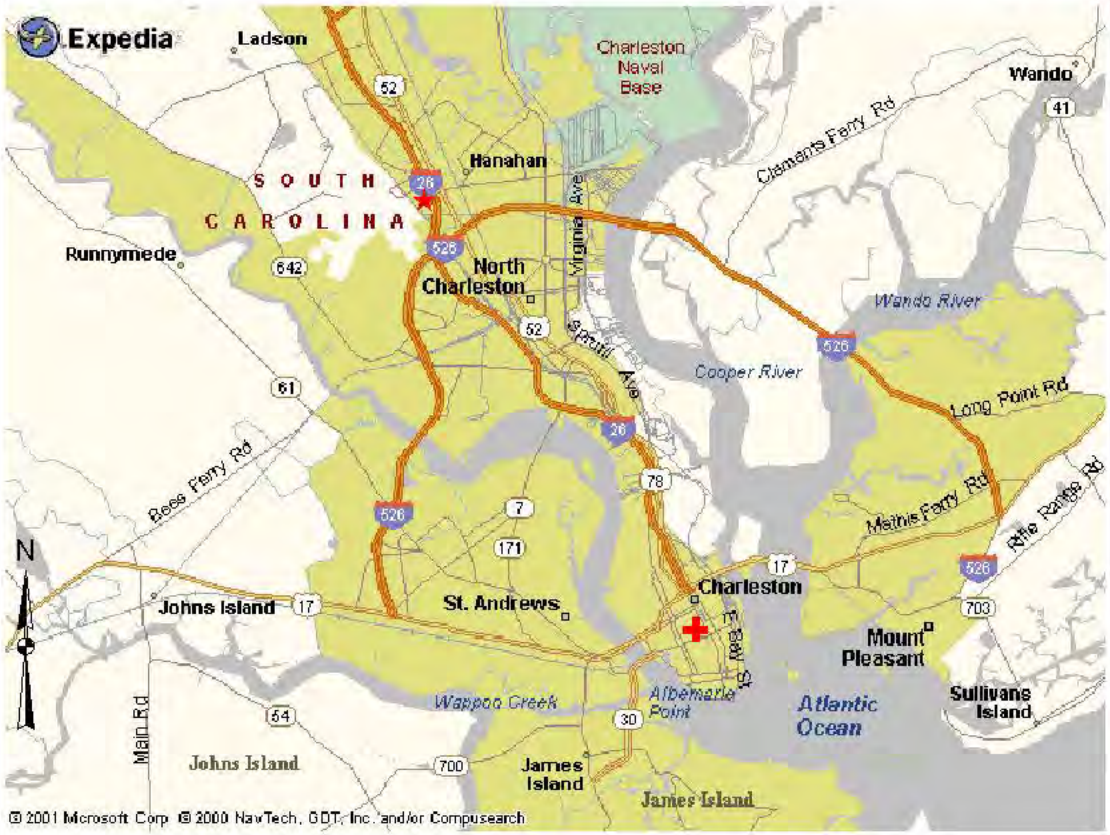
_____

_____

Inspected By (Signature): _____ Date: _____

Attachment C

Route to Hospital



Directions from site

Right on to Remount to Interstate 26, Exit 212
Turn right (South) onto Interstate 26
Continue (South, South-East) Interstate 26
At Exit 221, turn Right (West) onto Septima Clark Expy (US 17)
Bear Left (South) onto Ashley Ave.
Turn Right (West) onto Calhoun Street

Total drive approximately 11 miles and 17 minutes.

hospital-memorial charleston_navel.apr 9/17/2001

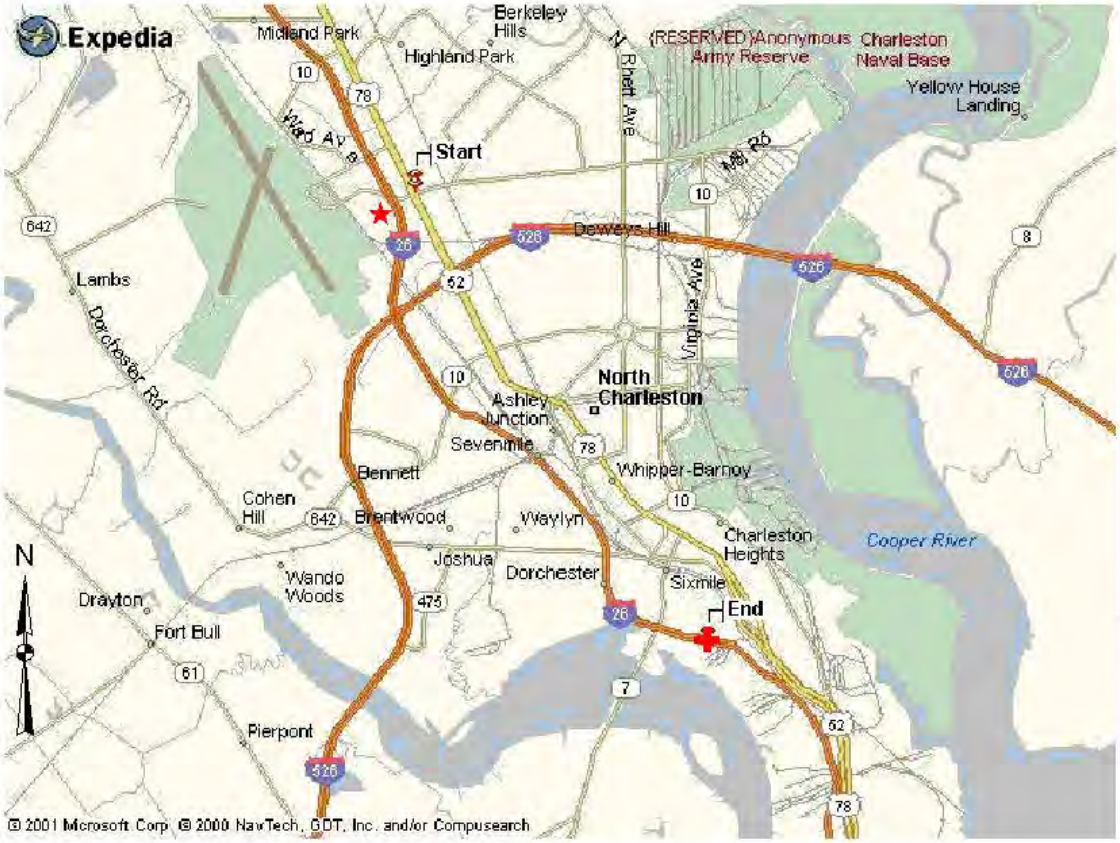
LEGEND

★ Site Location

✚ Hospital

Source: Expedia.com
Prepared By: STEP, Inc. Oak Ridge, TN
Job Title: Tank Closure of Aboveground Storage Tank 2505
Charleston Navel Complex Annex
Charleston, South Carolina

Charleston Memorial Hospital Location Map



Directions from site

Right on to Remount to intersection of Rivers Ave.
Right (South) onto Rivers Ave. (US-52)
Continue (South, South-East) on Rivers Ave. (US-52)
Turn Right (West) onto Azalea Drive
Bear Left (West) onto Baker Hopital Blvd.
Turn Right (West) onto Speissegger Dr.
Turn Right (North) onto Local road

Total drive appromately 6 miles and 15 minutes.

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LEGEND

★ Site Location

✚ Hospital

Source: Expedia.com
Prepared By: STEP, Inc. Oak Ridge, TN
Job Title: Tank Closure of Aboveground Storage Tank 2505
Charleston Navel Complex Annex
Charleston, South Carolina

Roper Hospital Location Map