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WORK PLAN FOR CHARLESTON NAVAL COMPLEX TANK CLOSURES AT BUILDINGS 4,  
32, AND 1514 QUARTERS Z AND X-12 CNC CHARLESTON SC  
5/1/2001  
ENVIRONMENTAL ENTERPRISE GROUP



**WORK PLAN FOR TANK CLOSURES  
AT BUILDINGS  
4, 32, 1514, Quarters Z and X-12  
CHARLESTON NAVAL COMPLEX  
CHARLESTON, S.C.**



**Prepared for:**

DEPARTMENT OF THE NAVY  
SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
CHARLESTON, S.C.



**Prepared by:**

**Environmental Enterprise Group, Inc.  
1949 Avenue D  
North Charleston, SC 29405**

**WORK PLAN**

**CHARLESTON NAVAL COMPLEX**

**TANK CLOSURES  
AT BUILDINGS**

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**ACRONYM LIST**

AST	Aboveground Storage Tank
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CHASP	Comprehensive Health and Safety Plan
CNC	Charleston Naval Complex
CRZ	Contamination Reduction Zone
EEG, Inc.	Environmental Enterprise Group, Inc.
EPA	U.S. Environmental Protection Agency
EZ	Exclusion Zone
HAZWOPER	Hazardous Waste Operations and Emergency Response
LEL	Lower Explosive Limit
mg/m <sup>3</sup>	Milligrams per Cubic Meter
MSDS	Material Safety Data Sheet
NIOSH	National Institute of Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
OVA	Organic Vapor Analyzer
PEL	Permissible Exposure Limit
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works
PPE	Personal Protective Equipment
PPM	Parts Per Million
PVC	Polyvinyl Chloride
SCDHEC	South Carolina Department of Health and Environmental Control
SHSO	Site Health and Safety Officer
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SSHSP	Site-Specific Health and Safety Plan
SZ	Support Zone
TLV	Threshold Limit Values
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank

## **1.0 INTRODUCTION**

This work plan is for the permanent closure of two aboveground storage tanks (AST) and three underground storage tanks (UST) on the Charleston Naval Complex. Closure of AST 32-501, AST 1514 and UST X-12 will be by removal. UST 4 and UST Z will be closed-in-place by filling with an inert material. Tank 32-501 is a 117,000 gallon steel vertical tank that has already been emptied and cleaned. Tank 1514 is a 550 gallon tank that supplied fuel to a diesel engine within the Building 1514 pumphouse. Tank X-12 is estimated to be a 5000 gallon tank under a concrete slab. A fuel dispenser on top of the slab will be removed. Tank 4 is a 100 gallon tank under asphalt that supplied fuel to an emergency generator. Tank Z is a 275 gallon tank under concrete in the garage of Quarters Z. Both Tanks 4 and Z may require coring to obtain closure samples.

### **1.1 REFERENCES**

Publications listed below were used in the development of this work procedure and are referred to in the text by basic designation only.

#### **AMERICAN PETROLEUM INSTITUTE (API)**

- API RP 1604            1996 Closure of Underground Petroleum Storage Tanks
- API PUBL 2015        1994 Safe Entry and Cleaning of Petroleum Storage Tanks

#### **CODE OF FEDERAL REGULATIONS (CFR)**

- 40 CFR 280            Owners and Operators of Underground Storage Tanks
- 29 CFR 1910,1926    Occupational Safety and Health Standards

#### **SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (DHEC)**

- R.61-92,            Underground Storage Tank Control Regulations, Part 280
- UST Assessment Guidelines for Permanent Closure and Change-In-Service
- Analytical Methodology for Ground-Water and Soil Assessment

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## Guidelines

### OTHER

National Fire Protection Association

NFPA 30 Appendix B Abandonment or Removal of Underground Tanks

US Army Corps of Engineers

EM 385-1-1 Safety and Health Requirements Manual

## 1.2 DESCRIPTION OF WORK

This work involves the removal and disposal of two AST's and one UST, and closure-in-place of two additional UST's. WORK PHASE ONE will locate underground utilities, the tanks/associated piping and pump any remaining product from the tanks. WORK PHASE TWO will consist of tank and piping removal or flushing/blanking. WORK PHASE THREE will clean and prepare the tank for recycle or scrap. All work shall be performed in accordance with all local, state, and federal regulations.

TANK	SIZE	MAT'L	CLOSURE METHOD	CONTENTS	COVER	REMARKS
AST 32-501	110000gal 21'x45'	steel 1/4"	removal	empty and clean	n/a	partially removed 19' berm
AST 1514	550gal 48"x6'		removal	empty (was diesel)	n/a	
UST X-12	est.5000gal 72"x24'or 96"x13'		removal		concrete 14'x8'x10"	fuel dispenser on top of concrete
UST 4	100gal 25"x4'		inplace	22" diesel	asphalt	30" deep core through asphalt for sample
UST Z	275gal 38"x5'		inplace	11" diesel	concrete	36" deep, inside garage core through concrete for sample

## 1.3 SUBMITTALS

### 1.3.1 Closure Report (SITE ASSESSMENT REPORT)

The closure report shall contain all information required in Appendix 4 "*UST Assessment Report Form and Instructions*" of DHEC's "*UST Assessment Guidelines*". The required information will be obtained during performance of this work plan.

### 1.3.2 Records

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- a. Written notification to DHEC must be made one month prior to regulated UST removals. However, since this plan only addresses unregulated tanks, notification is not necessary.
- b. A sketch showing the tank and associated piping, extent of any excavation, and associated sampling locations will be recorded per the QC plan.
- c. Tank disposal paperwork will be retained for inclusion into the Closure Report.
- d. Contaminated soil/water disposal paperwork, such as laboratory sample results, for any disposed soil/water will be retained for inclusion into the Closure Report.
- e. Compaction testing results for backfilled excavated areas will be retained for inclusion into the Closure Report.
- f. Photographs showing work-in-progress shall be taken for inclusion into the Closure Report.

### **1.4 QUALIFICATIONS**

Tank removals will be performed by EEG personnel who have had a wide range of experience with complex industrial work. These personnel have successfully removed many underground and aboveground storage tanks. They are experienced and capable workers who are familiar with and shall abide by applicable portions of the following:

- a. API RP 1604 and API PUBL 2015
- b. Handling and disposal of wastes encountered in tank removal, including disposal of tanks and associated piping
- c. Excavation, testing, and disposal of petroleum contaminated soil, liquids, and sludge

### **1.5 PROJECT ORGANIZATION**

The Environmental Enterprise Group, Inc. will implement this Work Plan. The organizational chart and a brief description of duties are outlined in the EEG, Inc. Comprehensive Safety and Health Plan.

## **2.0 GENERAL REQUIREMENTS**

### ***2.1 SITE SPECIFIC HEALTH AND SAFETY PLAN (SSHSP)***

The Site Specific Health and Safety Plan (SSHSP) is included in Appendix B of this work plan. The SSHSP is additional information regarding safety and health concerns in performing this work plan and should not be construed as a replacement for the Comprehensive Health and Safety Plan. A copy of the Comprehensive Safety and Health Plan should be onsite during all work.

### ***2.2 ENVIRONMENTAL PROTECTION PLAN***

The Environmental Protection Plan is included as Appendix C.

### ***2.3 QUALITY CONTROL PLAN***

The Quality Control Plan is included as Appendix D.

### ***2.4 SPILL AND DISCHARGE CONTROL***

A comprehensive spill prevention and countermeasures control (SPCC) plan exists with the Caretaker Organization. All operations will be performed so as to minimize the possibility of a spill. In the event of a spill, immediate corrective action will be initiated by the work crew, and notification to the Caretaker Organization at (843) 743-9985 will be made.

### ***2.5 EXCLUSION ZONE (EZ) AND CONTAMINATION REDUCTION ZONE (CRZ)***

Personnel not directly involved with the project shall not enter the work zones, called the EZ and CRZ. The EZ shall be a minimum of 10 feet from the limits of the tank excavation. The perimeters of these zones shall be determined by the Project Manager using Figure 3 as a guide.

### ***2.6 SECURITY***

During the performance of work, the work area at the site shall be isolated by a barrier preventing unintentional entrance of the general population into the work zone. The Project Manager shall be responsible for establishing the barrier prior to ground disturbance.

**2.7 IGNITION SOURCES**

Control ignition sources inside the EZ and CRZ. Electrical grounding and/or bonding of equipment shall be performed prior to tank work.

**2.7.1 Work Area**

Prior to performing work that might involve the release of flammable vapors, vehicular and personnel traffic shall be routed away from the immediate area. All sources of ignition, including smoking, welding, burning, or other work that might be a source of ignition, shall be eliminated from the work area where flammable vapors may be present or likely to travel. This should include insuring all openings into surrounding structures are secured so as not to allow any flammable vapors to build up inside. Once excavation has begun the work area shall be kept free of all sources of ignition, such as electrical motors and internal combustion engines. Normally, the clear zones, inside which ignition sources are prohibited are: (a) 50 feet for storage of tanks and work on tanks and (b) 100 feet from pressurized ducting and the duct discharge area when using mechanical ventilation to ventilate tanks. These distances should be confirmed as safe by gas testing during the work in progress. Required equipment, e.g. a backhoe should be brought inside the perimeter only after testing of the atmosphere. Particular attention should be given to gasoline, or other low flash point flammables, and also when using mechanical ventilation. Work shall NOT be performed if wind direction would carry explosive vapors into areas that might produce a hazardous condition and/or during an electrical storm or threat of such a storm. A hazardous condition may exist in the area of the tank even following product removal and vapor-freeing due to temperature changes, sludge agitation within the tank, or a variety of other reasons. Electrical bonding and/or grounding connections shall remain in place throughout tank removal operations.

**2.7.2 Equipment**

Vacuum trucks or externally powered vacuum rigs, if used to remove product and sludge from tanks, shall be located in an area such that vapors can not reach the internal combustion engines associated with this type equipment. Only explosion proof pumps shall be used. In addition, a bonding/grounding strap shall be used during pumping. Only explosion proof flashlights shall be used, if portable lighting is needed. In hazardous (explosive) locations, extension cords shall be equipped with connectors or switches approved for locations with explosive atmospheres. Ensure that extension cords and other temporary electrical circuits are de-energized prior to connection and disconnection in the immediate area of the tank. Such equipment, when used, should be thoroughly inspected to ensure that it is not a source of ignition.

**2.7.3 Unexpected Ignition Sources**

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Unexpected sources of ignition are an ever present danger. Every effort must be made to avoid the release of vapors near ground level during ventilation and cleaning operations since it is not sufficient just to eliminate conditions known to be possible sources of ignition. Night cleaning of tanks is not recommended due to limited visibility.

### **2.7.4 Fire Extinguishers**

Fire extinguishers shall be readily available. The area fire department shall be notified prior to the start of vapor-freeing operations.

## **2.8 EQUIPMENT DECONTAMINATION**

Decontaminate equipment (as needed) before exiting the work zones. Decon will be performed by wiping, sweeping, and/or scrubbing with water if needed to remove oil, or oily dirt, sand and mud from coveralls, gloves, boots and tools. Minimize the use of water.

## **2.9 WASTE MANAGEMENT**

### **WASTE STREAMS**

#### **Excavated Soils**

The Project Manager shall determine whether the soil will be used as backfill or disposed of as contaminated soil. Disposal shall be by a licensed contractor and is not authorized to exceed 20 cubic yards.

#### **Water**

Water generated during removal of tanks and piping shall be stored and tested. If contaminated, transport and dispose of water in accordance with Federal, State, and local requirements. Non-contaminated water may be disposed of on-site.

#### **Scrap Metal**

Metal waste generated shall be recycled as scrap metal once it has been determined not to contain any hazardous materials.

#### **Construction Debris**

Concrete/asphalt, if encountered, will be disposed of as construction rubble/debris once all contaminated soils have been removed. Fiberglass tanks, once cleaned and cut up, shall also be disposed of as construction debris, however, the Project Manager shall be notified prior to disposal.

#### **PPE**

Waste classified as PPE will include disposable suits, gloves, boots, respirator cartridges, and plastic sheeting. If PPE becomes contaminated it may be deconned per the instructions in the Comprehensive Health and Safety Plan and reused or disposed of as trash. If the PPE cannot be deconned it shall be disposed of as solid waste.

**2.10 WORKSITE ATMOSPHERE**

The worksite atmosphere shall be monitored during all work operations. Anytime an atmosphere of greater than 10% of the LEL is encountered, the work shall be stopped area shall be ventilated using an **explosive proof blower**. The exhaust from the blower shall be routed to an area downwind and away from all work activities (including the backhoe). Monitor the exhaust from the blower.

**3.0 TANK CLOSURE**

This section is written primarily for a UST tank to be removed, but may be used for AST's and in-place UST closures. Use applicable portions of the steps below for AST's. See Paragraph 3.2.4 and omit actual removal steps for closure-in-place – **UST 4 and UST Z**. Due to work already done on AST 32-501 however, separate instructions are provided as Paragraph 4.

Tank removal/ disposal or closure-in-place will include:

- Labor, materials, necessary permits, laboratory tests and reports, and equipment to remove and dispose of products remaining inside the AST/UST
- Vapor freeing the AST/UST and associated piping
- Removal (or closure-in-place) of the AST/UST and associated piping
- Soil (and ,if encountered, groundwater) sampling
- Backfill excavation (if applicable) to the level of the adjacent ground and site restoration
- Cleaning and disposal of removed tanks and associated piping
- Disposal of waste generated by the project in accordance with all appropriate Federal, State, and Local regulations
- 
-

**3.1 WORK PHASE ONE**

3.1.1 Excavation Preparation

Locate area utilities and mark location.

3.1.2 Preliminary Excavation

Define the tank perimeter and piping runs and mark locations (this may be done well in advance of the actual excavation). Remove the concrete/soil covering the tank, if necessary, and piping.

3.1.3 Fuel Removal

All possible fuel shall be pumped or otherwise removed from the tanks. Pump down tanks into 55 gallon drums or other suitable containers and test to determine disposal options. Any remaining fuel, water or sludge will be considered as potentially contaminated and pumped into suitable containers until tested for disposal in accordance with approved procedures meeting State and Federal regulations. Any oil/water separator and drums or tanks used for containerizing waste water/fuel will be furnished by EEG,Inc.

**3.2 WORK PHASE TWO**

Excavation can be construed by area children as a play area (attractive nuisance). Insure that when work area is left unattended the excavation site is properly secured and barricaded.

3.2.1 Excavation

- a) Provide a temporary containment area for excavated soil a minimum of 2' from the edge of the excavation. Excavated soil will be returned to the excavation pit unless evidence of contamination is found by laboratory analysis. Excavated soil will be covered when left unattended.
- b) Stage operations to minimize the time the tank, if necessary, excavation is open and potentially contaminated soil is exposed to the weather. Provide protective measures around the work area to prevent water runoff and contain excavated soil.
- c) Excavate as required to expose the tank and piping. The excavation boundary shall remain a minimum of 5 feet from any monitoring well. The amount of excavation will depend on the type soil, the size of the tank, if necessary, and site interferences. The Project Manager will make the determination on the

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amount of soil that must be removed from around the tank, if necessary, before removal.

- d) Select methods and equipment for soil removal that minimizes surface and subsurface disturbance to areas beyond the necessary limits of the tank, if necessary, and piping or contaminant plume. Minimization of the effect on the environment shall be considered at all times. The size of the excavation should allow the tank to be removed with out excess stress on the tank or the removal equipment. Place soil removed from the excavation in the appropriate containment area or container. Where excavation extends into groundwater levels care should be taken so that potentially contaminated groundwater does not contaminate surrounding surface soils.
- e) Dewatering of the excavation pit should be avoided. If free product is noted in the excavation then pump or absorb the product.
- f) During excavation activities, if asphalt pavement, concrete slabs, or other structures are encountered, remove for disposal.

### 3.2.2 Draining Tank System

- a) Remove any water or product remaining in the tank or piping to the maximum extent possible.
- b) Drain product lines into tanks.
- c) Test the excavation area atmosphere for flammable or explosive vapor concentrations with a CGI then cut and cap product feed and return lines. Contain any liquids inside the piping. All cuts are to be cold cut with non-sparking tools. Remove or flush all fill, supply and return piping; leave vent piping installed. If it would be more convenient to remove the vent piping at this time a hose shall be attached where the vent piping was removed and routed away from the work site. Once the piping has been uncovered it may be determined by the Project Manager that removal of the piping is not feasible. If this is the case the piping will be flushed, capped, and abandoned in place.
- d) Cap any remaining product piping as close as possible to the facility.
- e) Plug tank openings so that vapors will exit through vent piping during vapor-freeing process.
- f) Leave tank vent piping open.

### 3.2.3 Tank Removal

- a) Test tank to determine if an LEL of less than 10% exists. The tank may be removed if the LEL inside of the tank is less than 10%.
- b) Plug or cap accessible holes. The tank vent piping(hose) may be removed and capped after completing a satisfactory purge. One plug shall have a 1/8-inch vent hole. Cut/remove any hold-down straps.
- c) On the day of the tank lift, recheck the level of fluid in the tank. If the tank contains more than 2" of liquid (for example, due to leakage into the tank or failure to pump out all of the liquid) notify the Project Manager prior to lifting.
- d) Insure that rigging is adequate for lifting the weight of the tank and its contents. Contact the Project Manager to determine the load weight. After landing the tanks shall be chocked up so that they cannot roll while being inspected. Rigging gear shall be bonded (a minimum of three feet from tank opening) to the tank prior to insertion into the tank. Inspect the cleaned tank for holes and evidence of leakage. Tank should be labeled as to where it came from and what it's contents were after removal from the ground. Label the tank (spray paint) "TANK # - CONTENTS". Store gasoline tanks a minimum of 50 feet from any other work with a sign stating, "Danger, Gasoline, Explosion Hazard, No Ignition Sources".
- e) Inspect the tank for holes and excessive corrosion which may have resulted in past releases. These areas should be photographed. The tank condition as well as the condition of the excavation shall be noted and recorded by the Project Manager for inclusion in the Assessment/Closure Report.
- f) Plug any holes found in the tank. Transport the tank to the designated area for cleaning and disposal. The tanks shall be chocked up and tied off to ensure the tanks cannot roll while being transported. Inform the driver of the quantity of liquid/sludge remaining in the tank.

### 3.2.4 Closure-in-place

Excavate as required to expose sufficient tank surface to allow cutting an opening(s) for cleaning purposes. Cut and clean in accordance with standard operating procedure *Tank Cleaning and Disposal*. After emptying and cleaning, fill tank with sand or other inert solid material.

### 3.2.5 Spills of Contaminated Soil

Inspect vehicles leaving the area to ensure that contaminated materials do not adhere to the wheels or undercarriage. Any leakage or spill shall be cleaned up immediately.

### 3.2.6 Sampling

Perform the required soil/groundwater sampling as determined by the Project Manager and the QC Plan. If required, perform coring for UST 4 and UST Z.

### 3.2.7 Backfill

If applicable fill the excavation with rock to the level of the groundwater in the excavation. Fill to grade with clean backfill material. Backfill in excavations (but not coring for samples) is to be properly compact to meet 95% proctor density. Restore landscape features including concrete at **UST Z**. Replacement of concrete pad at **UST X-12** is not required nor is asphalt restoration at **UST 4**.

## **3.3 WORK PHASE THREE**

### 3.3.1 Work Area

Move the tank(s) to the decon pad or a bermed area with poly/plastic sheeting setup for cleaning and disposal. For painted tanks, if any process is used for tank cutting other than cold cut, the paint shall be tested for lead content. Position, cut, clean and dispose of tank in accordance with standard operating procedure *Tank Cleaning and Disposal*

## **4.0 AST 32-501 REMOVAL**

### **4.1 WORK AREA**

#### 4.1.1 Berm

Remove and dispose of the remaining portion of the 19' berm.

#### 4.1.2 Piping/Electrical

Prior to tank work, ensure the piping has been disconnected at suitable flange/union joints outside the berm. Drain product lines as required and isolate the tank from the piping. Contain any liquids inside the piping. All cuts are to be cold cut with non-sparking tools. Any electrical connections to the tank will be verified to be deenergized and removed.

#### 4.1.3 Rigging

Insure that rigging is adequate for lifting the weight of the tank sections and safely transporting them to the ground/dumpster. One-half inch thick steel plate weighs

approximately 20 lbs/sqft., one-quarter inch plate weighs 10 lbs/sqft., etc.. Thus, a section of 1/2" or 1/4" plate, 4' x 8', weighs approximately 640 lbs. and 320 lbs, respectively (20 lbs/sqft x 32 sqft = 640 lbs & 10 lbs/sqft x 32 sqft = 320 lbs). Prior to removal of tank sections, viewing hole(s) may be cut (sized to suit), per paragraph 4.5, in the upper wall of the tank to allow viewing of roof supports, upper walls, etc., plan for roof removal and inspect upper internal construction. Project Manager shall develop a cut and rigging sequence, and discuss in detail with workers, to avoid structural failure during cutting.

## **4.2 HOT WORK**

### **CAUTION**

**Hot work is NOT authorized until completion of atmosphere monitoring with suitable results. Hot work includes: flame heating, welding, torch cutting, brazing, carbon arc gouging, or any work which produces heat, by any means, of 400° F or more. Hot work also includes, in the presence of flammables or flammable atmospheres, ignition sources such as spark or arc producing tools (except steel hand tools) or equipment, static discharges, friction, impact, open flames or embers, and nonexplosion-proof lights, motors, or equipment.**

#### 4.2.1 Fire Watch

As many fire watches as necessary (e.g. one watching inside and one watching outside) shall be present during all hot work. Fire watch and torch operator shall agree on a method of communication to ensure hot work can be secured immediately if a dangerous situation develops. Fire watch will be positioned so as to provide maximum fire detection and protection. Fire watch will remain on station for approximately 30 minutes after hot work has stopped to ensure no fire exists. Cool down areas being cut with water.

#### 4.2.2 Hot Work Prep

Immediately prior to hot work, reinspect tank to ensure no flammables have been introduced since the last inspection. Wet the internal walls & roof, as well as outside grass and the floor of the tank, with water to reduce the chance of fire during hot work.

## **4.3 SAMPLING**

Perform soil sampling as determined by the Project Manager and the QC Plan.

## **4.4 PURGING (if required)**

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Test the tank and piping atmosphere to determine the LEL and oxygen level prior to any purging. Test at several locations in the tank and at different heights to insure an accurate level is obtained.

### **4.4.1 Fuel Oil tank purging**

Secure an explosion proof blower and ventilate the tank through the lower manway, by inserting an appropriate sized suction hose that extends into the tank near the bottom for 2 - 3 hours before and during initial cutting into the tank. Ventilation should continue until several sections have been cut out of tank. If the LEL inside of the tanks is less

than 10%, then work of paragraph 4.5 can begin, if needed. If the LEL is greater than 10%, continue ventilating the tank until an LEL of less than 10% is obtained. The LEL shall also be continuously monitored in the tank during initial cutting/burning/drilling.

### ***4.5 DRILL AND CUT (if required)***

This tank has been open for some time and has been cleaned. When sawing or drilling use a light water mist for lubrication. If possible, wet the bottom and internal tank area to be drilled and cut prior to start of work. A large square or semicircle may be cut out of the tank per the direction of the Project Manager.

### ***4.6 TANK DISPOSAL***

Cut the tanks into pieces (size to suit) which are acceptable to the recycling activity. Transport tank sections and piping to the appropriate recycling activity/vendor or have vendor pick up tank pieces.

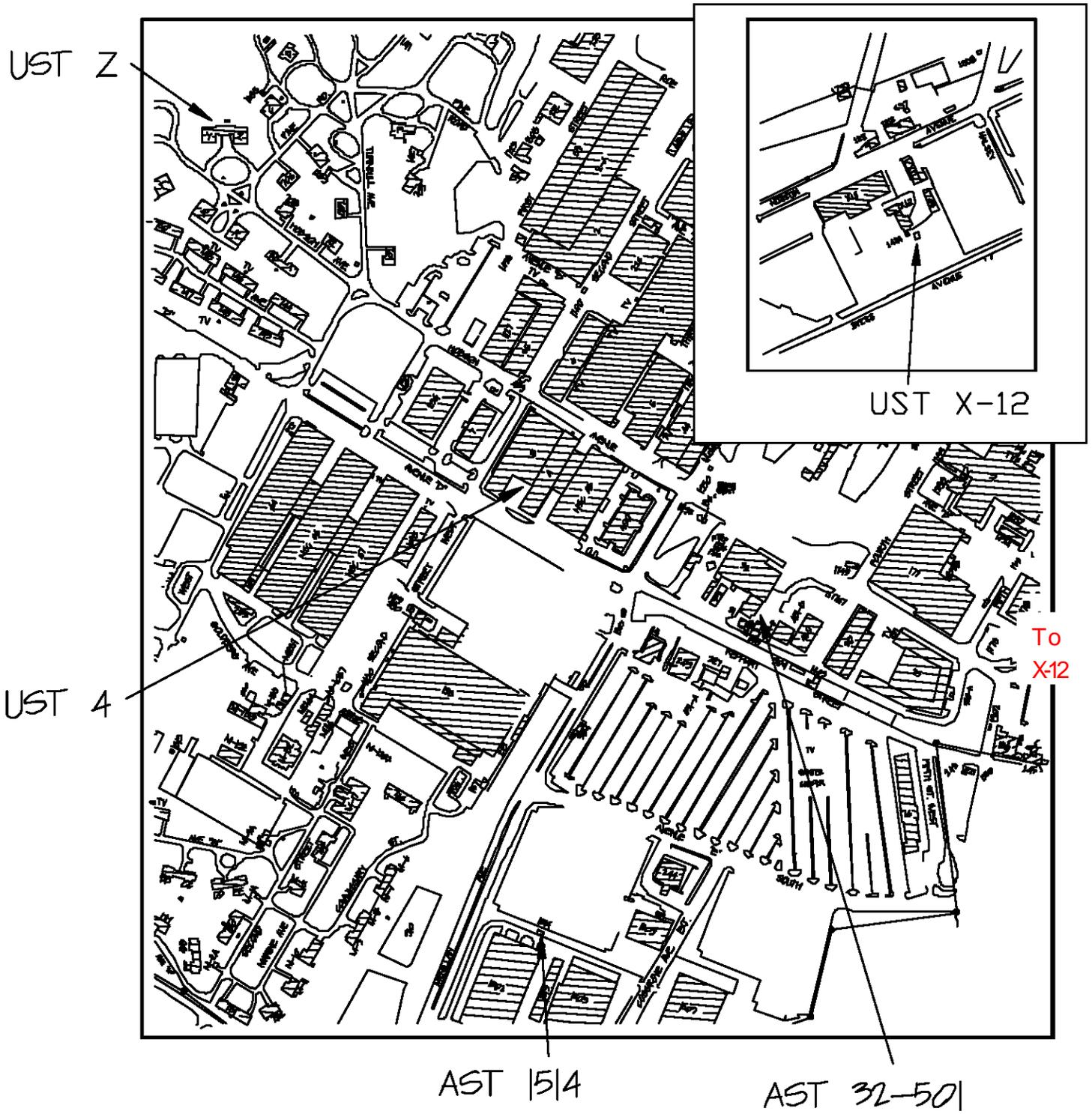
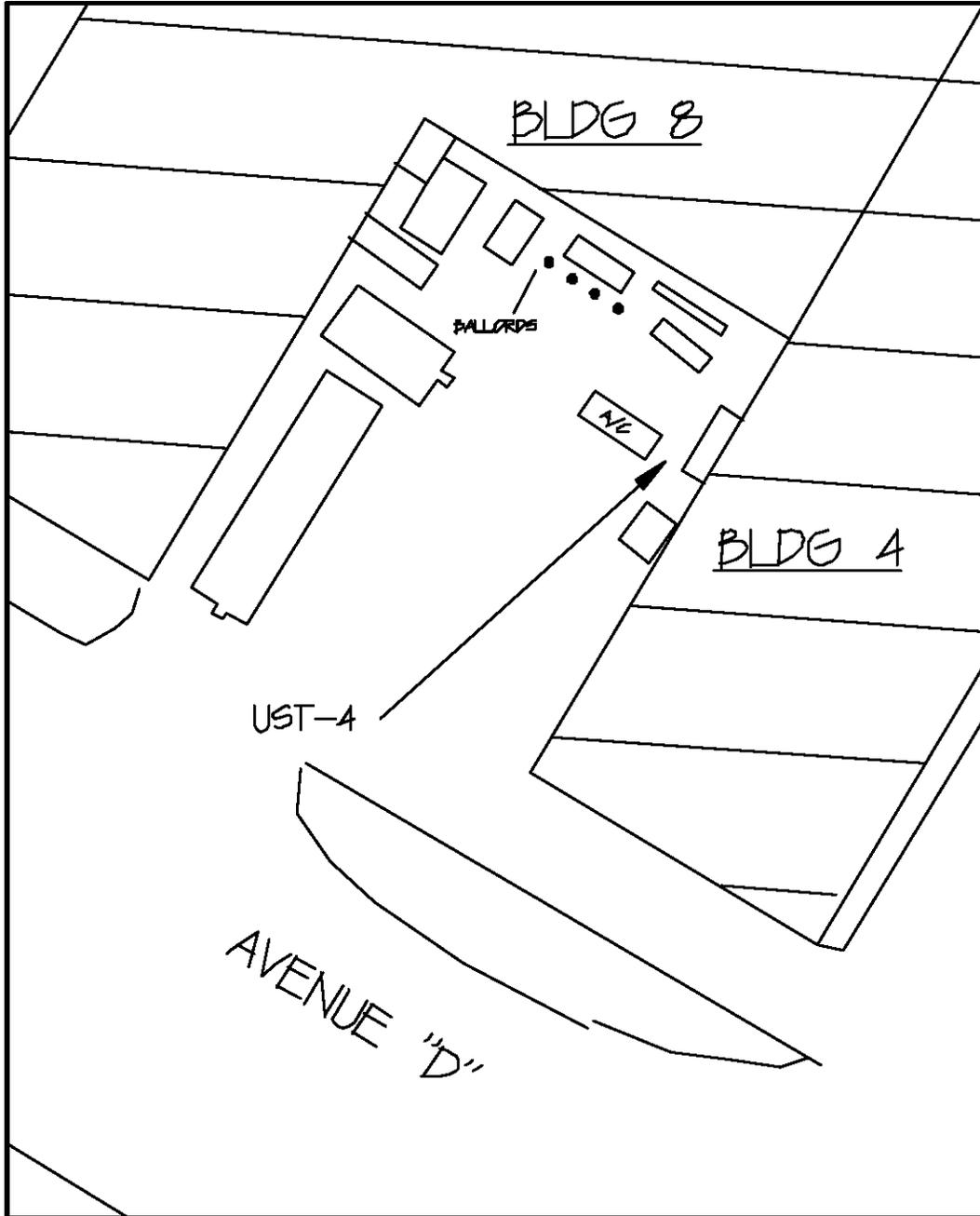
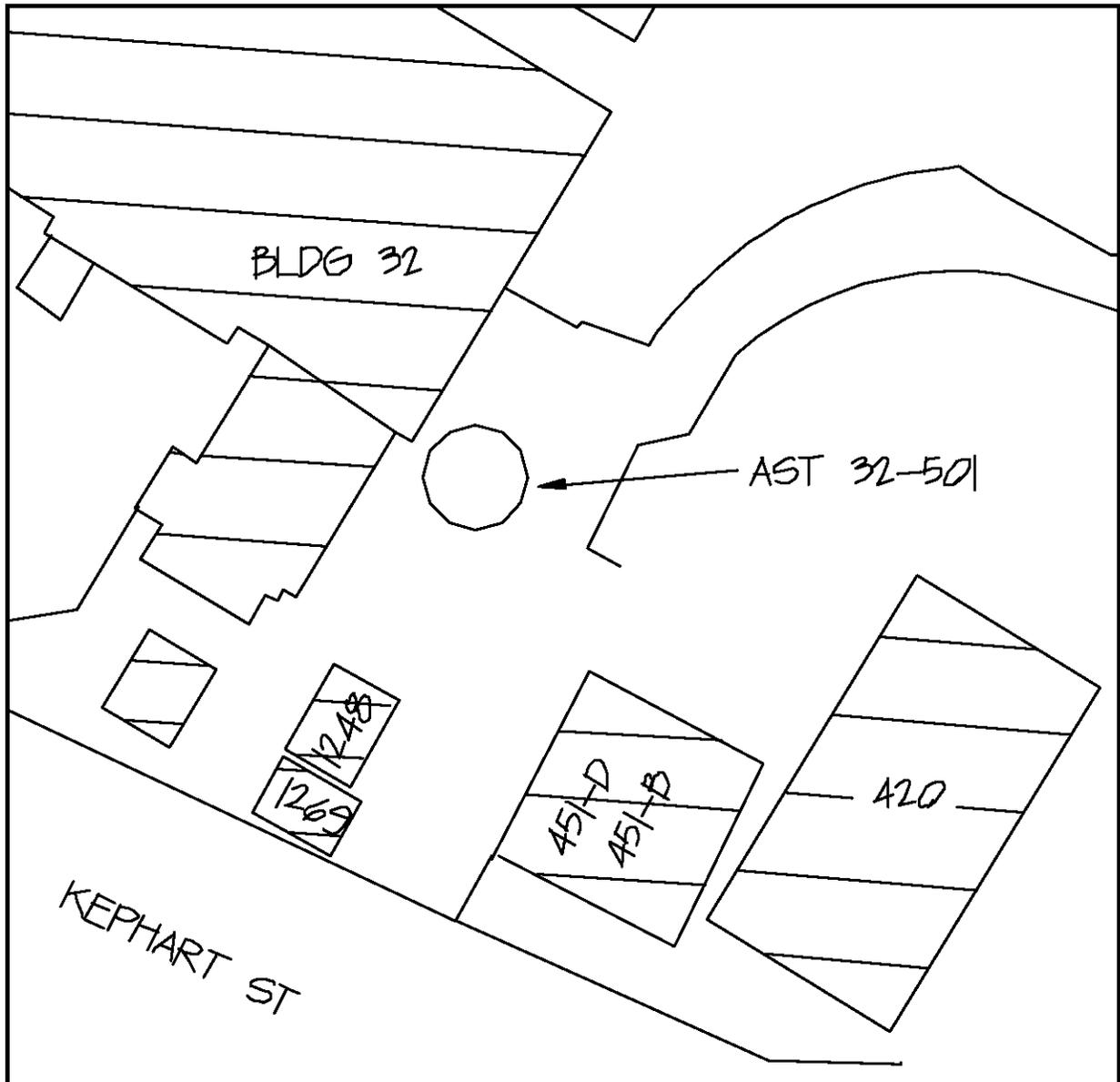


Figure 1 - Area Map



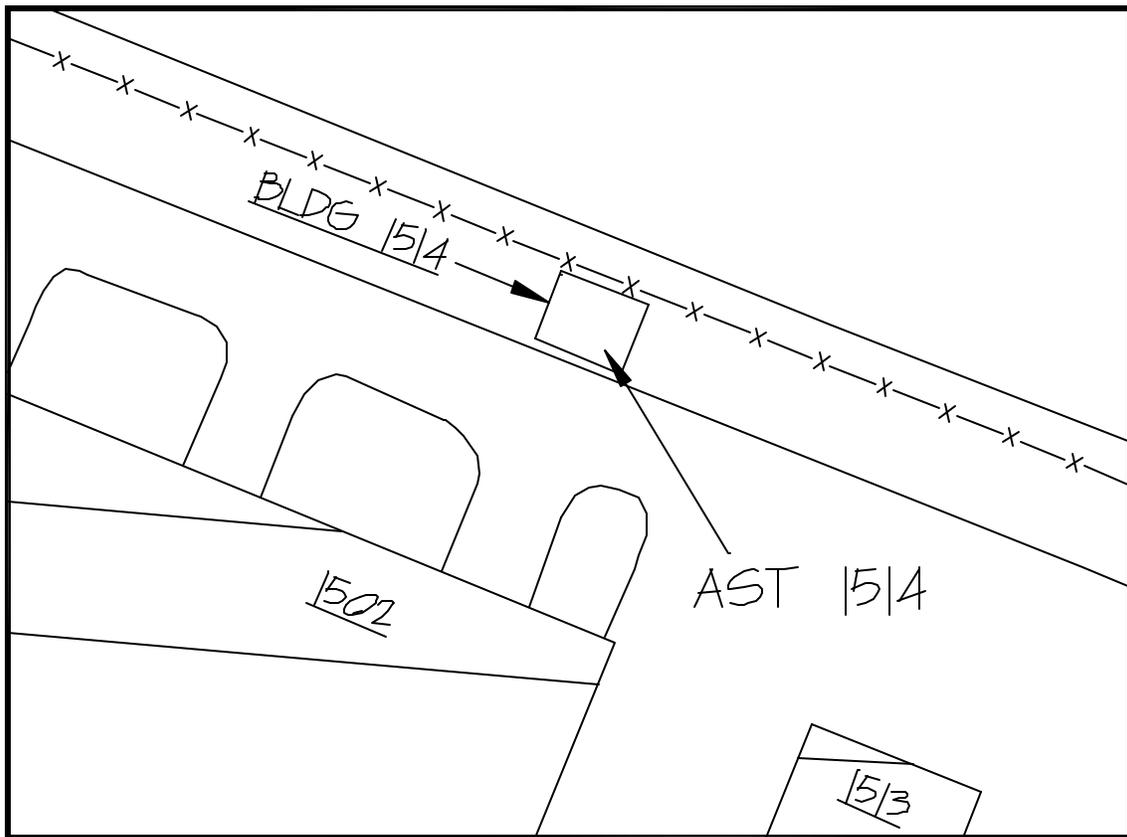
UST 4

FIGURE 2 Site Map



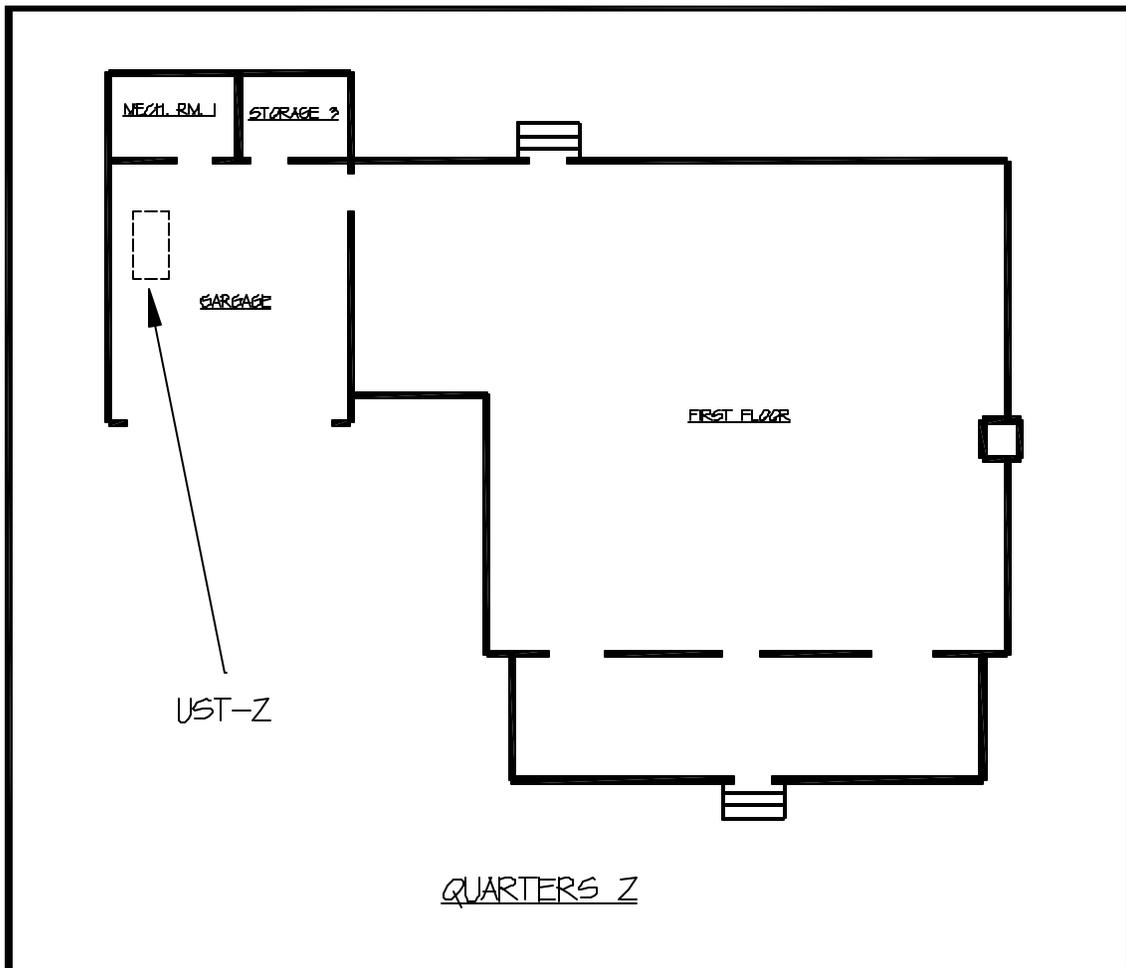
AST 32-501

FIGURE 2 (cont'd) Site Map



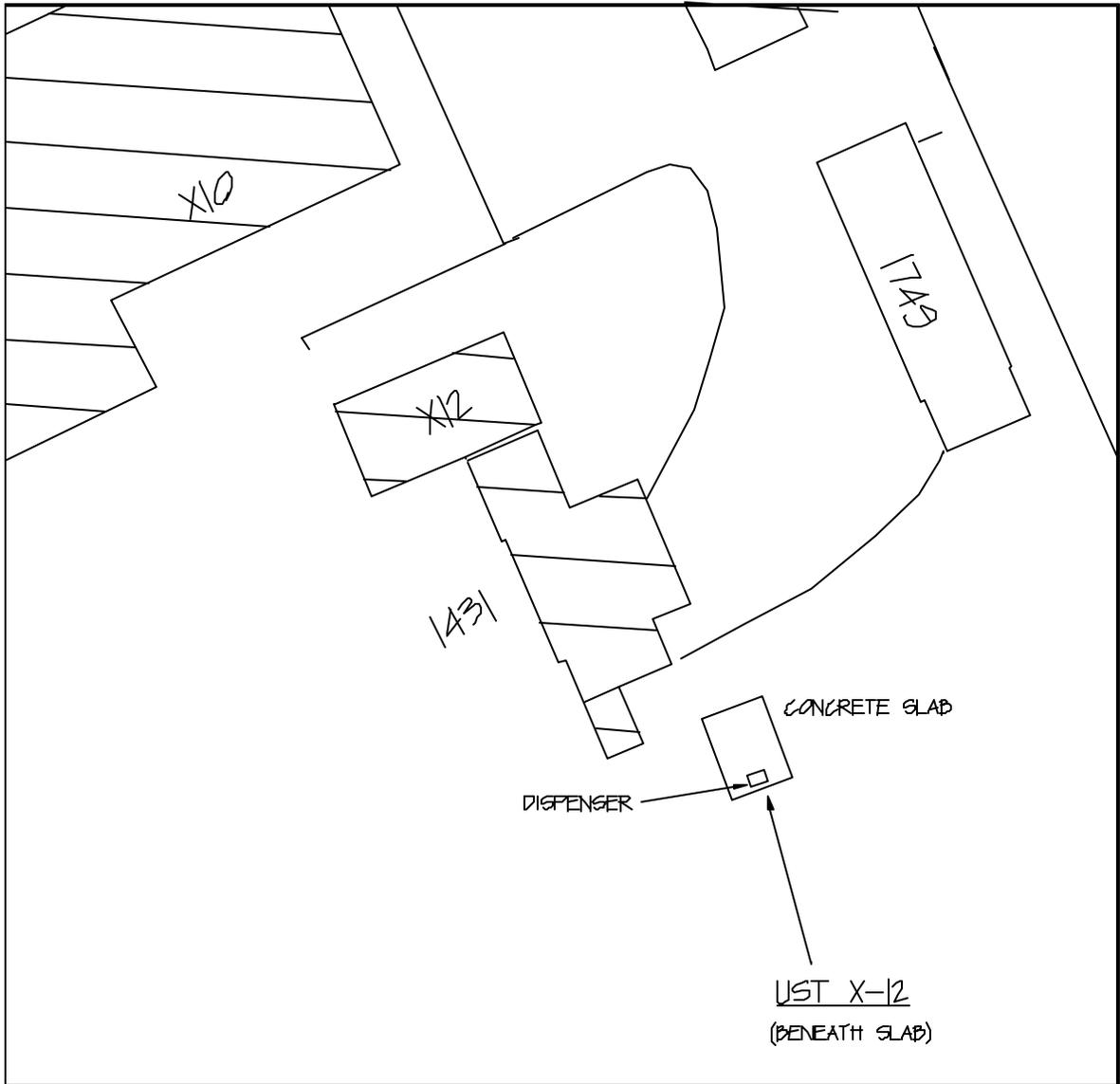
AST 1514

FIGURE 2 (cont'd) Site Map



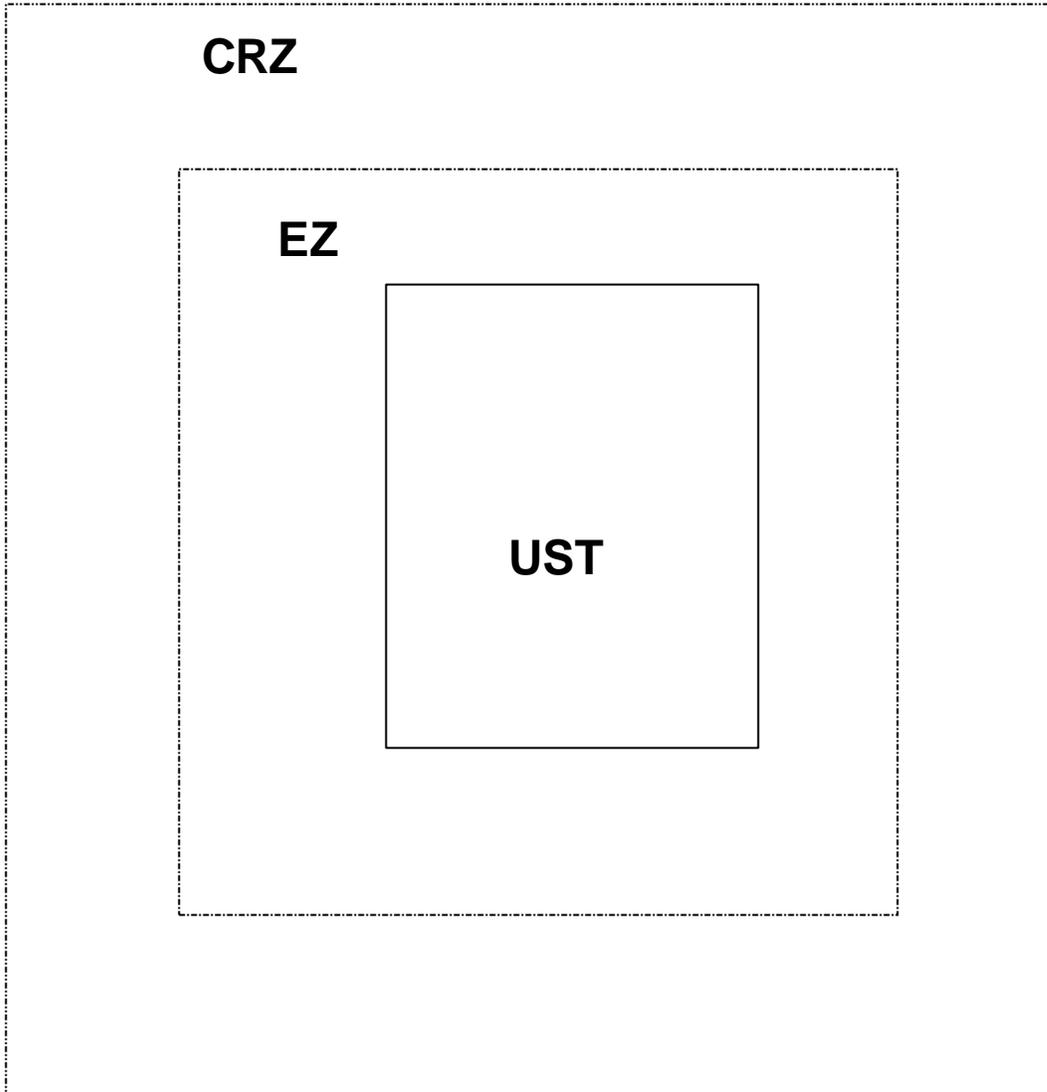
UST Z

FIGURE 2 (cont'd) Site Map



UST X-12

FIGURE 2 (cont'd) Site Map



Note: This figure is for guidance only. The CRZ and EZ should encompass the entire area of the excavation. If no excavation is necessary only a security zone is required.

FIGURE 3 - WORK ZONE

**APPENDIX A**

**WORK PLAN AMENDMENT**

Amendment # \_\_\_\_\_

Date:

Site Name:

Work Assignment:

Type of Amendment:

Reason For Amendment:

Required Change:

Project Manager

Date

**APPENDIX B**

**SITE SPECIFIC HEALTH AND SAFETY PLAN**

**1.0 Purpose**

This plan provides supplemental site specific information and is to be used with the EEG, Inc. Comprehensive Health and Safety Plan.

**2.0 Work Location**

Tanks are located adjacent to their respective buildings as indicated in Figures of the Work Plan.

**3.0 Work Scope Brief** (refer to the work document for full details)

Aboveground and underground storage tanks are being removed or closed-in-place.

**4.0 RISK/HAZARD ANALYSIS**

The primary safety hazards are from oxygen deficiency or explosion, and precautions are in the body of the procedure.

A secondary safety hazard is crushing or cutting injuries when handling the tanks during set up and when they are cut into sections. Provide fall protection for the cutting operator, e.g. temporary tie-offs, pads, lanyards and body belts. Due to the age of the tank be alert for structural failure of the roof, internal supports, stairs, or the sides.

The primary health hazard is fuel oil from the tank, piping and equipment and oil soaked soil from petroleum oils, which are a primary irritant. Some petroleum oils have been shown to produce skin cancer in experimental animals upon repeated skin application over the lifetime of the animals. Interim results from an ongoing mouse skin painting study have reported tumor production. Petroleum hydrocarbons of similar composition and boiling range have been shown to produce kidney damage and tumors in male rats following prolonged inhalation exposures.

A secondary health effect is dermatitis, a defatting of the skin, which can result from continued skin contact. Some individuals develop hypersensitivity. Quickest entry into the body of petroleum products is by ingestion; therefore do not siphon fuel by mouth.

Safety hazards include the personal injury hazards of heavy equipment operation and material handling, and the dangers of underground and above ground electrical wiring.

Also, for any excavations over 5 feet deep the danger of excavation wall collapse, entrapment, and suffocation from incorrect trenching and excavating. No entry is

## **WORK PLAN- TANK CLOSURES**

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authorized into the excavations or tanks. Personnel and equipment falling into an open excavation is an inherent danger.

**See Section 4.0 from the EEG, Inc. Comprehensive Health and Safety Plan for additional hazard analysis and controls.**

### **5.0 SPECIAL PERSONNEL TRAINING QUALIFICATIONS**

Personnel must be trained in Hazwoper (40 hour initial with 8 hour annual refresher), and depending on the planned work: respiratory protection training with fit test, scaffold, excavation, fall protection, forklift operation, and lockout/tagout. Crane and heavy equipment operators must be certified by EEG, Inc. for the equipment being operated. Training qualifications and certifications will be provided by the Project Manager in the Project Log Book.

These training requirements are applicable to visitors also. Visitors must certify by their signature in the work logbook that they meet the required training

### **6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)**

#### **6.1 General**

PPE shall be clean and inspected for damage prior to and during use and replaced if necessary. The Project Manager will monitor the condition of employees' PPE and ensure the proper use and timely replacement of damaged PPE. PPE will be stored outside the Exclusion Zone (EZ) and the Contamination Reduction Zone (CRZ). Decontaminate if necessary or dispose of PPE in the CRZ. Do not wear home any PPE worn during the workday.

#### **6.2 Tank Removals**

Hard hats, steel toe safety shoes, and safety glasses are required for all phases of the task. Hearing protection is required (single plugs or muffs) when operating portable gasoline and diesel powered engines, saws and grinders. When pressure washing and disposing/pumping rinsate, coveralls with booties (either tyvek or cloth) rubber boots may also be used, and gloves (cotton or leather), a faceshield in addition to safety glasses with side shields or goggles. Respirators will be required if total petroleum hydrocarbons levels are detected at over 100 PPM and cannot be reduced by ventilation. A 3M 6000 respirator with organic vapor cartridges would be required. The cartridges will be changed each shift.

#### **6.3 Petroleum Contaminated Soil Movement**

Hard hats, steel toe safety shoes, and safety glasses are required for all phases of the

## **WORK PLAN- TANK CLOSURES**

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task. Hearing protection is required (single plugs or muffs) when operating portable gasoline and diesel powered engines, saws and grinders.

### **7.0 MEDICAL SURVEILLANCE**

All personnel working at this site shall participate in EEG, Inc.'s medical surveillance program in accordance with 29 CFR 1910.120 (HAZWOPER). This medical surveillance program includes respirator use, hearing conservation and sight exam. EEG, Inc. will have a current physician's written opinion on file stating that the employee has been examined and found medically qualified for duty.

### **8.0 MONITORING**

Atmospheric testing for oxygen and flammables in that order will be conducted prior to, and periodically during any tank work. Key events that require gas testing are when concrete or asphalt slabs or coverings are removed, during soil removal (at approximately half depth to tank top), and prior to the opening of tanks. Check for the presence of hydrocarbons during these events also, using detector tubes and following the manufacturer's instructions provided with the tubes. A gas free test explosive reading of less than 4% of the LEL is preferred, less than 10 % of the LEL is required. Daily calibration of combustible gas meters will be in accordance with the manufacturers instructions, and Chapter 2C, Confined Space Entry Program, of EEG, Inc.'s Regulatory Compliance Procedures Manual. The results of daily calibration will be recorded in the Project Log Book.

### **9.0 SITE CONTROL AND OCCUPATIONAL SAFETY AND HEALTH PRECAUTIONS.**

The Project Manager, Supervisor, or a person designated as acting supervisor will be present when work is in progress.

Prior to work at the site, determine from the facility custodian if any other work (e.g. construction, electrical repairs, and hot work) is planned in the work area, which could impact the work of this procedure. Determine if the work area contains any remotely operated equipment or equipment that starts automatically. Also determine if any surrounding area work (such as pumping, cleaning or venting of nearby gasoline tanks) is planned that could be affected by the work of this procedure. Contact the local fire/departement or response organization to ensure they are aware of the work scope and location. Ensure equipment is depressurized. Take precautions to contain or prevent spillage of residual fluids on system opening. Any fluid drainage must be away from buildings or contained by a berm.

Inspect the work site to ensure no other work is in progress. Comply with the inspection requirements of the EEG, Inc. SOP for digging to detect the presence of underground or above ground power lines or utilities. It must be determined if these will be impacted by the planned work, and they must be protected or secured using lockout/tagout procedures.

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Operation of any equipment on the tank and any digging in the work area without the approval of the Project Manager is prohibited. Also no chemicals, compressed gasses, or gas lines will be taken inside the area without the permission of the Project Manager, as these are explosion and asphyxiation hazards.

When breaking into existing piping and equipment, ensure the piping and equipment is locked/tagged out and depressurized. Use cold cut methods.

If digging atop the tanks using heavy equipment, position the equipment where possible away from the tank, and use covering material to spread the equipment weight.

Inspect for storm drains in the work area, which could be a source of entry or exit of flammable or toxic vapors. If present, block their inlets, e.g. by covering with plastic.

Use of a wind indicator is recommended, to allow placement of equipment and vehicles. A bigger clear zone will be needed for larger tanks and in windy weather. The work area should be at least 200 feet from traffic, and unauthorized personnel should be prohibited from entering. Care should be used in placement of vacuum trucks to avoid vapors reaching the internal combustion engine.

Personnel will not carry smoking materials into the work area; they must be left in a designated area. If necessary, a safe smoking area should be designated by the Project Manager with the agreement of the facility custodian and the cognizant fire department.

Electrical equipment; e.g. blowers and lights shall meet the requirements of NFPA 70, Class 1, and Division 1.

If possible, tank ventilation will be installed prior to initial tank opening, and operated 24 hours or more to reduce hydrocarbon levels inside the tank. Steam ventilation will not be used. Ventilation installation on the tank itself, using explosion proof blowers (Class 1, Division 1) will be coordinated with initial tank opening to allow control of tank vapors. These hydrocarbons are heavier than air. Ventilation exhaust location and make-up air entry locations should be chosen carefully to maximize vapor removal and minimize short-circuiting of make-up air.

NOTE: The negative pressure inside the tank caused by the ventilation should be kept to a minimum to avoid shell and roof plates from buckling and causing major tank damage. Do not start the ventilation until an adequate air intake path exists.

Prior to tank removal, the maximum amount of product will be removed through the tank discharge line or other connection. The remaining product will be removed by this work procedure. As most tanks are not level, a false indication of "empty" may be obtained if the liquid is pooled at the end away from where the level determination was made.

Maintain at least one portable fire extinguisher, of not less than 20-B units at the tank site.

For excavations over 5 feet in depth where personnel entry is required, a “Competent Person” for excavation oversight will be designated, in writing (e.g. by making a log entry). This person will have been trained in the requirements of 29 CFR 1926.650/651/652 (The Construction Excavation Standard). This duty may be rotated among trained personnel, but only one person at a time is designated the competent person. Duties include:

- Identifying existing and predictable employee excavation hazards, and being authorized to take prompt corrective measures to eliminate those hazards.
- Ensuring compliance with the excavation standard. Detachment policy is that all soils are to be classified as Type “C” and sloping/shoring/trenchboxes will be used where needed.
- Daily inspections prior to work or entry, and after rainstorms.
- Being present at the site whenever employees enter an excavation over 5 feet deep.
- Answering questions by regulators about compliance with the excavation standard during regulator inspections.

Avoid contact with any ground water that is encountered during excavation. If personnel entry or work near the groundwater is required, ventilate the excavation with an exhaust ventilator exhausting downwind. Gas test the excavation prior to personnel entry.

Wash hands and face before eating or smoking and at the end of the day. Eating and smoking are prohibited in the tank work area. Do not wear home any PPE worn during the workday. Provide hand-washing facilities on site.

Cranes and platforms used to hoist personnel must comply with 29 CFR1926.550 (g).

**10.0 MATERIAL SAFETY DATA SHEETS**

A typical MSDS for fuel oil is attached.

**11.0 DECONTAMINATION PROCEDURES**

Decontaminate equipment (as needed) before exiting the work zones. Decontamination will be performed by wiping, sweeping, and/or scrubbing with water if needed to remove oil, or oily dirt, sand and mud from coveralls, gloves, boots and tools and equipment. Minimize the use of water. Water used for decontaminations will be captured and properly marked and disposed of.

All employees leaving a contaminated area shall be appropriately decontaminated; all contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated.

Decontamination procedures shall be monitored by the Site Safety and Health Officer to ensure compliance with this procedure, and to take corrective actions if necessary.

## **12.0 EMERGENCY RESPONSE PROCEDURE**

Personnel at work sites will have the means to immediately contact a rescue organization, e.g. cellular phone, radio.

**For medical emergencies or rescue of personnel call the emergency 911 number.** EMS ambulance will transport injured persons to the most appropriate medical care facility. (For non-emergency medical care contact the EEG, Inc. Occupational Health Provider, Carolina Center for Occupational Health at 554 1029.)

For any general emergency, a horn will be sounded and all personnel will evacuate to the nearest safe area and contact emergency personnel. The Project Manager or Site Safety and Health Officer will ensure that all employees are accounted for.

## **13.0 SPILL CONTAINMENT PROCEDURE**

### **13.1 General**

Wastes at these sites consist of petroleum-contaminated soil, oil in piping, and tanks, and rinsate from any cleaning, drop cloths and PPE.

### **13.2 Petroleum Contaminated Soil**

The Project Manager will plan excavations on-site. Movement of trucks and excavating equipment will eliminate or minimize loading or movement over clean ground. All equipment will be decontaminated prior to leaving the work site. Decontamination will be on plastic drop cloths. Drop cloths will be properly disposed of as waste.

### **13.3 Rinsate and Residual Oils**

All waste containers will be inspected and properly marked prior to use. There will be no unmarked waste containers on this site. They will be marked with the proper identifying/shipping labels or marked "empty".

The Project Manager will determine, prior to pumping/cleaning, the estimated quantity of waste, and the most suitable location for waste containers. The waste containers will be placed in an area that will minimize the possibility of damage or overturning by mechanized

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equipment. The location will be covered with plastic drop cloths and contained in a berm capable of containing the entire quantity of waste. A suitable quantity of sorbent materials will be on site to aid containment and cleanup if necessary.

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CONOCO -- NO. 2 DIESEL FUEL-FURNACE OIL-DIESEL FUEL L - DIESEL FUEL  
CONOCO -- NO. 2 DIESEL FUEL-FURNACE OIL-DIESEL FUEL L - DIESEL FUEL  
MATERIAL SAFETY DATA SHEET  
NSN: 9140002865297  
Manufacturer's CAGE: 5R396  
Part No. Indicator: B  
Part Number/Trade Name: NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

=====  
General Information  
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Item Name: DIESEL FUEL  
Company's Name: CONOCO INC.  
Company's P. O. Box: 2197  
Company's City: HOUSTON  
Company's State: TX  
Company's Country: US  
Company's Zip Code: 77252  
Company's Emerg Ph #: 800-441-3637, CHEMTREC 800-424-9300  
Company's Info Ph #: 713-293-5550  
Record No. For Safety Entry: 054  
Tot Safety Entries This Stk#: 089  
Status: SE  
Date MSDS Prepared: 01OCT90  
Safety Data Review Date: 30NOV92  
Supply Item Manager: KY  
MSDS Serial Number: BPKVY  
Specification Number: VV-F-800  
Spec Type, Grade, Class: DF-2 GRADE  
Hazard Characteristic Code: F4  
Unit Of Issue: DR  
Unit Of Issue Container Qty: 55.0 GALLONS  
Type Of Container: DRUM,18 GAGE  
Net Unit Weight: 389.3 LBS

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Ingredients/Identity Information  
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Proprietary: NO  
Ingredient: HYDROCARBONS (ALIPHATIC AND AROMATIC)  
Ingredient Sequence Number: 01  
Percent: >90  
NIOSH (RTECS) Number: 1000011HC  
OSHA PEL: UNKNOWN  
ACGIH TLV: UNKNOWN  
Other Recommended Limit: 400 PPM

-----  
Proprietary: NO

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Ingredient: NAPHTHALENE (SARA III)  
Ingredient Sequence Number: 02  
Percent: 3.0  
NIOSH (RTECS) Number: QJ0525000  
CAS Number: 91-20-3  
OSHA PEL: 10 PPM/15 STEL  
ACGIH TLV: 10 PPM/15 STEL; 9293  
Other Recommended Limit: NONE RECOMMENDED

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### Physical/Chemical Characteristics

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Appearance And Odor: CLEAR OR LIGHT YELLOW LIQUID, AROMATIC ODOR  
Boiling Point: 350F,177C  
Melting Point: N/A  
Vapor Pressure (MM Hg/70 F): 1  
Vapor Density (Air=1): >1  
Specific Gravity: 0.85-0.93  
Decomposition Temperature: UNKNOWN  
Solubility In Water: INSOLUBLE  
Percent Volatiles By Volume: NIL  
Viscosity: 1.9 CST  
pH: N/A  
Corrosion Rate (IPY): UNKNOWN

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### Fire and Explosion Hazard Data

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Flash Point: 130F,54C  
Flash Point Method: TCC  
Lower Explosive Limit: 0.4  
Upper Explosive Limit: 6  
Extinguishing Media: USE WATER FOG, CARBON DIOXIDE, FOAM, OR DRY CHEMICAL.  
Special Fire Fighting Proc: WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.  
Unusual Fire And Expl Hazrds: COMBUSTION OR HEAT OF FIRE MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS AND VAPORS. LIQUID EVAPORATES AND FORMS VAPORS WHICH CAN CATCH FIRE WITH VIOLENT BURNING

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### Reactivity Data

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Stability: YES  
Cond To Avoid (Stability): HIGH HEAT, OPEN FLAMES AND OTHER SOURCES OF IGNITION  
Materials To Avoid: STRONG OXIDIZING AGENTS  
Hazardous Decomp Products: TOXIC CARBON MONOXIDE AND CARBON DIOXIDE, AND SULFUR DIOXIDE.  
Hazardous Poly Occur: NO  
Conditions To Avoid (Poly): NOT APPLICABLE

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### Health Hazard Data

=====

LD50-LC50 Mixture: UNKNOWN  
Route Of Entry - Inhalation: YES

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Route Of Entry - Skin: YES  
Route Of Entry - Ingestion: YES  
Health Haz Acute And Chronic: EYES:IRRITATION. SKIN:SKIN IRRITANT.  
INHALATION:LUNG IRRITATION, CNS EFFECTS. INGESTION:PRACTICALLY NON-TOXIC TO  
INTERNAL ORGANS. HOWEVER, IF ASPIRATED INTO LUNGS IT MAY CAUSE CHEMICAL  
PNEUMONITIS WHICH CAN BE FATAL. CHRONIC:MIDDLE DISTILLATE HAS CAUSED SKIN  
CANCER WHEN REPEATEDLY APPLIED TO MICE OVER LIFETIME,KIDNEY.  
Carcinogenicity - NTP: NO  
Carcinogenicity - IARC: NO  
Carcinogenicity - OSHA: NO  
Explanation Carcinogenicity: WHOLE DIESEL ENGINE EXHAUST IS LISTED AS A  
PROBABLE CARCINOGEN BY IARC AND NIOSH.  
HEADACHE, DIZZINESS, LOSS OF APPETITE, WEAKNESS AND LOSS OF COORDINATION.  
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.  
Emergency/First Aid Proc: EYES:FLUSH WITH FRESH WATER FOR 15 MINUTES.  
SKIN: REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH SOAP AND  
WATER. SEE A DOCTOR IF SYMPTOMS DEVELOP. INHALATION: REMOVE TO FRESH AIR.  
INGESTION: GIVE WATER OR MILK TO DRINK AND GET IMMEDIATE MEDICAL ATTENTION.  
DO NOT MAKE PERSON VOMIT UNLESS DIRECTED TO DO SO BY MEDICAL PERSONNEL.

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Precautions for Safe Handling and Use

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Steps If Matl Released/Spill: THIS MATERIAL IS CONSIDERED TO BE A WATER  
POLLUTANT AND RELEASES OF THIS PRODUCT SHOULD BE PREVENTED. ELIMINATE ALL  
OPEN FLAMES. STOP SOURCE OF THE LEAK. CONTAIN LIQUID. CLEAN UP SPILL USING  
APPROPRIATE TECHNIQUES SUCH AS ABSORBENT MATERIALS.

Neutralizing Agent: NONE

Waste Disposal Method: PLACE CONTAMINATED MATERIALS IN DISPOSABLE  
CONTAINERS AND DISPOSE OF IN A MANNER CONSISTENT WITH APPLICABLE  
REGULATIONS. CANTACT LOCAL ENVIRONMENTAL OR HEALTH AUTHORITIES FOR APPROVED  
DISPOSAL OF THIS MATERIAL.

Precautions-Handling/Storing: STORE IN A COOL AREA. KEEP CONTAINER LID  
TIGHTLY CLOSED.

Other Precautions: DO NOT INHALE VAPORS OR EXHUST FUMES, AVOID SKIN  
CONTACT.

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Control Measures

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Respiratory Protection: NONE NORMALLY REQUIRED. USE NIOSH APPROVED SELF-  
CONTAINED BREATHING APPARATUS IF TLV IS EXCEEDED OR WHEN SPRAYING OR USING  
IN CONFINED SPACES.

Ventilation: USE THIS MATERIAL ONLY IN WELL VENTILATED AREAS.

Protective Gloves: PVC

Eye Protection: GOGGLES

Other Protective Equipment: WEAR PROTECTIVE CLOTHINGS.

Work Hygienic Practices: WASH HANDS THOROUGHLY AFTER HANDLING THIS  
PRODUCT.

Suppl. Safety & Health Data: NONE

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Transportation Data

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Trans Data Review Date: 92335

DOT PSN Code: GTF

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DOT Proper Shipping Name: GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT  
 DOT Class: 3  
 DOT ID Number: UN1202  
 DOT Pack Group: III  
 DOT Label: FLAMMABLE LIQUID  
 IMO PSN Code: HRR  
 IMO Proper Shipping Name: GAS OIL  
 IMO Regulations Page Number: 3375  
 IMO UN Number: 1202  
 IMO UN Class: 3.3  
 IMO Subsidiary Risk Label: -  
 IATA PSN Code: MTX  
 IATA UN ID Number: 1202  
 IATA Proper Shipping Name: GAS OIL  
 IATA UN Class: 3  
 IATA Label: FLAMMABLE LIQUID  
 AFI PSN Code: MTX  
 AFI Prop. Shipping Name: GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT  
 AFI Class: 3  
 AFI ID Number: UN1202  
 AFI Pack Group: III  
 AFI Basic Pac Ref: 7-7  
 N.O.S. Shipping Name: HYDROCARBONS(ALIPHATIC AND AROMATIC), NAPHTHALENE.  
 Additional Trans Data: NONE

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 Disposal Data  
 =====

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 Label Data  
 =====

Label Required: YES  
 Technical Review Date: 30NOV92  
 MFR Label Number: NONE  
 Label Status: F  
 Common Name: NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL LC/NO. 2  
 FUEL OIL  
 Chronic Hazard: YES  
 Signal Word: WARNING!  
 Acute Health Hazard-Slight: X  
 Contact Hazard-Slight: X  
 Fire Hazard-Moderate: X  
 Reactivity Hazard-None: X  
 Special Hazard Precautions: COMBUSTIBLE LIQUID! HARMFUL OF FATAL IF  
 SWALLOWED. CAUSES SKIN IRRITATION. PROLONGED OR REPEATED SKIN CONTACT MAY  
 INCREASE THE RISK OF SKIN CANCER. STORE IN A COOL AREA. KEEP CONTAINER LID  
 REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH SOAP AND WATER. SEE  
 GIVE WATER OR MILK TO DRINK AND GET IMMEDIATE MEDICAL ATTENTION. DO NOT  
 MAKE PERSON VOMIT UNLESS DIRECTED TO DO SO BY MEDICAL PERSONNEL.  
 Protect Eye: Y  
 Protect Skin: Y  
 Protect Respiratory: Y  
 Label Name: CONOCO INC.  
 Label P.O. Box: 2197

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Label City: HOUSTON

Label State: TX

Label Zip Code: 77252

Label Country: US

Label Emergency Number: 800-441-3637, CHEMTREC 800-424-9300

Year Procured: 1992

**APPENDIX C**

**ENVIRONMENTAL PROTECTION PLAN**

1.0 General

The purpose of the Environmental Protection Plan is to outline the methods and responsibilities for protecting natural resources and the environment during the closure of above ground or underground storage tanks (ASTs or USTs). To accomplish this goal, EEG, Inc. will comply with applicable Federal, State, local, and base environmental laws, properly control and dispose of all waste generated.

A. Amendments

Amendments and changes to this plan will be made using Appendix A of the work plan.

2.0 PROTECTION OF NATURAL RESOURCES

EEG, Inc. workers will preserve natural resources within the project boundaries. Preservation of natural resources will be achieved through the use of work procedures designed to minimize environmental impacts and restore areas that must be disturbed during the course of remedial activities.

A. Land Resources

Except in areas to be cleared, EEG, Inc. will not remove or deface trees or shrubs without approval.

B. Protection

EEG, Inc. will protect existing trees that will remain after completion of work.

C. Replacement

EEG, Inc. will restore landscape features damaged by equipment operations.

D. Stream Crossings

SOUTHDIV approval will be obtained before any equipment fords a stream. Temporary culverts or bridges will be utilized where necessary.

E. Fish and Wildlife Resources

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Fish and wildlife will not be unnecessarily disturbed. Stream flows and other significant native habitats will be protected.

### **F. Temporary Construction**

EEG, Inc. will remove traces of temporary construction facilities such as haul roads, work areas, structures, foundations, and stockpiles of excess or waste materials.

### **G. Wetland Areas**

EEG, Inc. will not disturb any wetland area without authorization. Approval may be required by an affected state or local agency, or the Army Corps of Engineers.

## **3.0 HISTORICAL AND ARCHAEOLOGICAL RESOURCES**

EEG, Inc. will preserve and report to SOUTHDIV historical or archaeological items or human skeletal remains discovered in the course of work.

## **4.0 PROTECTION OF SURFACE SOIL, VEGETATION, AND SURFACE WATERS**

### **A. Ground Cover**

Burnoff of ground cover will not be permitted.

### **B. Erodible Soils**

All earthwork will be brought to a final grade. Side slopes and back slopes will be protected immediately upon completion of rough grading. Protection against erosion will prevent any sedimentation of nearby creeks or streams.

### **C. Temporary Measures**

The following methods will be used to prevent erosion and control sedimentation:

#### **1. Mechanical Retardation and Control of Runoff**

EEG, Inc. will mechanically retard and control the rate of runoff from the site. This method includes building of diversion ditches, benches, plastic sheeting, and berms to retard and divert runoff to protected drainage courses.

#### **2. Vegetation and Mulch**

EEG, Inc. will provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Slopes will be protected by accelerated growth of permanent vegetation, mulching, or netting.

**5.0 POLLUTION DERIVED FROM OPERATIONS**

**A. Control and Disposal of Solid and Sanitary Wastes**

Solid wastes will be collected, placed in containers, and regularly emptied at intervals to prevent the attraction of rodents or disease vectors. Debris, garbage, and sewage will be disposed of in compliance with applicable laws and regulations.

Procedures for collecting and properly disposing of solid wastes are addressed in the Work Plan.

**B. Manage and Dispose of Hazardous Waste**

Procedures and requirements for the generation, management, transportation, and disposal of hazardous waste, as defined in the Resource Conservation and Recovery Act (RCRA), are described in the Work Plan.

**6.0 OIL SPILL PREVENTION**

Procedures and requirements for oil spill prevention are based on good work practices. Piping will be cut and drained using buckets and absorbent material to contain any residue. Tank openings will be plugged and the tanks will be wrapped in poly until they are ready for cleaning. UST cleaning operations will be performed on a decon pad or in a bermed area. Cleaning solutions and/or rinse water will be collected and tested to determine the correct disposal method.

**APPENDIX D**

**QUALITY ASSURANCE AND QUALITY CONTROL PLAN**

**1. GENERAL**

This plan provides the Quality Assurance/Quality Control requirements for closure of aboveground and underground storage tanks.

**2. REFERENCES**

The Publications listed below were used in the development of this work procedure.

**CODE OF FEDERAL REGULATIONS (CFR)**

- 40 CFR 261            Criteria for Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Wastes
- 40 CFR 279           Standards For the Management of Used Oil
- 40 CFR 280           Standards for Owners and Operators of Underground Storage Tanks

**ENVIRONMENTAL PROTECTION AGENCY (EPA)**

- REGION VI            Environmental Compliance Branch Standard
- SOPQAM              Operating Procedures and Quality Assurance Manual.

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (DHEC)**

- R.61-92,            Underground Storage Tank Control Regulations  
Part 280
- R.61-79,            Hazardous Waste Management Regulations  
Part 261
- GWPD UST    Underground Storage Tank Assessment Guidelines  
Guidelines
- RBCA Risk-Based Corrective Action For Petroleum Releases  
Guidelines

**3. QC PROGRAM**

The QC program shall cover both on-site work, and off-site reporting/documentation; and shall be keyed to the Work Plan sequence. The QC program consists of:

A QC Manager

The QC Plan

A QC briefing

On site QC work control

QC certifications, Sampling QC, Chain of Custody, Certified Laboratory, and Sampling Records and Logs

A Closure/Site Assessment Report

**4. QC ORGANIZATION**

**a. QC Manager Duties**

The project QC Manager will be at the work site, as needed to ensure that work is performed in accordance with the work plan. The QC Manager will conduct the QC briefings, provide on site QC surveillance, perform sampling, and prepare required QC certifications and documentation. In addition to on site QC, the QC Manager may perform other duties, such as project manager or Site Safety Officer. The QC Manager has the authority to stop work based on quality or safety concerns.

**b. Qualifications**

The QC Manager shall have a minimum of five years experience as an engineer, technician, inspector, quality/safety specialist, supervisor, or project manager. Additionally, the QC manager must be familiar with the QA/QC requirements involved in petroleum tank work, and trained or experienced in environmental sampling. An alternate QC Manager may be designated to serve at the work site in the event of the designated QC Manager's absence.

**5. QUALITY CONTROL PLAN**

**a. Requirements**

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The QC Plan depends not only on the QC Manager, but also on workers involved in the project. The QC Plan covers both on-site and office work.

### b. Changes

Changes to the Quality Control Plan may be made by the QC Manager. These changes will be site specific and in the form of a clarification or in response to an unknown or unexpected work site condition and documented on the Work Plan Amendment Form.

## 6. QC BRIEFINGS

Prior to the start of site work, the QC Manager shall conduct an initial QC briefing. The purpose of the briefing is to familiarize the workers with the QC aspects of the work. The briefing may be held in conjunction with the initial Safety Briefing. After the start of work, weekly QC briefings will be conducted until the site work is completed.

## 7. THREE PHASES OF CONTROL

The QC Manager shall examine the work using the "Three Phases of Control" format to ensure that work complies with all requirements. The Three Phases of Control are:

**Preparatory QC Phase**      The Preparatory phase is performed prior to the start of work to ensure that preparations for work are complete.

**Initial QC Phase**              This phase of control centers on observation of the work performance as it relates to the Work Plan and the SSHSP.

**Follow-Up Phase**              This phase involves examining completed tasks to ensure that the work was properly done.

### a. Preparatory QC Phase

Conduct the preparatory phase surveillance/inspection/review with the Site Supervisor responsible for the work.

Review the Work Plan.

Check staged materials and equipment to ensure that they are on hand, ready for use, and conform to the Work Plan.

Review the sampling plan to ensure that sampling equipment has been staged for the required samples.

Examine the work site to ensure that the area is satisfactory and ready for work to begin.

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Ensure that training requirements are met, documented, and on file.

Discuss work/construction methods.

Review the Safety Plan to ensure that applicable safety requirements are met and that required Material Safety Data Sheets (MSDS) are included with the SSHSP.

### **b. Initial QC Phase**

The QC Manager and Site Supervisor shall observe the initial segment of each new Work Phase to ensure that the work complies with the work plan. Perform the following for each Work Phase:

Establish that the quality of workmanship is satisfactory.

Resolve work conflicts (act as a liaison between the workers and engineering).

Ensure that applicable safety requirements are met.

### **c. Follow-Up Phase**

Perform the following for ongoing work daily, as necessary.

Ensure the work is in compliance with all requirements.

Maintain the quality of workmanship required.

Ensure that sampling and field analysis is performed and properly recorded, as required.

Coordinate Production and Engineering activities to ensure that rework items are being corrected.

## **8. SAMPLING AND ANALYSIS**

Sampling will be performed in accordance with SC DHEC R.61-92 Part 280 and SC DHEC UST Assessment Guidelines for soil and ground water at the UST site, and 40 CFR 279 for tank contents, and 40 CFR 261 for sludge, water, and waste.

Field sampling and analysis shall be performed by, or under the direction of trained personnel. The QC Officer shall have had training or experience in environmental sampling and ensure that proper samples, sampling methods, preservation, and shipping comply with the requirements set forth by the laboratory for all samples. The QC Manager will be on site for all tank site environmental sampling.

### **a. Accredited Laboratories**

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Analyses must be performed by a laboratory approved by the NAVY and certified by SC DHEC using EPA analytical methods. Laboratory report of analyses results must include the SC Laboratory Identification number of the laboratory which performed the analysis.

### b. Test Results

Laboratory Test results will be included in the "*Underground Storage Tank (UST) Assessment Report.*" Test results shall be signed by a testing laboratory representative and include the laboratory's assigned SC Laboratory ID number.

### c. Sampling Plan

Soil and, if applicable, groundwater shall be sampled per *UST Assessment Guidelines for Permanent Closure and Change-In-Service* and *Analytical Methodology for Ground-Water and Soil Assessment Guidelines*

### d. Chain of Custody

Chain of Custody Record provided by the laboratory which will perform the analysis will be used for all samples. Several samples may be entered on the chain of custody report, but a new chain of custody will be initiated for each worker taking samples. Samples will be temporarily maintained in a cooler at the work site, but the sampler must be able to maintain visual surveillance of the samples/cooler or relinquish custody to the Site Supervisor or another designated worker.

When each series of sampling is complete, the sample cooler shall be delivered to a representative of the applicable laboratory. A copy of the chain of custody report with the acceptance signature will be returned to the QC Manager. A copy of the final chain of custody report will be forwarded to the QC Manager with the laboratory analysis.

### e. Closure Report Framework

The UST Assessment Report, Appendix 4, of the *UST Assessment Guidelines for Permanent Closure and Change-In-Service* will be completed for each tank site.

## 9. WORK LOG

The Work Log shall be kept in a bound field logbook by the Project Manager. The log should cover a chronology of the tank work recorded in brief statements. Examples of information entered in the Work Log are:

Log of work performed

PPE, PPE changes and reasons for the change

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Notes on required information needed for the completion report

Sketch of the site including length and distances of piping, tank, excavation, and depth to groundwater if encountered

The Project Manager's Work Log will be signed and dated each day and be maintained with the Work Procedures after completion of the work.