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FINAL PHASE I WORK PLAN FOR CLEANING OF TANKS AT THE CARRIER DECK
MILLINGTON SUPPACT TN
01/01/1997
ENVIRONMENTAL DETACHMENT CHARLESTON

FINAL

PHASE I
CLEANING OF TANKS AT THE
CARRIER DECK
NAVAL SUPPORT ACTIVITY
MEMPHIS, TN



Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON SC

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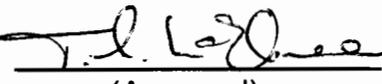
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Prepared By:

CHARLESTON ENVIRONMENTAL DETACHMENT
CHARLESTON NAVAL COMPLEX

JANUARY 1997

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**WORK PLAN FOR CLEANING OF TANKS AT THE
CARRIER DECK NAVAL SUPPORT ACTIVITY, MEMPHIS**

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ACRONYM LIST

CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CHASP	Comprehensive Health and Safety Plan
CRZ	Contamination Reduction Zone
CVS	Cardiovascular System
DET	Charleston Environmental Engineering and Remediation Detachment
EPA	U.S. Environmental Protection Agency
EZ	Exclusion Zone
HAZWOPER	Hazardous Waste Operations and Emergency Response
IDLH	Immediately Dangerous to Life and Health
LEL	Lower Explosive Limit
mg/m ³	Milligrams per Cubic Meter
MSDS	Material Safety Data Sheet
NSA	Naval Support Activity
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
SCBA	Self-Contained Breathing Apparatus
SHSO	Site Health and Safety Officer
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SSHSP	Site-Specific Health and Safety Plan
SWMU	Solid Waste Management Unit
SZ	Support Zone
TIMS	Tank Inventory and Management System
TLV	Threshold Limit Values
TMP	Tank Management Plan
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank

WORK PLAN FOR CLEANING OF TANKS AT THE CARRIER DECK NAVAL SUPPORT ACTIVITY, MEMPHIS

1.0 INTRODUCTION

This work plan is to be used for cleaning aboveground storage tanks 1717, 1719, 1720, and 1754. It will also be used for cleaning lift station 1716 and oil/water separator 1722. All of these tanks are located at the Naval Support Activity (NSA) in Memphis, Tennessee. These tanks were used to support a fire fighting school at the Carrier Deck. AST 1717 is a 10,000 gallon tank used to store JP-5 fuel. Lift station 1716 is constructed of concrete and is used to collect the oily water runoff from the fire fighting pad. AST 1719 is a 50,000 gallon tank that is used to store the oily water runoff from the lift station until it can be processed. The oil water separator 1722 is constructed of concrete and is used to process the oily water. AST 1720 is a 2,000 gallon tank used to store the JP-5 fuel recovered from the oil water separator process. AST 1754 is a 2,000 gallon tank used to store JP-5 fuel at another area outside of the Carrier Deck. NSA, Memphis will have removed all free product from these tanks prior to start of work. The DET will remove the sludge, clean the tanks, and inspect the tanks for obvious damage. The oil water separator will be used as much as possible to dispose of any oily water generated during the cleaning process.

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 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 1926 Safety and Health Regulations for Construction

29 CFR 1910.120 Hazardous Waste Operations and Emergency Response

SOUTH DIV

13219 Guide Specification, Cleaning Petroleum Storage Tanks

1.2 DESCRIPTION OF WORK

This work involves the cleaning and inspection of aboveground storage tanks, lift station, and oil water separator at NSA, Memphis. All work shall be performed in accordance with all local, state, and federal regulations.

1.3 SUBMITTALS

1.3.1 Closure Report

Ensafe will complete all closure reports for the tanks.

1.3.2 Cleaning Report

A cleaning/inspection report will be completed by the DET for each tank documenting the method of cleaning and any discrepancies found during tank inspection. This report is located in Table 2 and will be completed by the project engineer or the supervisor.

1.4 QUALIFICATIONS

Tank cleaning will be performed by Charleston Environmental Engineering and Remediation Detachment (DET) personnel who have had a wide range of experience with complex industrial work. The Detachment will utilize personnel which have been on previous tank jobs to the maximum extent possible on these jobs. Personnel involved with this project have been employed in the removal, cleaning, and disposal of underground and aboveground tanks and are experienced and capable workers who have become familiar with and shall abide by the applicable portions of the following:

- a. API PUBL 2015
- b. Handling and disposal of wastes encountered in tank cleaning.
- c. SouthDiv Guide 13219
- d. 29 CFR 1910.120
- e. 40 CFR 280

1.5 PROJECT ORGANIZATION

The Charleston Environmental Engineering and Remediation Detachment (DET) will implement this Work Plan. The organizational chart and a brief description of duties are outlined in the DET 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 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. The perimeters of these zones shall be determined by the Site Supervisor and SHSO using Figure 2 as a guide.

2.3 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 site supervisor shall be responsible for establishing the barrier prior to start of work.

2.4 IGNITION SOURCES

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

2.4.1 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 work 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 cleaning operations.

2.4.2 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.

2.4.3 Unexpected Ignition Sources

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.

2.4.4 Fire Extinguishers

Fire extinguishers shall be readily available and a 1 1/2" or larger fire fighting hose shall be available. Hose nozzle shall be bonded to the tank.

2.5 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.

2.6 WASTE MANAGEMENT

WASTE STREAMS

Water

Water generated during rinsing, cleaning and removal of tanks and piping shall be disposed of at the onsite oil water separators.

Sludge

Sludge removed from tanks that contained the same product may be combined in the same drum (i.e. waste oil sludge may be combined with other waste oil sludge and heating fuel sludge may be combined with other heating fuel sludge). The sludge will be sampled for flashpoint, TCLP benzene, and TCLP metals. The sludge shall be labeled per the applicable local requirements.

PPE

Waste classified as PPE will include disposable suits, gloves, boots, respirator cartridges, and plastic sheeting. The amount of PPE generated will depend on the schedule and number of times disposable PPE is discarded daily. 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.

Hazardous Waste

All hazardous waste will be packaged, labeled, marked, and turned over to the NSA Hazardous Waste handlers for disposal. All hazardous waste shall be labeled per the requirements of 49 CFR 172.

2.7 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 area shall be ventilated using an **explosion proof blower**. The exhaust from the blower shall be routed

downwind and away from all work activities and off the ground a minimum of 6 feet. Periodically monitor the exhaust from the blower.

3.0 TANK CLEANING

Tables 1 and 2 shall be filled out for each tank. The instructions of para 3.0 shall be repeated for each tank worked per this plan.

3.1 PREPARATION FOR CLEANING

- a) Entry into any of the tanks is prohibited until all of the requirements for confined space entry have been met and a permit has been issued by the confined space program manager.
- b) Cleaning of the tanks shall be scheduled so that maximum use of the oil water separator can be achieved. For example we should start with cleaning the lift station so that water can be pumped into AST 1719 and then through the oil water separator.

3.1.1 Establish Boundaries

Setup the exclusion zones and contamination reduction zones. Establish berms at each manway that will be removed.

3.1.2 Manways

Remove any manways necessary for installation of ventilation ducting and/or personnel entry. Retain all fasteners for reuse. Inspect the manway cover for any obvious damage that could cause leakage upon reinstallation. If possible save the existing gasket to use as a template for manufacture of a new gasket.

3.1.3 Ventilation

The tanks shall be ventilated with an explosion proof blower for a minimum of 24 hours prior to initial gas testing and personnel entry. If LEL is less than 10%, oxygen level is between 19.5% and 23.5%, no toxic levels above PELs, and a confined space entry permit has been issued personnel entry will then be permitted. Ventilation shall remain in the tank and be operated continuously until completion of cleaning and inspection. The blower shall be bonded to the tank. PPE per the SSHSP shall be worn.

3.2 CLEANING

Cleaning shall be accomplished per the guidelines of this plan, South Div Guide 13219, and API 2015.

3.2.1 Tank Isolation

The tanks shall be isolated so that inadvertent filling of the tanks cannot occur. This can be accomplished by blanking inlet piping, shutting and tagging out inlet valves, or pipe removal. Any electrical connections shall also be secured/isolated. The supervisor or project engineer shall verify that the tank is properly isolated prior to personnel entry.

3.2.2 Sludge and Free Product Removal

Remove any residual free product and sludge that is left in the tank. The free product shall be drummed separately from the sludge. Remove sludge or sediment buildup with a long handled brush, squeegee, hoe, shovel, etc. and contain removed material. A mud hog or pump may be used to remove sludge if the viscosity allows pumping.

Caution!!

Cleaning will produce additional vapors. Maintain ventilation and continue gas testing since an initial low LEL reading may not be permanent. If an LEL of greater than 10% is detected, stop work until ventilation lowers the concentration.

3.2.3 Pressure Washing

Using a pressure washer, wash/rinse the tank. Normally, a triple rinse of making three passes over the tank's interior surface with the spray wand will adequately clean the tank. If the interior of the tank is badly stained, an emulsifier may be used to remove staining. Water from the cleaning rinse shall be vacuumed and collected. The hose/wand shall be bonded to the tank.

If the pressure washing and emulsifier does not adequately clean the tank the sandblasting attachment for the pressure washer may be used. Permission from the project engineer must be obtained prior to using the sandblasting attachment.

3.2.3.1 Oil Water Separator

The outside of the oil water separator will also require cleaning. Put down plastic sheeting around the outside of the tank to collect as much of the spray as possible. Remove staining from the outside of the separator to the maximum extent possible using the above instructions. Scrub brushes may also be used.

3.2.3.2 AST 1754

AST 1754 is not located at the carrier deck. The tank shall be pumped down and disconnected, then moved to a more convenient location for cleaning. Insure the tank is properly chocked and strapped down when being moved and cleaned. Once the tank is cleaned the project engineer will determine if the tank will be returned to its original site or turned over to NSA, Memphis.

3.2.4 Inspection

Upon completion of cleaning either the supervisor or project engineer shall perform an inspection of the interior of the tank using Table 2 as a guide. Once the supervisor or

project engineer has satisfactorily completed their inspection a local representative from NSA, Memphis shall inspect the tank and signoff in Table 2.

3.2.4 Tank Closure

When all of the inspections have been satisfactorily completed the manways may be reinstalled on the tanks. New gaskets shall be made using the existing gaskets as a template. Reuse the existing fasteners. Remove all boundary equipment and berms.

FIGURE 1
SITE LAYOUT

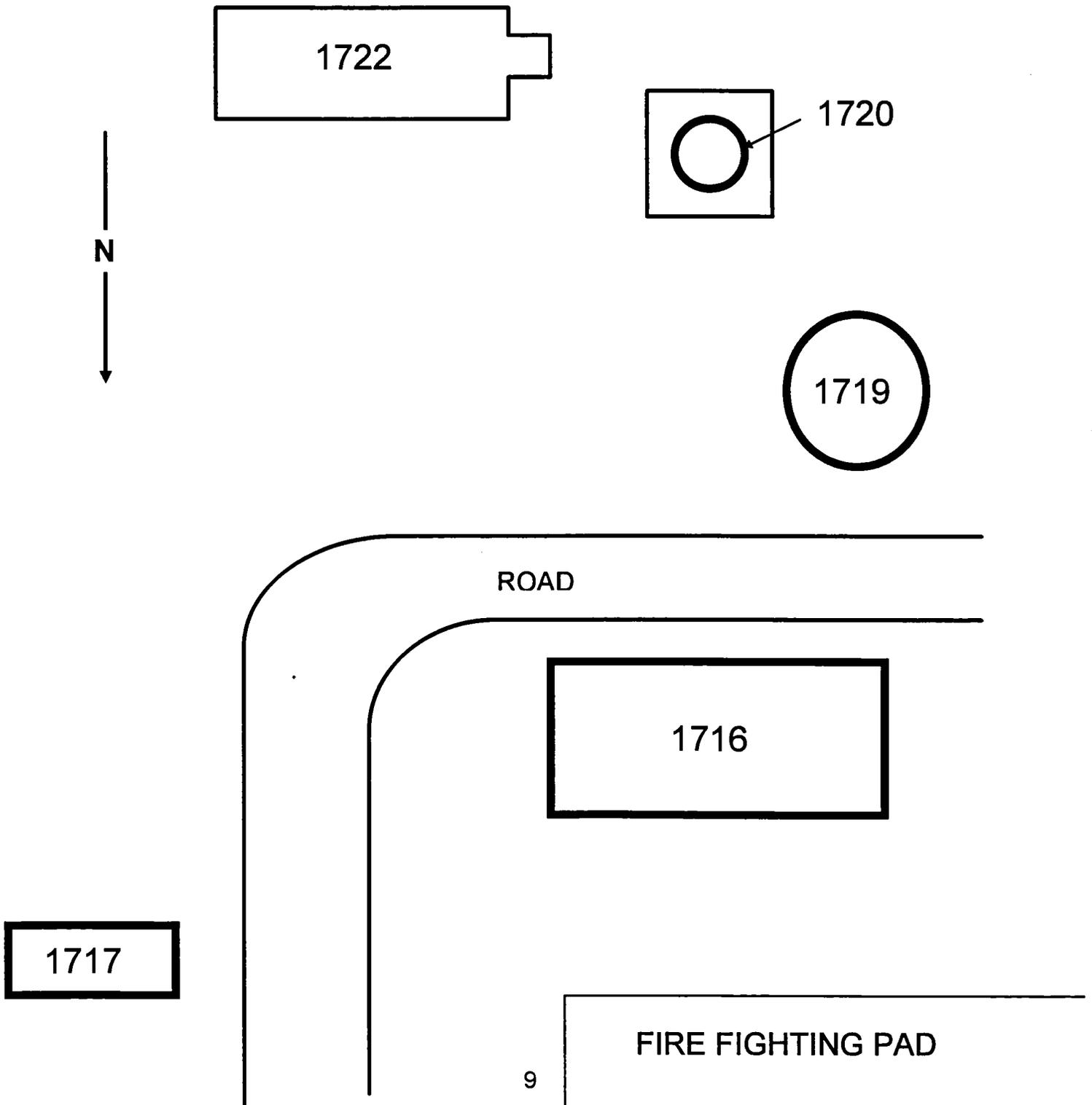


FIGURE 2
WORK ZONE

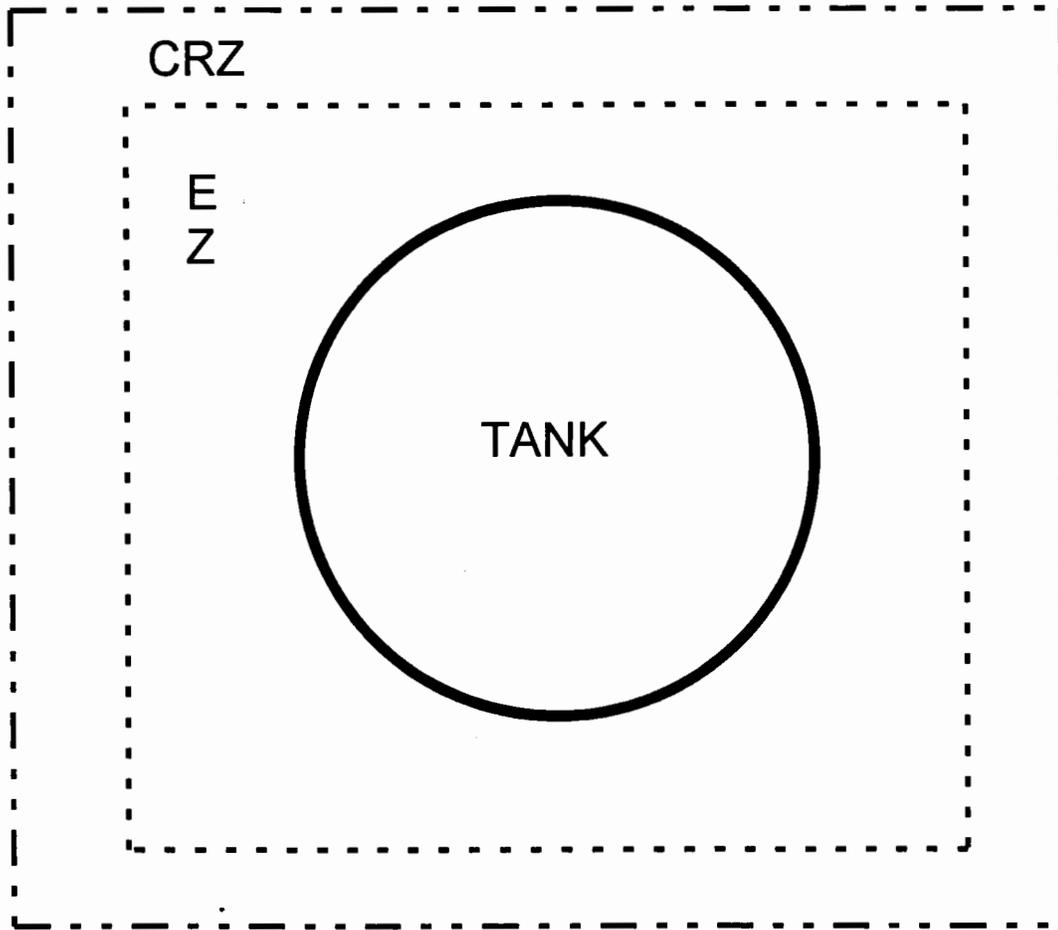


TABLE 1
TANK CLEANING LIST

TANK #	DATE START	TANK TYPE	INITIAL LEL	INITIAL % O ₂	AMOUNT OF SLUDGE	DRUM #	COMP DATE	COMMENTS
1716								
1717								
1719								
1720								
1722								
1754								

1. Enter the date tank work started.
2. Initial LEL and % oxygen shall be measured and recorded prior to any cleaning operations.
3. Estimate the approximate amount of sludge removed from the tank and enter the drum # that the sludge was put in.

TABLE 2

TANK CLEANING AND INSPECTION REPORT

TANK # _____

DATE _____

TANK CONTENTS _____

1. Approximate amount of free product removed from tank _____

2. Approximate amount of sludge removed from tank _____

3. Method of cleaning _____

4. Cleaning agents used _____

5. Inspection complete (DET) _____ Signature

Comments

6. Inspection complete (NSA) _____ Signature

Comments

7. All extraneous material removed from tank. All piping/electrical connections have been restored. (DET) _____ Signature

8. Manway(s) reinstalled, gasket installed, and fasteners tightened.

9. Tank work complete. All above signatures are completed and tank has been returned to its original configuration. (DET) _____ Signature

APPENDIX A

WORK PLAN AMENDMENT

Amendment # _____ Date: _____

Site Name: _____

Work Assignment: _____

Type of Amendment: _____

Reason For Amendment: _____

Required Change: _____

Project Engineer

Date

APPENDIX B SITE SPECIFIC SAFETY AND HEALTH PLAN

Attachment (1) Confined Space Responsibilities

1.0 Purpose

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

2.0 Work Location

Naval Support Activity (NSA), Memphis.

3.0 Work Scope Brief

Cleaning of tanks, lift station, and an oil separator.

4.0 Hazards

The primary safety hazards are from oxygen deficiency or explosion, and precautions are in the body of the procedure. Physical hazards such as falls from the tank top, and tripping inside the tank, or being cut by internal sharp angles also exist. Cold stress is also a danger.

A secondary safety hazard is falling from the tank top. Provide fall protection as needed for work at heights above 6 feet. Be alert, due to the age of the tanks, for structural failure of the roof, sides or internal structures including stairs, ladders and roof supports.

The primary health hazard is from petroleum oils which are a primary irritant. JP-5 and JP-8, (Kerosene) 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. The primary route of entry is inhalation. Both are irritating to the eyes. The flash point of JP 5 is 140 degrees F, and of JP-8 is 100 degrees F. The recommended Permissible Exposure Limit is 100 ppm.

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.

5.0 Personnel Protective Equipment

Wear gloves and coveralls (either tyvek or cloth) with shoe covers or boots and when cleaning, use a face shield and head cover. Clean PPE shall be used each day. If PPE failure wets the skin, remove the PPE, wash the body, and replace the PPE.

Depending on Industrial Hygiene or Gas free test monitoring results, respirators may be required, and are always an employee option.

If lead based paint must be removed, suggested methods are paint remover, manual scraping or power tools. Wear a half mask respirator for manual scraping or sanding, or when using a power tool with a dust collector. Wear a full face respirator with HEPA filters when using a power tool without a dust collector. If paint remover is used, wear a half mask with organic vapor cartridges. Wear a head cover during paint/coating removal.

6.0 Confined Space Emergency Rescue Procedure.

The following is required for work on a confined space and proper response in an emergency.

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

6.2 For rescue of personnel call the NSA Fire Department at 9-911 or by radio. Medical care will be by the hospital(s) listed in the work document using the route shown.

7.0 Special Personnel Training Qualifications

Hazard communication module 0004 Fuels, 0008 Metals, and the Detachment Lead Worker Training Class.

8.0 Occupational Safety and Health Precautions.

Material Safety Data Sheets will be carried for Hazardous Materials taken outside the Charleston area.

The Project Engineer, 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, 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 nearby gasoline tanks, is

planned that could be affected by the work of this procedure. Contact the local fire/department or response organization to ensure they are aware of the work scope and location.

The tanks to be worked must be isolated by blinding flanges, removal of piping sections, or double block and bleed methods as close to the tank as possible. Where sections are removed, both standing ends must be blanked to prevent vapors from entering the work area.

Visually inspect the work site to ensure no other work is in progress, and to detect the presence of overhead or underground power lines. It must be determined if these will be impacted by the planned work, and they must be protected or secured using lockout/tagout procedures. Operation of any equipment on the tank and any digging in the work area without the approval of the Project Engineer is prohibited. Also no chemicals, compressed gasses, or gas lines will be taken inside the tank without the permission of the Project Engineer as these are explosion and asphyxiation hazards.

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. Plastic sheeting use is prohibited inside the tank.

Remove small ferrous metal objects, e.g. nuts, bolts, washers, and debris which could cause sparks from inside the work area.

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. Care should be used in placement of vacuum trucks to avoid vapors reaching the internal combustion engine.

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

Minimize the number of people and weight of equipment on tank tops to avoid collapse. For heavy equipment such as blowers, plywood or steel may be needed to spread the weight.

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

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.

Prior to opening the tank manways, any berm area over 3 feet in height will be ventilated using mechanical ventilation. As an alternative, a section of the berm may be removed to grade level to provide natural berm ventilation.

SEE NOTE. 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 and ventilation exhaust location and make-up air entry locations should be chosen 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.

Prior to tank entry, 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.

Consideration should be given to conducting the maximum amount of cleaning outside the tank if this can be done through manways, for example.

Atmospheric testing for oxygen, flammables and toxics in that order will be conducted prior to, and periodically during any tank entry or work on the tank. Entry will not be made if the oxygen content is less than 19.5% or above 23.5%; or if flammable vapors are above 10% of the LEL. A gas free test explosive reading of less than 4 % of the LEL is preferred. Tank entry will require a Confined Space Entry Permit per OPNAVINST 5100.23D which will include, unless otherwise specified in the Permit:

- continuous forced exhaust ventilation at all times.
- the ability to immediately contact (e.g. cell phone, radio) the rescue organization. The rescue organization should be contacted and be aware of the work location and work scope prior to tank entry. A site visit is recommended.
- designation of the entrants, attendants, and the entry supervisor.
- an agreed upon communication method between the entrant (s) and the attendant(s).
- Periodic gas free testing. Suggested test intervals are at least every half hour initially, at the start of each day, after any ventilation interruption, and when sludge removal operations are in progress. Whenever a work operation that could change the space atmosphere is being performed continuous gas free testing will be performed. Testing will also be done 1 to 2 hours after cleaning is considered complete, because pipes and structures in the tank may continue to release vapors from their internals even though appearing to be clean. Any tank that has been cleaned but closed and inactive shall be retested as though it were the initial test because rusting may have depleted the oxygen, or product may have seeped into the tank from a variety of sources. Gas test instruments will be field calibrated daily and recorded, preferably at the start of the shift.
- respiratory protection, if required based on atmospheric monitoring.
- a personnel retrieval method will be used on the initial tank entry, and during the first shift of cleaning.

Attachment (1) to this appendix contains the responsibilities of personnel involved in confined space entries.

Maintain at least one portable fire extinguisher, of not less than 20-B units, and a charged 1 1/2 inch fire hose at the tank work site. A fog or mist nozzle is preferred on the fire hose.

Any fluid drainage must be away from buildings or contained by a berm.

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

Work that involves sewage exposure (e.g. standing sewage liquid or broken sewer pipes), will require the use of workers who are in the NavHosp C5 medical surveillance program. These workers shall avoid skin exposure by using appropriate protective

equipment such as aprons, tyvek suits, boots, and latex or plastic gloves worn under heavier protective gloves. If splashing is a hazard, wear face shields over goggles. Sewage wetted clothing should be removed promptly and the person should then wash with soap and water. Wet clothing should be bagged and then washed separately with hot soap and water and one cup of bleach per washload. Sewage contaminated equipment should be washed with soap, water, and bleach. Wash hands and face after any sewage work and prior to eating, smoking or going home.

At completion the tank shall be inspected to ensure that all workers have exited and that maintenance equipment and debris have been removed. Tank piping if reinstalled and not tested will be tagged "untested" to prevent future spills, and the facility custodian so notified.

9.0 Material Safety Data Sheets

Typical MSDSs for JP-5 and JP-8 are attached.

10.0 Medical Surveillance

Hazardous waste worker (B27/711) and Lead worker (B4/161).