WORK PLAN FOR REMOVAL OF PIPING WITH ASBESTOS INSULATION MILLINGTON SUPPACT TN

4/1/1997

CNC CHARLESTON

WORK PLAN FOR REMOVAL OF PIPING WITH ASBESTOS INSULATION NAVAL SUPPORT ACTIVITY MEMPHIS, TN

Prepared for:

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

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CHARLESTON ENVIRONMENTAL DETACHMENT
CHARLESTON NAVAL COMPLEX

APRIL 1997

Cog Engineer M.A. Moltzen Date 4/23/97

Cog Technical Authority _____ Date 4/23/97
(Approval)

Site Manager _____ Date _____
(Concur)

Project Health and Safety Officer E.W. Hardwicke, CSP Date 4/23/97
(Concur)

SOUTHDIV, EIC _____ Date _____
(Concur)

WORK PLAN
REMOVAL OF PIPING
WITH ASBESTOS INSULATION

Table of Contents

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 Engineering and Environmental 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
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	Publicaly 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
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank

WORK PLAN
REMOVAL OF PIPING
WITH ASBESTOS INSULATION

1.0 INTRODUCTION

This work plan is for the removal of five underground piping lines with asbestos insulation and two other fuel oil lines without. All seven lines are routed in the same general vicinity and may or may not be removed by digging one trench. Four of the lines are inside of a corrugated pipe. The piping runs between a manhole and a former boiler house. Since there are no plans available for this piping it is estimated that the piping ends where it was disconnected from the boiler house. The depth of the trench will be approximately 7 feet and the length will be about 160 feet. When personnel are required to enter the excavation, that area will be sloped per the requirements of the trenching standard. Personnel entry into the excavation will be kept to a minimum. The piping will be cut in the maximum lengths possible in the trench and when brought out of the trench it will be cut into disposal lengths. The piping will be wrapped in poly and canvas and disposed of as asbestos waste. Excavated soil will be field screened at time of removal and the clean soil will be segregated from the contaminated soil. The Army Corps of Engineers will dispose of contaminated soil. Soil samples will be taken every 20 feet to determine if all contaminated soil has been removed.

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. Asbestos references will be listed in the asbestos attachment.

AMERICAN PETROLEUM INSTITUTE (API)

API RP 1604	1987 Removal and Disposal of Used Underground 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

TENNESSEE DEPARTMENT OF THE ENVIRONMENT (TDEC)

Ch 1200-1-15 Tennessee Petroleum Underground Storage Tank Regulations

1.2 DESCRIPTION OF WORK

This work involves the removal and disposal of underground piping that has been abandoned. Removal of some of the piping will involve asbestos removal. All asbestos insulated piping will be disposed of as asbestos waste. All work shall be performed in accordance with all local, state, and federal regulations.

1.3 SUBMITTALS

All submittals generated during the pipe excavation/cleaning will be forwarded to SOUTHDIV and the activity point of contact.

1.4 QUALIFICATIONS

Piping removal 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 has successfully removed underground piping with asbestos insulation and will utilize those personnel to the maximum extent possible on this job. DET employees are experienced and capable workers who have become familiar with and shall abide by applicable portions of the following:

a. API RP 1604

b. Handling and disposal of wastes encountered in underground asbestos covered piping removal

c. Excavation, testing, and disposal of petroleum contaminated soil, liquids, and sludge

1.5 PROJECT ORGANIZATION

The Charleston Engineering and Environmental 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.

Project Manager:	Bobby Dearhart
Site Manager (APS):	Bill Warner
Site Supervisor:	Bob Childs
SHSO:	Mark Moltzen
Project Engineer:	Mark Moltzen
Quality Control Officer:	Mark Moltzen

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 requirements 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 QUALITY CONTROL PLAN

A copy of the Quality Control Plan shall be onsite during all work.

2.3 EXCLUSION ZONE (EZ) AND CONTAMINATION REDUCTION ZONE (CRZ)

Personnel not directly involved with the project shall not enter the work zones, called the EZ (Exclusion Zone) and CRZ (Contamination Reduction Zone). The EZ shall be a minimum of 10 feet from the limits of the excavation. The perimeters of these zones shall be determined by the Site Supervisor and SHSO using Figure 3 as a guide.

2.4 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 ground disturbance.

2.5 IGNITION SOURCES

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

2.5.1 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 from excavation boundaries and (b) 100 feet from pressurized ducting and the duct discharge area when using mechanical ventilation to ventilate excavation areas. 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. Electrical bonding and/or grounding connections shall remain in place throughout removal operations.

2.5.2 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 excavation. Such equipment, when used, should be thoroughly inspected to ensure that it is not a source of ignition.

2.5.3 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.

2.5.4 Fire Extinguishers

Fire extinguishers shall be readily available. The area fire department shall be notified prior to the start of excavation.

2.6 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.

2.7 WASTE MANAGEMENT

WASTE STREAMS

Excavated Soils
Soil removed per this work plan will be field screened by use of a FID. If samples are clean, less than 100 PPM, the soil will be used as backfill. If the samples are not clean, the soil will bermed with other soils previously removed by the Army Corps of Engineers.

Water
Water generated during removal of piping shall be disposed of at the NSA, Memphis oil water separator.

Scrap Metal
Piping which was insulated with asbestos will be disposed of as asbestos waste. The two piping lines that do not have asbestos insulation will be triple rinsed and disposed of as scrap metal.

Construction Debris
Concrete/asphalt will be disposed of as construction rubble/debris once all contaminated soils have been removed.

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.

Hazardous Waste
All hazardous waste will be packaged, labeled, marked, and turned over to NSA Memphis DRMO for disposal.

2.8 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 **explosive proof blower**. The exhaust from the blower shall be routed to an area downwind and away from all work activities (including the backhoe) and off the ground a minimum of 6 feet. Monitor the exhaust from the blower.

3.0 PIPING REMOVAL AND DISPOSAL

Piping removal and disposal will include:

- Labor, materials, necessary permits, laboratory tests and reports, and equipment to remove and dispose of asbestos insulated piping
- Vapor freeing the excavation
- Excavation and removal of the piping and disposal as asbestos waste
- Soil sampling
- BACKFILL excavation to the level of the adjacent ground and site restoration
- Disposal of waste generated by the project in accordance with all appropriate Federal, State, and Local regulations

Note that the sequencing of paragraph 3 may change as determined by the Site Supervisor and Project Engineer upon verification of actual onsite conditions. Sequencing of this work plan is for guidance only.

3.1 WORK PHASE ONE

3.1.1 Excavation Preparation

Locate area utilities and mark location.

3.1.2 Layout Boundaries

Using plastic fencing and boundary tape establish the CRZ and EZ. Use Figure 3 as a guide in determining the location of these zones. These zones shall encompass the entire excavation and shall be expanded as necessary as the excavation is enlarged.

3.1.3 Preliminary Digging

Begin digging in the area of the two fuel oil lines that are not insulated with asbestos since they are closest to the surface. In the beginning use the raking process to insure there are not any unknown utility lines that were not originally identified. Soil shall be segregated during removal based on field screening. Soil reading greater than 100 PPM as determined by head space analysis shall be disposed of at the Army Corps of Engineers dirt pile. Soil reading less than 100 PPM shall be bermed and returned to the excavation upon completion of piping removal and confirmation sampling. Expose the piping to allow for cutting and removal. Gas test during excavation.

3.1.4 Cut Piping

If the piping is deeper than 5 feet below ground level the trench shall be sloped per the trenching standard prior to personnel entry. Cut and remove the two fuel oil lines that do not contain asbestos insulation using a non spark producing tool, (i.e. sawzall, roller cutter, bandsaw). Be prepared to catch any residual fuel that may be in this piping. Once this piping is removed, triple rinse it and dispose of it as scrap metal.

3.2 WORK PHASE TWO

3.2.1 Excavation

After removal of the two fuel oil lines continue digging down to the insulated piping running above the corrugated piping. Use extreme caution when digging around this piping since an asbestos spill could result. See Figure 2 for location of this piping. Segregate soil as required by paragraph 3.1.3.

3.2.2 Asbestos Removal and Pipe Cutting

If the piping is deeper than 5 feet below ground level the trench shall be sloped per the trenching standard prior to personnel entry. Remove the asbestos covering at each cut location per the requirements of Appendix C. The site supervisor shall determine the amount of cuts to be made in the trench to remove the piping. Piping shall be cut into lengths as required to fit into the disposal container. Wrap piping for disposal as required by Appendix C.

3.3 WORK PHASE THREE

3.3.1 Excavation

Once the piping above the corrugated piping has been removed, continue digging to expose the corrugated piping. Again segregate soil as required by paragraph 3.1.3. Also use caution in digging around the corrugated piping. Even though there is not asbestos wrap around the outside of the corrugated piping, damage to the piping could cause a spill of the asbestos inside the corrugated piping.

3.3.2 Corrugated Piping Removal

The requirements of the trenching standard shall be adhered to if the trench is deeper than 5 feet and personnel entry is required. Using a sawzall or similar saw, remove a section of the corrugated piping to allow the four pipes inside to be cleaned and cut. Use the instructions of Appendix C for asbestos, since once the corrugated piping is removed the asbestos covering the interior pipes will be exposed. Use precautions necessary to prevent an asbestos spill, e.g. wet methods, wrapping.

3.3.3 Asbestos Removal and Pipe Cutting

Remove the asbestos covering at each cut location per the requirements of Appendix C. The site supervisor and Project Engineer shall determine the number of cuts and location of cuts to be made in the trench to remove the piping. If possible, the four interior pipes will be cut and the entire piping assembly lifted out of the trench at one time. Once the piping has been removed from the trench, the piping shall be cut into lengths as required to fit into the disposal container. Wrap piping for disposal as required by Appendix C.

3.3.4 Sampling

Take soil samples at 20 foot maximum intervals along the piping run once all piping has been removed using the guidelines of the QC Plan. The sample results will be

reviewed by the Project Engineer and the Activity Environmental Representative to determine if further digging is required.

3.3.5 Backfill

Once acceptable sample results have been obtained the excavation shall be backfilled to grade using pea gravel and clean fill. Return landscape to its original condition.

FIGURE 1

AREA MAP

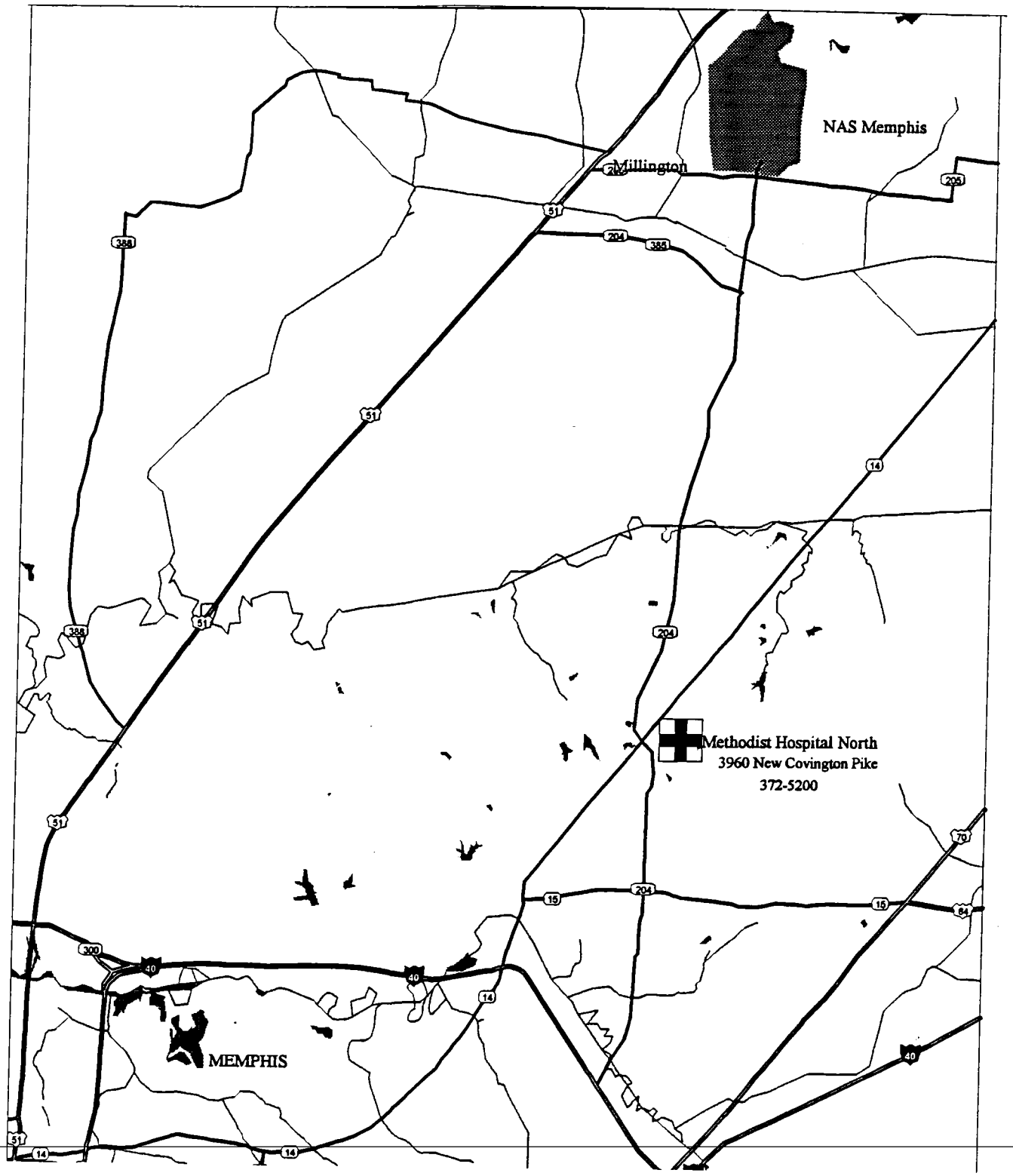
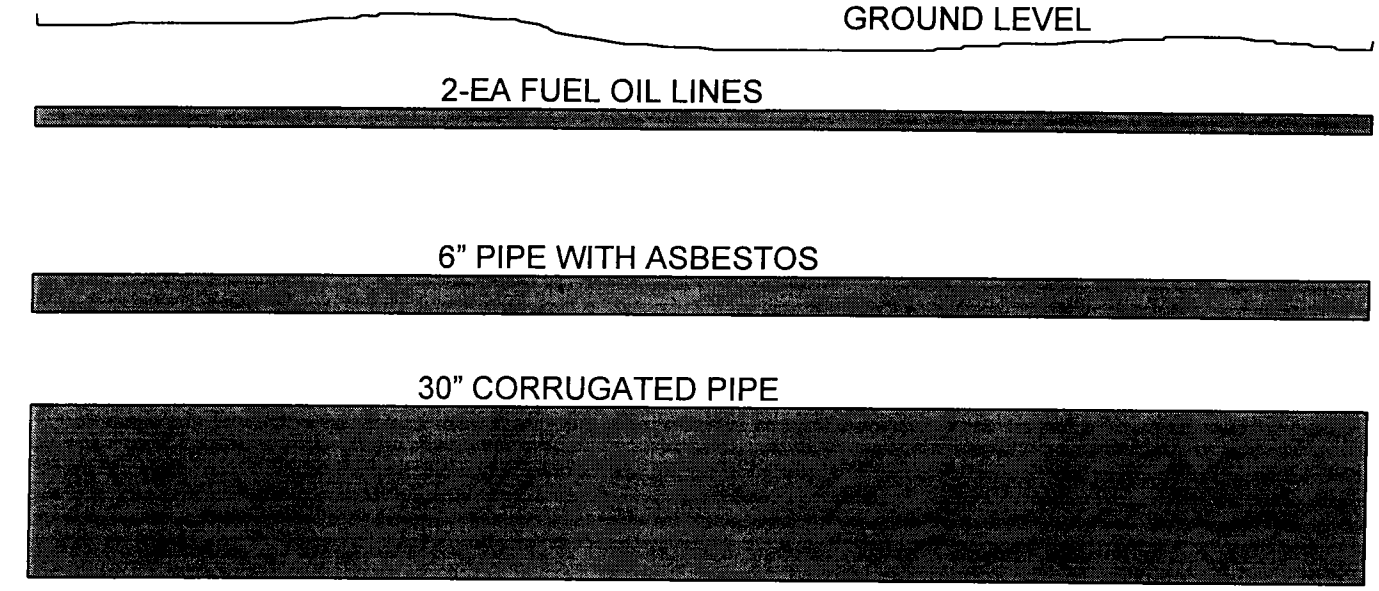
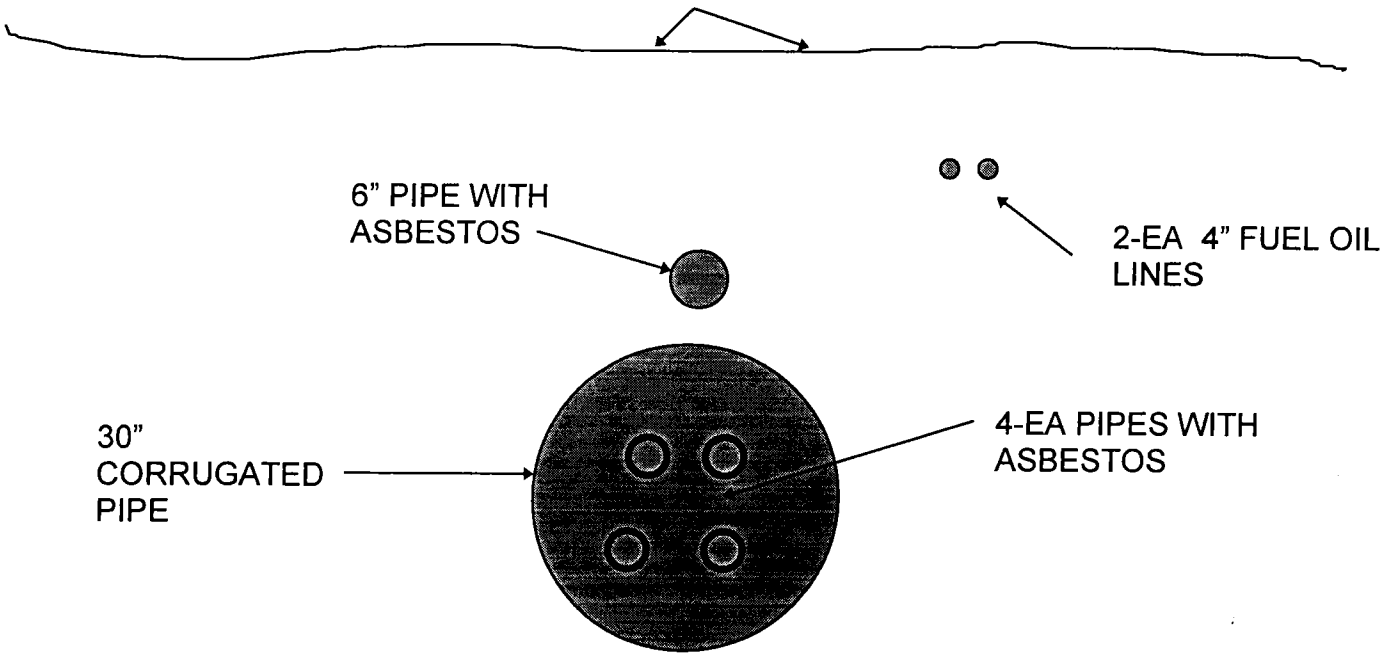


FIGURE 2
PIPING LAYOUT

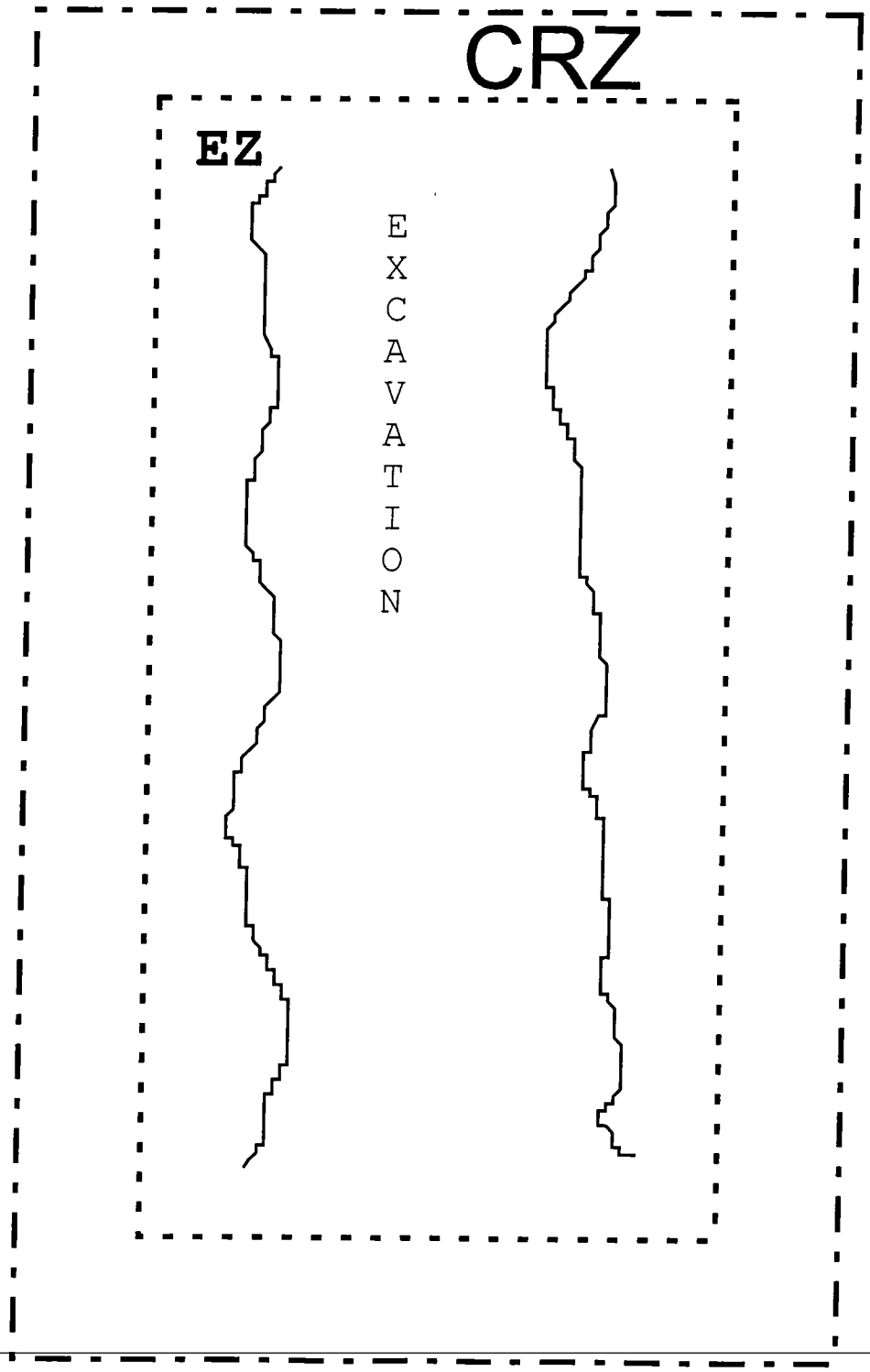


ELEVATION VIEW



SECTION VIEW

FIGURE 3
WORK ZONE



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 HEALTH AND SAFETY PLAN

1.0 Purpose

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

2.0 Work Location

Naval Support Activity, Memphis.

3.0 Work Scope Brief

Removal of underground piping.

4.0 Hazards

The primary safety hazards are those connected with excavations and heavy equipment operation including material handling. Cave ins, falls, and personnel injury from heavy equipment are the most common and most serious. Also, hazardous is the explosive and toxic nature of petroleum fuels.

The primary health hazard is that of personnel exposure to asbestos. Asbestos is a carcinogen and a respiratory and ingestion hazard. Disturbance of asbestos fibers will cause exposure to airborne particles. Therefore, do not disturb asbestos in any way that drives the fibers into the air. Necessary asbestos work will be specified by written procedure. The PEL for asbestos is 0.1 fibers/cc.

A secondary health hazard is from petroleum oils which are a primary irritant. Petroleum oils and fuels 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. Hydrocarbons are irritating to the eyes. The flash point of JP 5 type fuel is 140 degrees F. The recommended Permissible Exposure Limit is 350 ppm.

Another common health effect is dermatitis, a defatting of the skin, which can result from continued skin contact with petroleum oils. Some individuals develop hypersensitivity. The quickest entry into the body of petroleum products is by ingestion, therefore do not siphon fuel by mouth.

5.0 Personnel Protective Equipment

For asbestos work, follow the PPE and work practice requirements in the asbestos section. For other work, wear gloves and coveralls (either tyvek or cloth) with shoe covers or boots when exposed to petroleum oil. If splashing is a possibility, use a face shield and head cover. Clean PPE shall be used each day. If PPE failure allows the skin to be wetted, 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 equipped with a HEPA vacuum dust collector attachment. Wear a half mask respirator with HEPA filters for manual scraping or sanding, or when using a power tool with a dust collector. If paint remover is used, wear a half mask respirator with organic vapor cartridges. Wear a head cover during paint/coating removal. As an alternative for lead paint work, use cold cut methods and keep the work area wet with a water mist and wear a half face respirator.

6.0 Emergency Rescue Procedure.

The following is required for work in a trench and proper response in an emergency.

6.1 Personnel will have the means to immediately contact a rescue organization, e.g. by cellular phone, or 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 listed in the work document using the route shown.

7.0 Special Personnel Training Qualifications

HAZWOPER training (and for personnel entry into a trench over 5 feet deep) a Competent Person trained in the 29 CFR 1926 Excavation Standard must be present.

8.0 Occupational Safety and Health Precautions.

Asbestos work is conducted only per written instructions and the detachment Standard Operating Procedure for Asbestos.

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, tank venting) 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 this procedure's work and its location.

Inspect the work site to ensure no other work is in progress, and also to detect the presence of overhead or underground power or utility 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 nearby equipment 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 work area 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, accumulation, or exit of flammable or toxic vapors. If present, block them, (e.g. by covering with plastic).

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

Care should be used in placement of vacuum trucks, and generators or other engines or ignition sources to avoid combustion by-product vapors from flowing into the excavation. Portable generators are a particular hazard and should be located upwind.

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, or trenchboxes will be used.

-Daily inspections prior to work or entry, and especially 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.

Excavations require an access means, usually ladders, within 25 feet of any employee, removal of water prior to and during each work shift, stacking of construction materials and equipment including excavation dirt at lease two feet from the trench edge, placement of removed pipe away from the trench edge to prevent rollback into the trench, prohibition of lifting over employees, and use of an exhaust blower to remove residual hydrocarbon vapors. These hydrocarbon vapors are heavier than air and will collect in the trench bottom.

The piping to be worked must be isolated by blinding flanges, removal of piping sections, or double block and bleed methods or other positive means of assuring that the pipes are isolated and not pressurized. Where sections are removed, both standing ends must be immediately blanked or otherwise covered to prevent vapors from leaving the piping and entering the work area. Prior to cutting the piping, the maximum amount of product will be removed through the piping ends or its drain lines, if this is possible.

Atmospheric testing for oxygen, flammables and toxics, in that order, will be conducted prior to, and during work and after any spill or other unexpected release of fluid. Entry into the trench 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.

Cut using a roller type cutter or other cold cut method. Ventilate and gas test the excavation immediately prior to and during cutting. Locate the blower suction duct as close as possible to the cut site prior to and during the cutting.

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

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

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.

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

Although not anticipated in this work, 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 wash load. 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.

9.0 Material Safety Data Sheets

Typical MSDSs for JP-5 and asbestos are attached.

10.0 Medical Surveillance

Hazardous waste worker (B27) and Asbestos (B1).

APPENDIX C

SITE SPECIFIC ASBESTOS WORK PLAN

Removal of Piping with Asbestos Insulation

Naval Support Activity, Memphis, Tennessee

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DEFINITIONS

Permissible Exposure Limit (PEL) - An airborne concentration of asbestos of 0.1 fiber per cubic centimeter (f/cc) of air calculated as an 8-hour time-weighted average.

Asbestos - Asbestos includes chrysotile; amosite; crocidolite; tremolite; anthophyllite, actinolite, and any of these minerals that has been chemically treated and/or altered.

Class II Work - Asbestos work means activities involving the removal of ACM which is not thermal system insulation of surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Competent person - One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR Part 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2).

Decontamination Area(Class II work) - An equipment room or enclosed area adjacent to the regulated area for the decontamination of employees and their equipment, which consists of an area covered by an impermeable drop cloth on the floor or horizontal working surface. It shall be large enough so as to accommodate cleaning of equipment and removing of personal protective equipment, without spreading contamination beyond the work area.

Employee exposure - That exposure to airborne asbestos that would occur if the employee were not using respiratory protection.

Friable asbestos material - Any material containing more than 1 percent asbestos by weight which, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.

High-efficiency particulate air (HEPA) filter - A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed dioctylphthalate(DOP) particles of 0.3 micrometer in diameter or larger as indicated in UL 586.

Regulated area - An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

1.0 PURPOSE

This document specifies the quality assurance and work plan for assuring that quality and safety requirements are met. It pertains to the removal of Asbestos Containing Material (ACM) (pipe and covering) at the NAS Memphis, Tenn. **This is a NESHAP size outdoor, Class II asbestos abatement project.**

General asbestos abatement guidelines and procedures are spelled out in ref (f). However, where those guidelines are silent to a specific project this document shall take precedence.

This plan adheres to safety and health requirements as stated in ref (e) which are mandatory for all employees engaged in operations where an exposure potential to site hazardous substances exists. These persons will be briefed concerning this plan and shall sign the plan acceptance form prior to the start of field activities. This form is included as Attachment A.

Applicability extends to all government employees, contractors, sub-contractors and all visitors. Visitors will also be expected to provide their own personnel protective equipment. In the event that a visitor does not adhere to the provisions of this document, he/she will be requested to leave the work area. All non-conformance incidents will be recorded in the site log.

2.0 REFERENCES

(a) OPNAVINST 5100.23D.

(b) "Asbestos Abatement Projects", Title 40 Code of Federal Regulations, Part 763, Subpart G.

(c) "Respiratory Protection", Title 29 Code of Federal Regulations, Part 1910.134.

(d) "Construction Industry Standard", Title 29 Code of Federal Regulations, Part 1926.1101.

(e) SPORTENVDETCHASN RCPM, Section 2H, "Charleston Detachment, Comprehensive Health and Safety Plan".

(f) SPORTENVDETCHASN RCPM, Section 2D, "Asbestos Program Standard Operating Procedure".

3.0 SITE HAZARDS

The hazard on this site is asbestos. Specific information about the physical and health hazards of asbestos are described in detail in MSDS 07246. A copy of this MSDS is included in this plan as Appendix B.

4.0 RESPONSIBILITIES

Project Manager: Mr. Lee Glidden, Charleston Detachment , ph # (803) 743-6777, Ext 228.

The Project Manager is responsible for assuring the required level of performance and contractual objectives are met.

Occupational Health and Safety Specialist (OHSS): Ms. Harriet Charles, ph # (803) 743-6777, Ext 110 or Mr. Connie Drum, ph # (803) 743-6777 Ext 144 Charleston Detachment,

The OHSS is responsible for assuring that safety and health requirements pertaining to all applicable instructions and standards are adhered to.

Industrial Hygienist (IH): Mr. Wayne Hardwicke, Charleston Detachment, ph # (803) 743-6777, Ext 235.

The Industrial Hygienist is to receive all air sampling/monitoring results and confirm results are within limits set by Reference (d) and report compliance/non compliance to the Project Manager and the OHSS. The Industrial Hygienist should also document any case of employee over exposure. Any waiver from the safety and health procedures specified in the work plan must first be approved by the Industrial Hygienist, Occupational Health and Safety Specialist. Records for employee exposure shall be in accordance with Reference (d), Paragraph (n)(2).

Site Supervisor: Mr. Carl Jenkins, Charleston Detachment, ph # (803) 743-6777

The Project Site Supervisor is charged with direct on - site supervision of all asbestos abatement work to be done as specified in this work plan. This work must meet with the Project Supervisor's approval before it may be considered complete. The Project Supervisor is also responsible for ensuring that work site personnel are informed of the Charleston Detachment Comprehensive Health and Safety Plan and daily inspection of the work site, noting any violations.

5.0 QUALIFIED PERSONS

For asbestos work, a qualified person is one who has had sufficient training and has obtained the applicable license per South Carolina Department of Health and Environmental Control (SCDHEC) regulation 61-86.1 for the position prescribed (i.e. Supervisor, Project Designer, Air Sampler, etc) and successful completion of an EPA approved training course. Original training certificates and licenses for persons involved with this project are kept by the Charleston Detachment(asbestos section). Copies of the training certificates and licenses for persons involved with this project will be kept at the work site by the Project Supervisor.

6.0 MEDICAL SURVEILLANCE

All workers who may be exposed to asbestos must be in a Medical Surveillance Program meeting the requirements of ref (d). Workers who will be wearing respirators have been determined by a physician to be medically capable of wearing the respirator. The medical surveillance program is maintained and administrated by NAVHOSP CHASN.

7.0 RESPIRATOR PROTECTION PROGRAM

Personnel shall wear respiratory protection at all times where there is a potential for exposure to asbestos fiber concentrations exceeding 0.1 fibers per cubic centimeter. Only NIOSH approved respirators will be provided and respirator use will be in accordance with refs (c), (d) and (f).

8.0 PERSONAL PROTECTIVE CLOTHING AND RESPIRATOR USE

All work where asbestos is either being removed or cleaned up will require the use of one piece impermeable disposable coveralls with head, hand, and protective foot coverings. **Half Face non-disposable respirators equipped with HEPA filters** will be the required level of respiratory protection. IAW with section (h), paragraph (2)(iii) of ref (d) employees may elect to were a tight fitting powered, air-purifying respirator if they wish.

9.0 PERSONAL HYGIENE AND DECONTAMINATION PLAN

The following personal hygiene rules are mandatory for all work with asbestos:

9.1 No eating, drinking, smoking or chewing are allowed in an asbestos work area. Even if there are no operations in progress in the asbestos area, this rule applies.

9.2 No food, drink, or products for smoking/chewing shall be carried into or stored in asbestos areas, tool bags, lockers, etc.

9.3 Before leaving the regulated area personnel shall remove all gross contamination and debris from their protective clothing, air breathing equipment and hoses.

9.4 Personnel shall remove their protective clothing and deposit the clothing in labeled impermeable bags or containers.

10.0 AIR SAMPLING PROGRAM

Based on prior negative assessment of previous projects meeting the requirements of section (f) paragraph (2)(iii)(A) of ref (d) no personal monitoring will be required for this project. This negative assessment is based on personal monitoring results from a similar abatement performed at the Viaduct Rd. AOC project located at the Charleston Naval Complex, North Charleston, SC and which showed the PEL to be well below .1 f/cc.

No background or daily area air monitoring is required for an outdoor removal.

11.0 RECORD KEEPING

The following records are to be maintained by the OHSS:
(a) respirator training and fit testing
(b) SC state required asbestos worker and supervisor, inspector, etc. training certificates and licenses (kept in the asbestos section office, bldg. 30, Environmental Detachment Charleston, SC)
The following will be maintained by the Naval Hospital, Charleston:
(a) Employee medical records

The Project Supervisor shall maintain the following:
(a) Record of the daily amount of asbestos removed and total number of bags filled (contained in the project logbook).
(b) Project Logbook (turn logbook in to Asbestos Section of Charleston Detachment at completion of project).
(c) Copies of state required asbestos worker and supervisor, inspector, etc. training certificates and licenses for each individual working at the project site.

12.0 SECURITY

Security of work areas shall be per Paragraph 4.1.d of Reference (f). Caution signs per Reference (d) will be displayed at all entrances to any asbestos abatement area. Entry and exit logs are to be maintained in the Job Site Logbook.

13.0 DISPOSAL

Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing consigned for disposal shall be collected and disposed of in sealed, labeled, impermeable containers. If bags are used, waste must be double bagged and wetted. If clean leak-tight drums are used polyethylene sheeting is not required. Prior to removal from the worksite, all waste containers shall be labeled to comply with References (b), and (d). **This material is authorized be place in the dumpster by NAS Memphis, Tenn. and the amount entered into the job site log book. WASTE CONTAINER LABELING MUST INCLUDE THE NESHAPS PROJECT NUMBER FOUND IN THE LOGBOOK LICENSE SECTION.**

14.0 SPECIFIC WORK PRACTICES:

General work practices for removal of Asbestos Containing Material (ACM) for this project, shall be in accordance with applicable sections of Paragraph 4.2.1 of Reference (f) and as listed below:

Location of ACM: The Asbestos Containing Material (ACM) is pipe insulation (Class II material per Ref (d)) and is located on fuel oil and steam piping being removed at NAS Memphis, Tenn.

Prerequisites: Prerequisites shall be per Paragraphs 3.2, and Paragraph 4.2.1.A of Reference (f) and as follows:

· **All Class II work, at all times, shall be supervised by a competent person.**
· **Prior to start of work place a copy of the project permit in the logbook.**

Prohibitions:

See Paragraph 4.1.f of Reference (f).

Engineering Controls: Engineering controls are to be per Paragraph 4.1.a of Reference (f) and as listed below:

- Vacuum cleaners equipped with HEPA filters.
- Wet methods.
- Prompt clean-up and disposal of wastes and debris.
- Determine regulated area and layout 2 layers of 6 mil poly. Adjacent to the regulated area, establish an equipment area for the cleaning of equipment and for personal decontamination. See paragraph 3.10.c of ref (f).

Removal of Material: Removal of material shall be as follows:

The pipe sections will require cutting in the trench prior to lifting out and placing in the work area. Cut the pipe at approximately 40' intervals. Each cut will require removal of insulation to the minimum extent possible to allow room for the pipe cuts. Wet methods shall be used during removal and two layers of 6 mil poly shall be placed under each cut. The cutting areas in the trench shall be demarcated with asbestos caution tape and signs IAW ref (d) and (f). Remove pipe insulation using hand tools, only to the minimum extent possible to make pipe cuts. Remove any small residual pieces that become dislodged from the piping by hand. Prior to making each pipe cut, the pipe and lagging shall be sprayed with lockdown encapsulant and ends of insulation covered with poly to prevent remaining insulation from becoming friable. Lift pipe sections from trench and place in work area for additional cutting to smaller lengths. Use the same method as above for additional cuts. After cutting prepare pipe end with covering to prevent cutting through poly during and after wrapping. Wrap each pipe section with two layers of 6 mil poly and one layer of canvas. Each section of pipe will require labeling with 4"x4" asbestos containing labels and name of generator, place of removal. Place each pipe section in the asbestos dumpster provided by NAS Memphis.

Prior to working on a section of piping, layout an additional layer of poly over the two layers which make up the floor of the regulated area. Remove and bag that additional layer after each section of piping is completed.

NO sanding, mechanical chipping or dry sweeping is permitted. No brooms shall be present in the regulated area.

Bag and dispose of removed ACM at the end of every work day.

Final approval of cleanliness of piping will be a visual inspection performed by the on - site asbestos supervisor.

REPORTS:

The following information shall be maintained in the Project Logbook and turned in to the Asbestos Section of Charleston Detachment Engineering Department upon completion of the abatement project:

Names and times of personnel entering and exiting regulated area.

Amount linear feet of asbestos removed, number of bags and type of asbestos removed.

Date(s) of removal.

Names of personnel involved in the removal.

NOTE: Determine how many bags of asbestos only waste are actually placed in the dumpster vs bags containing tyveks, gloves etc.

ATTACHMENT A

WORK PLAN AND SITE SAFETY ACCEPTANCE FORM

By my signature, I certify that I have read, understand, and will abide by this work plan, including all health and safety and quality requirements, for the Asbestos/Pipe Removal at NSA Memphis Tenn.

Printed Name	Signature	Company	Date