

A Report Prepared for

United States Navy  
Western Division  
Naval Facilities Engineering  
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ADDENDUM TO  
REMOVAL ACTION FOR TANK FARM  
VOLUME 1 - WORK PLAN  
NAVAL STATION TREASURE ISLAND  
HUNTERS POINT ANNEX  
SAN FRANCISCO, CALIFORNIA

ASBESTOS ABATEMENT WORK PLAN

HLA Job No. 02176,312.02

by

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VOLUME 1 – WORK PLAN

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## TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
	1.1 Site Background.....	1
	1.2 Asbestos Abatement Action Overview.....	2
2.0	REGULATIONS, STANDARDS AND DEFINITIONS.....	3
	2.1 Regulations.....	3
	2.1.1 Occupational Safety And Health Administration (Federal OSHA).....	3
	2.1.2 Cal/OSHA -- California Department of Occupational Safety and Health (DOSH).....	4
	2.1.3 U.S. Environmental Protection Agency (EPA).....	4
	2.1.4 California Department Of Health Services (DHS).....	5
	2.1.5 California Contractors State License Board (CSLB).....	5
	2.1.6 Bay Area Air Quality Management District (BAAQMD).....	5
	2.2 Standards.....	5
	2.2.1 American National Standards Institute, Inc. (ANSI).....	5
	2.2.2 American Society For Testing And Materials (ASTM).....	5
	2.2.3 Underwriters Laboratories, Inc. (UL).....	6
	2.3 Definitions.....	6
3.0	ABATEMENT CONTRACTOR SUBMITTAL REQUIREMENTS..	12
	3.1 Pre-Job Submittals.....	12
	3.2 Post-Job Submittals.....	14
4.0	DESCRIPTION OF PLANNED ABATEMENT ACTION.....	15
	4.1 Asbestos Control Areas.....	15
	4.2 Asbestos Handling Procedures.....	17
	4.3 Removal of Asbestos-Contaminated Debris.....	17
	4.4 Cleanup and Decontamination.....	18
	4.5 Storage of Asbestos Waste Containers.....	18
	4.6 Transportation and Disposal of Asbestos Waste.....	18
	4.7 Site Inspections.....	19

**TABLE OF CONTENTS**  
(continued)

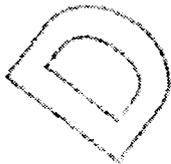
5.0	WORKER HEALTH AND SAFETY .....	21
	5.1 Personal Protective Equipment.....	21
	5.1.1 Respirators.....	21
	5.1.2 Protective Clothing .....	21
	5.1.3 Eye Protection.....	22
	5.2 Caution Signs and Labels.....	22
	5.3 Change Rooms .....	23
6.0	AIR MONITORING .....	24
	6.1 Prevalent Level Air Monitoring.....	24
	6.2 Daily Air Monitoring.....	24
	6.3 Qualifications of Testing Laboratory.....	25
7.0	PROJECT DESIGN AND MONITORING .....	26
	7.1 Project Design .....	26
	7.2 Project Monitoring and Documentation .....	26

Table 1 Preliminary Construction Cost Estimate - Tank Farm  
Asbestos Abatement Action

Plates

- 1-1 Location of Asbestos Removal Control Areas
- 1-2 Example of Pipe Gasket Removal Option

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## 1.0 INTRODUCTION

### 1.1 Site Background

This work plan is Addendum No. 1 to the *Removal Action for Tank Farm, Volume I - Work Plan, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California*, dated April 16, 1990. It describes the requirements and procedures for removal and disposal of asbestos-containing material (ACM) associated with the Tank Farm, Hunters Point Annex (HPA). Pipe insulation, gearwheels, and gaskets were identified as containing asbestos during Harding Lawson Associates' (HLA) survey for ACM performed on November 21 and December 5, 1989. Pipe insulation, gaskets, and gearwheels are located on and adjacent to piping in five areas at the Tank Farm, that are scheduled for decontamination and demolition by the Navy. Gear wheels suspected of containing asbestos are also present in a debris pile north of the site near the fence adjacent to Robinson Street (See Plate 1-1). For the purposes of the work plan, the five areas scheduled for abatement are referred to as:

1. Lube Oil Storage Tank Area
  - o 20 linear feet of pipe insulation containing 25 to 30 percent asbestos
2. Pump House No. 111 (North exterior)
  - o 10 linear feet of pipe insulation containing 25 to 30 percent asbestos
3. Diesel Oil Settling Tank Area
  - o 112 gaskets containing 45 to 50 percent asbestos

4. Steam Trench
  - o 380 linear feet of pipe insulation containing 25 to 30 percent asbestos
5. Debris Pile
  - o Four gearwheels assumed to be Transite, a cement material commonly containing asbestos

Asbestos-containing gaskets were also observed inside Pump Houses No. 111 and No. 112, but the gaskets inside the pump houses will not be removed during the asbestos abatement action described in this work plan. Both pump houses will be secured during the Tank Farm removal action to prevent unauthorized access. If additional ACM is discovered during the Tank Farm removal action, it will be removed by an asbestos abatement Contractor.

#### 1.2 Asbestos Abatement Action Overview

This work plan has been prepared as the first task for the design of the ACM abatement action at the Tank Farm. The regulations and standards pertaining to ACM abatement and the conceptual abatement design are presented in this work plan. The second design task will be the preparation of abatement plans and technical specifications (100 percent submittals). The pipe insulation and gearwheels will be removed prior to the Tank Farm removal action. The gaskets will be removed after the Tank Farm removal action. Asbestos warning notices will be posted inside Pump Houses NO. 111 and No. 112 before the start of the Tank Farm removal action. The asbestos-containing gaskets in the pump houses will remain in place.

Removal of ACM and transportation and disposal of asbestos-containing waste (ACW) will be conducted by an approved asbestos abatement Contractor under contract to the Navy.

## 2.0 REGULATIONS, STANDARDS AND DEFINITIONS

### 2.1 Regulations

The work described in this document will comply with applicable federal, state and local regulations pertaining to asbestos-related work, transportation, and disposal. This section summarizes applicable regulations. The acronyms used in this section are identified in Section 2.3, Definitions.

#### 2.1.1 Occupational Safety And Health Administration (Federal OSHA)

The following federal OSHA regulations pertain to occupational exposure to asbestos of workers whose work involves exposure to asbestos

- o 29 CFR Part 1910.1001 Asbestos Standard (General Industry)

This regulation requires air monitoring, participation in medical surveillance and respiratory protection programs, training, and records maintenance. It defines the following worker exposure standards:

Action Level = 0.1 fibers per cubic centimeter (f/cc) for an 8-hr Time Weighted Average (TWA) Permissible Exposure Level = 0.2 f/cc for 8-hr TWA Excursion Level = 1 f/cc for 30 minutes

It describes required engineering controls and personal protective equipment and work practices to prevent worker exposures.

- o 29 CFR Part 1926.58 Asbestos Standard (Construction Industry)

This regulation requires periodic air monitoring and respiratory protection and medical surveillance programs. It also describes removal methods, techniques, and engineering controls.

- o 29 CFR Part 1910.134 Respiratory Protection Standard

This regulation contains respiratory protection standards for asbestos exposure and assigns respirator type according to exposure.

**2.1.2 Cal/OSHA -- California Department of Occupational Safety and Health (DOSH)**

DOSH regulates occupational exposure to asbestos for employees in California whose work involves exposure to asbestos

- o 8 CCR §5208

This regulation requires registration as carcinogen user.

- o CBPC §7058.5, 8 CCR §341.6, CLC §6501.5

These regulations describe the yearly registration requirements (from AB 2040) for asbestos Contractors.

- o 8 CCR §341.6

This regulation requires that DOSH be notified of each ACM job.

**2.1.3 U.S. Environmental Protection Agency (EPA)**

The EPA regulates environmental exposure to asbestos through the following regulations.

- o 40 CFR Part 61, Subpart M - National Emission Standards for National Emission Standards for Hazardous Air Pollutants (NESHAPS)

This regulation regulates asbestos manufacturing, spraying, fabricating, handling, disposal renovation and demolition. It also requires notification and reporting of local NESHAPS contact.

- o 40 CFR Part 763 Asbestos Hazard Emergency Response Act (AHERA) 1987

This regulation describes the analytical method by which bulk samples are tested for asbestos content.

#### **2.1.4 California Department Of Health Services (DHS)**

DHS regulates asbestos waste transportation and disposal and requires manifesting of hazardous waste.

- o 22 CCR §67740

This regulation requires that the waste generator submit notification to the receiving landfill certifying that the waste meets the applicable treatment standard (Land Ban Certification).

#### **2.1.5 California Contractors State License Board (CSLB)**

The CSLB registers asbestos abatement contractors and administers asbestos contractor certification examinations.

- o CBPC §7058.5, CLC §6501.5, CBPC §7030.6

These regulations require contractors disturbing greater than 100 sq. ft. per the job to pass asbestos certification examination.

#### **2.1.6 Bay Area Air Quality Management District (BAAQMD)**

The BAAQMD regulates stationary sources of air pollution.

- o Regulation 11, Rule 2

The regulation regulates abatement procedures and asbestos handling and disposal.

### **2.2 Standards**

The following standards pertain to asbestos related activities.

#### **2.2.1 American National Standards Institute, Inc. (ANSI)**

- o ANSI Z9.2 - Fundamentals governing the design and operation of local exhaust systems (1979)
- o ANSI Z88.2 - Practice for respiratory protection (1980)

#### **2.2.2 American Society For Testing And Materials (ASTM)**

- o ASTM D1331 - Surface and interfacial tension of solutions of surface-active agents (1956 [Rev. 1980])

### 2.2.3 Underwriters Laboratories, Inc. (UL)

- o UL 586 - High-Efficiency, Particulate Air filter units (1985)

### 2.3 Definitions

AB: Assembly Bill

Aerosol: A system consisting of particles, solid or liquid, suspended in air.

Air Cell: Insulation normally used on pipes and duct work that is comprised of corrugated cardboard which is frequently comprised of asbestos combined with cellulose or refractory binders.

Air Monitoring: The process of measuring the fiber content of a specific volume of air.

Amended Water: Water to which a surfactant has been added.

Approve: Where used in conjunction with the Navy's Representative's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Owner's Representative's responsibilities and duties as specified in contract documents. In no case will "approval" by Owner's Representative be interpreted as a release of Contractor from responsibilities to fulfill requirements of contract documents.

Area Monitoring: Sampling of fiber concentrations within the asbestos control area and outside the asbestos control area which is representative of the airborne concentrations of fibers which may reach the breathing zone of personnel potentially exposed to asbestos.

Asbestos: The asbestiform varieties of amosite, serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

Asbestos-Containing Material (ACM): Any material containing more than 1 percent by volume of asbestos of any type or mixture of types.

Asbestos-Containing Waste (ACW): Any material which is or is suspected of being or any material contaminated with an asbestos-containing material which is to be removed from a work area for disposal.

Asbestos Control Area: An area where asbestos removal operations are performed which is isolated by physical boundaries to prevent unauthorized entry of personnel and to prevent the spread of asbestos dust, fibers, or debris.

Asbestos Fibers: Asbestos fibers having a length to diameter ratio of at least 3:1 and longer than 5 micrometers.

Authorized Visitor: The Navy, the Navy Representative, or a representative of any federal, state and local regulatory or other agency having authority over the project.

Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 12 inches.

Bridging Encapsulant: An encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

CBPC: California Business and Professions Code.

CCR: California Code of Regulations.

CFR: Code of Federal Regulations.

CLC: California Labor Code.

Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.

Certified Industrial Hygienist (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

Competent Person: An individual who has fulfilled the training requirements of 29 CFR 1926 and is able to identify asbestos hazards and take the appropriate corrective action.

Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.

Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by the Navy's Representative," "requested by the Navy's Representative," and similar phrases. However, no such implied meaning will be interpreted to extend Navy Representative's responsibility into Contractor's responsibility for construction supervision.

Disposal Bag: Six millimeter thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site. Each is labeled as follows:

**DANGER**  
**CONTAINS ASBESTOS FIBERS**  
**AVOID CREATING DUST**  
**CANCER AND LUNG DISEASE HAZARD**

and

**CAUTION**  
**CONTAINS ASBESTOS FIBERS**  
**AVOID OPENING OR BREAKING CONTAINER**  
**BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH**

**Encapsulant:** A material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent release of fibers.

**Encapsulation:** Treatment of asbestos-containing materials with an encapsulant.

**Enclosure:** The construction of an airtight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.

**Filter:** A media component used in respirators to remove solid or liquid particles from the inspired air.

**Furnish:** Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

**General Applicability of Standards:** Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, applicable standards of the construction industry have the same force and effect (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound therewith. Refer to the other contract documents for resolution of overlapping and conflicting requirements which result from the application of several different industry standards to the same unit of work. Refer to individual unit of work sections for indications of which specialized codes and standard the Contractor must keep at the project site, available for reference.

**General Superintendent:** The Contractor's representative at the work site is referred to as the General Superintendent. This person will generally be the Competent person required by OSHA in 29 CFR 1926.

**Glove Bag:** A sack (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic) with two inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

**HEPA Filter:** A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of asbestos fibers greater than 0.3 microns in diameter.

**HEPA Filter Equipment:** High efficiency particulate air (HEPA) filtered equipment with a UL 586 filter system capable of collecting and retaining asbestos fibers. Filters shall be of 99.97 percent efficiency for retaining fibers of 0.3 micrometers or larger.

**HEPA Filter Vacuum Collection Equipment (or vacuum cleaner):** High efficiency particulate air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97 percent efficiency for retaining fibers of 0.3 microns or larger.

**High-Efficiency Filter:** A filter which removes from air 99.97 percent or more of monodisperse dioctyl phthalate (DOP) particles having a mean particle diameter of 0.3 micrometer.

**Indicated:** The term "Indicated" is a cross-reference to graphic representations, notes or schedules on drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in contract documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

**Install:** Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing protecting, cleaning and similar operations, as applicable in each instance.

**Installer:** The term "installer" is defined as the entity (person or firm) engaged by Contractor, or its subContractor or sub-subContractor for performance of a particular unit of work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installers) be expert in operations they are engaged to perform.

**Local Exhaust System:** A system in which static pressure in an enclosed control area is lower than that of the environment outside the control area, as specified herein.

**Negative Pressure:** Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).

**Negative Pressure Respirator:** A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

**Negative Pressure Ventilation System:** A local exhaust system, utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.

**Nonfriable Asbestos Material:** Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and may not release fibers in excess of the asbestos permissible exposure limit during any appropriate use, handling, storing, transporting, or processing. Nonfriable asbestos material may be hazardous during removal and disposal procedures.

**Penetrating Encapsulant:** An encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

**Permissible Exposure Limit (PEL):** The limit is 0.2 fibers (longer than 5 micrometers) per cubic centimeter of air as an 8-hour time weighted average as determined by Appendix A of 29 CFR 1926.58.

**Personal Monitoring:** Sampling of asbestos fiber concentrations within the breathing zone of an employee to determine the 8-hour time weighted average in accordance with Appendix A of 29 CFR 1926.58. The samples shall be representative of the employees work tasks. The breathing zone shall be considered an area within 12 inches of the nose or mouth of an employee.

**Project Site:** The term "project site" is defined as the space available to Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on the drawings, and may or may not be identical with the description of land upon which the project is to be performed.

**Protection Factor:** The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

**Provide:** Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

**Publication Dates:** Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.

**Referenced Standards** (referenced directly in contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.

**Removal Encapsulant:** A manufactured asbestos penetrating encapsulant designed specifically for asbestos removal.

**Respirator:** A device designed to protect the wearer from the inhalation of harmful atmospheres.

**Surfactant (Wetting Agent):** A chemical wetting agent added to water to improve penetration. The surfactant shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in a proportion of one fluid ounce to 5 gallons of water or as specified by the manufacturer. An equivalent surfactant shall be understood to mean a material with a surface tension of 29 dynes/cm as tested in accordance with ASTM D1331.

**Testing Laboratory:** The term "testing laboratory" is defined as an independent entity engaged to perform specific inspections or tests of the work, either at project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

**Time Weighted Average (TWA):** The TWA is an 8-hour time weighted average of airborne concentration of fibers (longer than 5 micrometers) per cubic centimeter of air which represents the employee's 8-hour workday as determined by Appendix A of 29 CFR 1926.58.

**Visible Emissions:** Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

**Wet Cleaning:** The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.

**Work Area:** The area where asbestos related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work area is a regulated area as defined by 29 CFR 1926.

### 3.0 ABATEMENT CONTRACTOR SUBMITTAL REQUIREMENTS

The asbestos abatement Contractor selected by the Navy to perform the removal and disposal of the ACM at the Tank Farm will be required to submit the following documents to the Consultant for approval. Any additional Navy requirements will be incorporated into the technical specification.

#### 3.1 Pre-Job Submittals

The Contractor will be required to submit notification of asbestos removal at least 15 days prior to the scheduled start date to the following regulatory agencies with copies to the Navy:

1. Asbestos NESHAPS Contact  
U.S. Environmental Protection Agency  
215 Fremont Street  
San Francisco, California 94105  
  
Attention: Janet Crawford
2. Carcinogen Control Unit  
CAL/OSHA  
525 Golden Gate Avenue  
San Francisco, California 94102
3. Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, California 94109  
  
Attention: Enforcement Division
4. Any other required agencies.

The Contractor will be required to submit the following information at least 60 days prior to the scheduled start date:

- A. Copies of all required permits and licenses, including those for the asbestos waste transporter and disposal site.

- B. A detailed work plan describing the practices and procedures proposed for use in complying with the requirements of the technical specification, including safety and contingency plans.

The work plan shall include, at minimum, a sketch showing the location, size, and details of asbestos control areas and location and details of the change rooms. The plan shall also describe sequencing of asbestos-related work, disposal plan, type of wetting agent or removal encapsulant to be used, air sampling plan, respirators, protective equipment, and a detailed description of the method to be employed in order to control pollution. The personnel air sampling portion of the plan shall include air sampling training and strategy, sampling locations, estimated number of samples, sampling methodology, and frequency and duration of sampling.

The plan shall be reviewed and approved by the Navy and any appropriate regulatory agencies prior to the start of asbestos work.

- C. Proof of worker participation in an appropriate medical surveillance program that conforms with the following:

1. Medical Examinations

Before exposure to airborne asbestos fibers, asbestos workers must undergo a comprehensive medical examination as required by 29 CFR 1926.58. Examination is not required if records show the employee has been examined as required by 29 CFR 1926.58 within the past year. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving exposure to asbestos fibers and within 30 calendar days before or after termination of employment in such occupation. X-ray films of asbestos workers are specifically identified to the consulting radiologist, and medical record jackets are marked with the word "ASBESTOS".

2. Medical Surveillance Program

Complete and accurate records of employees' medical examinations, medical records, and exposure measurements as required by 29 CFR 1926.58 must be maintained for a period of 30 years after termination of employment. Records of the required medical surveillance program must be made available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health, the Director of The National Institute for Occupational Safety and Health (NIOSH), authorized representatives of affected employees, former employees, or designated representatives.

- D. Proof that within one year prior to assignment to asbestos work, each employee has been instructed for a minimum of 8 hours by an industrial hygienist with regard to the hazards of asbestos, safety and health precautions, the use and requirements for protective clothing, equipment, and respirators, the association of cigarette smoking and asbestos-related disease, and the additional requirements of 29 CFR 1926.58. Each employee must undergo a respirator fit test administered by the industrial hygienist as required by 29 CFR 1926.58. The training must fully cover engineering and other hazard control techniques and procedures.
- E. Proof of an established and implemented respiratory protection program as required by ANSI Z88.2 and 29 CFR 1910.134.
- F. Certificate of insurance listing all coverages issued to the Navy by the Contractor's insurance carrier.
- G. Manufacturer's catalog data for all equipment and materials proposed to be used during this project.

### 3.2 Post-Job Submittals

The Contractor will be requested to submit the following within 30 days of asbestos project completion:

- A. Uniform Hazardous Waste Manifests from the disposal site documenting delivery and receipt of asbestos waste material. Volume and weight of waste will be documented on manifest or on weight tickets.
- B. Land Ban Certification
- C. Worker and visitor job log(s)
- D. Accident reports
- E. Copy of OSHA-compliance air monitoring results
- F. Certificates of visual inspection, substantial completions and project completion.

#### 4.0 DESCRIPTION OF PLANNED ABATEMENT ACTION

Asbestos-related work will be performed in accordance with all applicable regulations and as described herein. Personnel will wear and use protective clothing and equipment as discussed in Section 5.0. Eating, smoking, or drinking is not permitted in the asbestos control area or change room. Personnel of other trades not engaged in the removal and demolition of asbestos will not be exposed at any time to airborne concentrations of asbestos greater than or equal to the action level of 0.1 fibers per cubic centimeter of air (f/cc), as measured by phase contrast microscopy (PCM) unless such personnel comply with the personnel protection provisions of the specification.

#### 4.1 Asbestos Control Areas

A control area will be established by taping or roping off the perimeter around each removal site. In addition the Contractor will supply at least one person to monitor the control areas to prevent unauthorized entry. Caution signs as described in Section 5.2 are posted in asbestos control areas. Plate 1-1 identifies the control areas.

Asbestos abatement in the following four areas will occur prior to the Tank Farm removal action:

1. **Lube Oil Storage Tank Area** -- Asbestos-containing insulation is located on vertical pipe runs adjacent to each of eight tank cradles.
2. **Pump House No. 111** -- Asbestos-containing insulation is located on piping that runs along the north side of the building approximately 3 feet above the ground.

The ACM described in items 1 and 2 will be removed using the glove bag procedures described in 29 CFR 1926.58, Appendix G.

3. **Debris Pile** -- The gearwheels in the debris pile will either be:  
1) carefully placed into two properly labeled asbestos disposal bags, or 2) carefully wrapped in two layers of 6 mil polyethylene sheeting. The gearwheels are nonfriable and should not release asbestos fibers if not damaged during removal.
4. **Steam Trench** -- The asbestos-containing pipe insulation in the steam trench will not be disturbed during the removal action at the Tank Farm and does not present an environmental threat in its existing location. The piping will therefore be left in place and not disturbed. The name and phone number of the asbestos coordinator (or a Navy equal) should be entered on the label. The access covers will be replaced and secured.

To restrict access to the steamlines, all accesses to the steam trench in the Tank Farm area will be labeled as follows:

**DANGER**  
**CONTAINS ASBESTOS FIBERS**  
**AVOID CREATING DUST**  
**CANCER AND LUNG DISEASE HAZARD**  
**BREATHING ASBESTOS DUST MAY**  
**CAUSE SERIOUS BODILY HARM**

PLEASE CONTACT \_\_\_\_\_  
at \_\_\_\_\_ before  
disturbing material or in  
an emergency

Asbestos abatement in the following area will occur after the piping has been decontaminated during the Tank Farm removal action.

5. **Diesel Oil Settling Tank Area** -- The gaskets on the piping in the tank area will be removed after the product has been removed and the piping has been decontaminated. The gaskets will be left in place, sprayed with encapsulant, and wrapped in 6 mil polyethylene sheeting. The pipe will then be cut three inches or farther from the sides of the gasket. The resulting piece will be completely wrapped and sealed in polyethylene sheeting for disposal as ACW. This work does not have to be performed by the abatement contractor unless the gaskets are friable; therefore, the Navy may elect to have the abatement contractor wrap the gaskets and have either the abatement contractor or the removal action contractor cut the piping and dispose of the resulting piece. (See Plate 1-2).

Pump Houses No. 111 and No. 112 will be secured during the Tank Farm removal action. Before the removal action begins, asbestos warning notices will be posted inside each pump house. The notices will be similar to those described above for the steam trench.

#### **4.2 Asbestos Handling Procedures**

To reduce the emission of airborne fibers during removal, cutting, or other handling at each control area, ACM will be wetted with either (1) a fine spray of amended water, (2) other approved wetting agent, or (3) a removal encapsulant. The wetted ACM, asbestos waste, debris, bags, containers, equipment, and contaminated clothing will be removed and immediately placed in sealed impermeable disposal bags constructed of 6-mil plastic sheeting. The bags are to be appropriately labeled as described in Section 2.3 and stored in asbestos waste drums for subsequent disposal. Where circumstances prohibit the use of sealed impermeable bags, the Contractor may recommend an alternative for removal of asbestos materials and containment of asbestos fibers to the Consultant and the Navy.

#### **4.3 Removal of Asbestos-Contaminated Debris**

This paragraph assumes that some debris associated with the pipe insulation is located outside at the Lube Oil Storage Tank Area and at Pump House No. 111. If debris is observed at the Tank Farm, it will be removed by wetting it and placing it into appropriately labeled disposal bags. This work will be performed with caution to minimize the release of asbestos fibers into the air because it will not be performed inside containment.

#### **4.4 Cleanup and Decontamination**

Dust, debris, and waste will be prevented from being distributed over the general area by wetting the ACM during removal. After ACM removal, the Consultant and the Navy will visually inspect the removal surfaces for residual asbestos material and accumulated dust. The Contractor will reclean surfaces showing dust or residual asbestos materials. Once surfaces are certified by the Consultant and the Navy to be free of dust or debris, the Contractor will encapsulate all removal surfaces. When asbestos removal, disposal, and cleanup are complete, the Consultant shall evaluate all control areas for visible accumulations of ACM dust. The roped-off asbestos control area and caution signs will not be removed until authorized by the Navy. The Navy shall have the option to perform independent monitoring during removal of ACM.

#### **4.5 Storage of Asbestos Waste Containers**

Asbestos waste containers lined with 6 mil polyethylene sheeting will be stored in one asbestos control area until area cleanup is complete. The asbestos waste container storage area will be lined with two layers of 6 mil polyethylene sheeting extending at least 3 feet on all sides of the waste containers stored there. Asbestos waste containers will be maintained free of residual asbestos fibers while in the waste container holding area. If the storage area is not securable, the waste will be removed daily from the holding area. Following removal of the waste containers, the waste container storage area will be inspected by the consultant for residual asbestos fibers. If residual fibers are observed, the abatement contractor will properly clean the area.

#### **4.6 Transportation and Disposal of Asbestos Waste**

Asbestos waste material will be transported offsite and disposed at a state-approved sanitary landfill in compliance with 40 CFR 61- Subpart M and state,

regional, and local standards. The waste containers will be carefully loaded into an enclosed truck lined with plastic to prevent contamination of the truck during transport. The truck will be operated by a Navy-approved hazardous waste hauler. The sealed impermeable disposal bags may be removed from drums and deposited into the burial site unless the bags have been broken or damaged. Damaged bags will remain in the drum and the entire contaminated drum will be buried. Uncontaminated drums may be recycled. Workers loading and unloading sealed drums will wear appropriate respirators and personal protective equipment as described in Section 5.0 when handling asbestos materials at the disposal site.

A Uniform Hazardous Waste Manifest will be properly completed for every load of asbestos-containing waste transported by an authorized hauler to an approved disposal site. All identification numbers, signatures, and quantities (volume and weight) will be entered by the Contractor onto the form which will be signed by the Navy. The Land Ban Certification described in Section 2.1.4 will be supplied with the manifest by the contractor, signed by the Navy and will be submitted with the waste to the landfill.

#### **4.7 Site Inspections**

While performing asbestos removal work, the Contractor will be subject to onsite inspection by the Consultant and the Navy, who may be assisted by safety or health personnel. If the work is in violation of specification requirements, the Navy will issue a stop work order to be in effect immediately and until the violation is resolved. Consultant and laboratory standby time and expenses required to resolve the violation shall be at the Contractor's expense.

The following inspections will be performed as a part of verifying the Contractor's compliance with the specifications:

- Before the commencement of ACM removal, an inspection will be conducted to evaluate the glove bag installation, the waste container storage area and respiratory and personal protective equipment (PPE).
- During removal, an inspection will be performed to monitor the Contractor's work practices, isolation procedures, and use of PPE.
- After glove bag removal and before encapsulation, all removal surfaces inside the glove bag will be inspected for visible debris or dust to verify completeness of removal according to the requirements of the work plan. If removal is complete, a Certificate of Visual Inspection will be issued.
- After encapsulation, an inspection will verify that the work is substantially complete and meets the requirements of the specifications. Any items needing to be addressed will be placed on a "punch list".
- After the Contractor demobilizes, an inspection will be conducted to verify that all items on the final punch list have been addressed. The Certificate of Completion is then completed.

## 5.0 WORKER HEALTH AND SAFETY

This section applies to the ACM removal action only. The Health and Safety Section of the *Removal Action for Tank Farm, Volume I - Work Plan, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California, April 16, 1990*, also applies to this work.

### 5.1 Personal Protective Equipment

The following personal protective equipment (PPE) will be supplied by the Contractor for his/her workers. Extra sets of PPE will be made available by the Contractor for Consultant and Navy representatives.

#### 5.1.1 Respirators

The Contractor will use respirators approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for use in atmospheres containing asbestos fibers. Personnel engaged in the glove bag removal of asbestos materials will use powered air-purifying respirators. Half-mask or full face air-purifying respirators equipped with high-efficiency filters may be used during the establishment of the control areas, removal of the gearwheels, and labeling of the steam trench. Fiber concentrations inside the respirator face piece will be maintained, at all times, at less than 0.01 f/cc as measured by PCM.

#### 5.1.2 Protective Clothing

Personnel performing asbestos-related activities or who may be exposed to airborne concentrations of asbestos fibers greater than or equal to the Permissible Exposure Level of 0.2 f/cc will wear fire-retardant, disposable protective whole body clothing, head coverings, gloves, and foot coverings. Disposable plastic or rubber gloves will be used to protect hands. Cloth gloves may be worn inside the plastic or rubber

gloves for comfort, but will not be used alone. Tape is used to secure sleeves at the wrists and to secure foot coverings at the ankles. Cloth work clothes may be worn under the disposable protective coveralls.

### 5.1.3 Eye Protection

Personnel engaged in asbestos operations will use goggles when the use of a full face respirator is not required.

### 5.2 Caution Signs and Labels

Caution signs printed in English and Spanish will be posted at approaches to asbestos control areas. They will be located at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Caution labels printed in English and Spanish are to be affixed to asbestos materials, scrap, waste, debris, sealed impermeable bags, asbestos waste drums, and other asbestos-contaminated products. Examples of the signs and labels are as follows:

#### Caution Sign

**DANGER**

**ASBESTOS**

**CANCER AND LUNG DISEASE HAZARD**

**AUTHORIZED PERSONNEL ONLY**

**RESPIRATORS AND PROTECTIVE  
CLOTHING ARE REQUIRED IN  
THIS AREA**

**Caution Label**

**DANGER**  
**CONTAINS ASBESTOS FIBERS**  
**AVOID CREATING DUST**  
**CANCER AND LUNG DISEASE HAZARD**  
**BREATHING ASBESTOS DUST MAY**  
**CAUSE SERIOUS BODILY HARM**

**5.3 Change Rooms**

The Contractor will provide a mobile temporary facility (change room) for decontamination of personnel performing asbestos-related activities. The facilities will consist of decontamination and clean rooms separated from each other by airlocks. Workers will change into disposable clothing and don respirators in the clean room. Street clothing and street shoes may be kept in the clean room. When personnel leave an asbestos control area, asbestos-contaminated disposable protective clothing is to be removed in the decontamination room while such persons are still wearing respirators; disposable clothing is to be sealed in impermeable disposal bags or containers for disposal. An airless sprayer is to be located in the decontamination room for employees to wash before entering the clean room. Wastewater will be handled and disposed as asbestos-contaminated material or will be filtered through a final filter of at least 0.5 micron particle size collection capability before disposal into the sanitary sewer system. Filters are to be handled and disposed of as ACM.

## 6.0 AIR MONITORING

Airborne fiber concentrations will be monitored by the consultant and the contractor in accordance with all applicable regulations and as discussed in this section. The types of samples that will be collected and analyzed during the course of this project are prevalent and daily air samples. Clearance sampling will not be performed because no abatement will be performed inside a contained area. All samples will be analyzed by PCM and the results will be available within 24 hours except as noted below. The abatement Contractor will perform all worker exposure air monitoring, as required by Cal-OSHA.

### 6.1 Prevalent Level Air Monitoring

Prevalent air monitoring consists of one-time air sampling to establish the levels of fiber concentrations prior to removal operations at the asbestos removal sites. Three samples will be collected in the Tank Farm area. Collection of these samples will require one day and will be collected two to three days prior to commencement of the removal. Analytical results will be available within 24 hours of collection.

### 6.2 Daily Air Monitoring

Daily air monitoring will be performed throughout the glove bag removal action. Monitoring will be performed during the work shift at the following locations: (1) adjacent to the glove bag operation, (2) on the abatement worker, and/or (3) at the designated limits of the asbestos control area. If PCM analysis of samples collected outside the asbestos control area shows airborne concentrations have reached 0.1 f/cc or the prevalent level, whichever is higher, the work will be stopped and the Contractor will take corrective actions to decrease airborne fiber concentrations. The Navy will be notified immediately. Analytical results will be available within 24 hours of collection.

**6.3 Qualifications of Testing Laboratory**

The testing laboratory selected to perform the analysis and reporting of the air samples will have been judged proficient in asbestos analysis by successful participation within the last year in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program. Air samples will be analyzed as required by the appropriate regulations.

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## 7.0 PROJECT DESIGN AND MONITORING

### 7.1 Project Design

A pre-design investigation will be conducted to gather more specific information about each removal area to prepare abatement specifications and drawings. After the elements of the work plan are agreed to by the Navy, a technical specification based on the *National Institute of Building Sciences Guide Specification No. 58*, August 1988, and the *Department of the Navy Guide Specification for Removal and Disposal of Asbestos Materials*, January 1987, will be prepared. The Navy will review and approve the technical specification.

### 7.2 Project Monitoring and Documentation

The Consultant will be onsite every day the Contractor performs asbestos-related activities and will monitor the project to:

- o Verify and document the Contractor's compliance with the technical specifications
- o Document all asbestos-related activities
- o Act as the liaison between the Navy and the Contractor on technical issues.

A project closeout package will be prepared by the Consultant upon completion of the removal action and receipt of the abatement Contractor's post-job submittals.

**Table 1. Preliminary Construction Cost Estimate  
Tank Farm Asbestos Abatement Action**

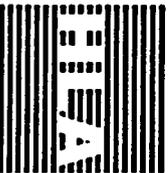
ITEMS	DESCRIPTION	QUANTITY	UNITS	MATERIAL UNIT	EXTENDED COST	LABOR UNIT	EXTENDED COST	TOTAL UNIT	TOTAL COST
1	Mobilization	1	EA	\$200	\$200	\$700	\$700	\$900	\$900
2	Decontamination Facility	1	EA	\$100	\$100	\$200	\$200	\$300	\$300
3	ACM Removal								
	4" OD pipe insulation	30	LF	\$3	\$90	\$8	\$240	\$11	\$330
	Gaskets	140	EA	\$8	\$1,120	\$35	\$4,900	\$43	\$6,020
	Gearwheels	4	EA	\$9	\$36	\$10	\$40	\$19	\$76
4	Label Steam Trench Access and Pump Houses No. 111 and No. 112	5	EA	\$20	\$100	\$25	\$125	\$45	\$225
5	Site Decontamination	1	EA					\$800	\$800
6	Waste Transportation and Disposal	185	CY					\$50	\$9,250
<b>Subtotal w/o Markup &amp; Contingency</b>									<b>\$17,901</b>
	Contractor Profit	12	PERCENT						\$2,148
<b>***SUBTOTAL***</b>									<b>\$20,049</b>
	Contingency	10	PERCENT						\$2,005
<b>TOTAL CONSTRUCTION COST</b>									<b>\$22,054</b>

\* Includes transport and disposal of each gasket and associated piping.

CY = Cubic Yard

EA = Each

LF = Linear Feet



**Harding Lawson Associates**  
Engineering and  
Environmental Services

DRAWN **GM-L**  
JOB NUMBER  
**02176.312.02**

**Location of Asbestos Removal Control Areas**  
Addendum 1  
Removal Action for Tank Farm, Volume 1 - Work Plan  
U.S. Navy, Hunters Point Annex  
San Francisco, California

APPROVED

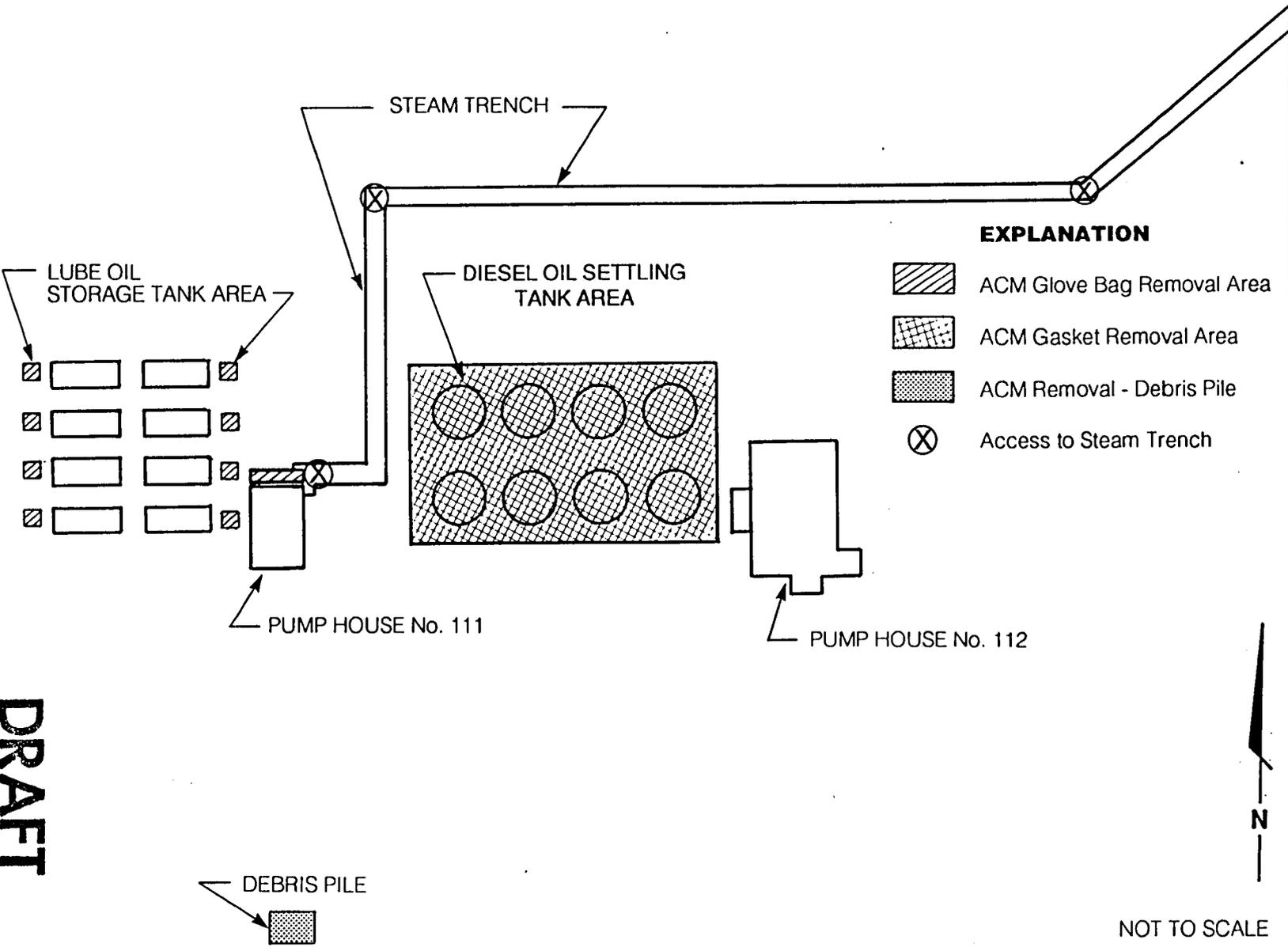
DATE  
**9/90**

REVISED DATE

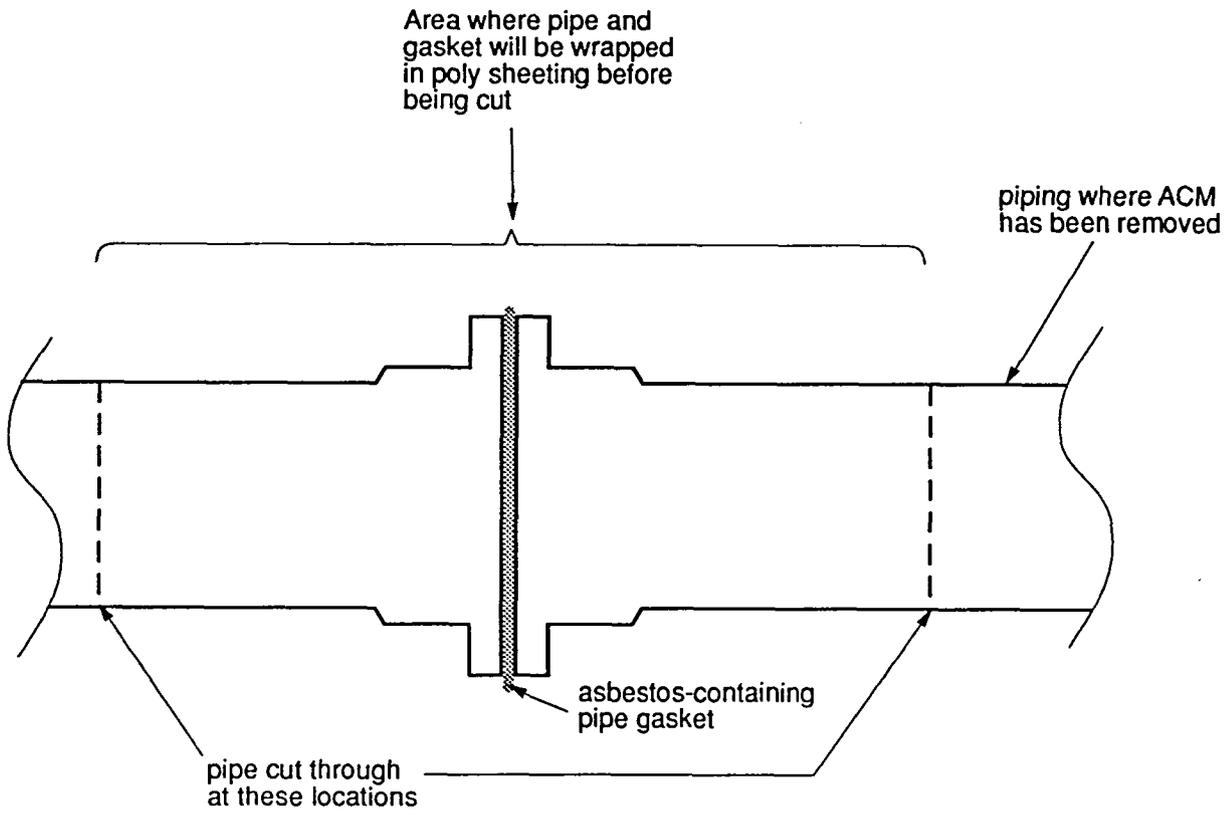
**1-1**

PLATE

**DRAFT**



NOT TO SCALE



**DRAFT**



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 Engineering and Environmental Services

**Example of Pipe Gasket Removal Option**  
 Addendum 1  
 Removal Action for Tank Farm Volume 1 - Work Plan  
 U.S. Navy Hunters Point Annex  
 San Francisco, California

PLATE  
**1-2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
Ehc	02176,312.02		9/90	

**DISTRIBUTION  
ADDENDUM TO  
REMOVAL ACTION FOR TANK FARM  
VOLUME 1 - WORK PLAN  
NAVAL STATION TREASURE ISLAND  
HUNTERS POINT ANNEX  
SAN FRANCISCO, CALIFORNIA  
ASBESTOS ABATEMENT WORK PLAN  
October 16, 1990**

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QUALITY CONTROL REVIEWER

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Michael D. Beekman  
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