

**DEMOLITION AND DISPOSAL WORK PLAN  
REMOVAL ACTION, SITE 15 TRANSFORMER STORAGE AREA  
NAVAL AIR STATION ALAMEDA  
Alameda, California**

Contract No. N62474-93-D-2151  
Delivery Order No. 0009, Phase 01

Submitted to:

Department of the Navy  
Engineering Field Activity, West  
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Revision 0

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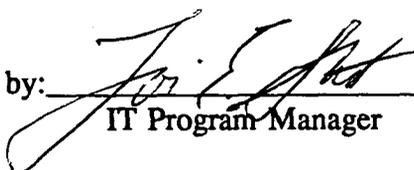
October 1994

Prepared by:   
Contractor Quality Control  
Program Manager

Date: 10/18/94

Approved by:   
Project Manager

Date: 10/18/94

Approved by:   
IT Program Manager

Date: 10/18/94

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SSIC NO. 5090.3

DEMOLITION AND DISPOSAL WORK PLAN  
REMOVAL ACTION, SITE 15  
TRANSFORMER STORAGE AREA

REVISION A

DATED 21 JUNE 1994

IS ENTERED IN THE DATABASE AND FILED AT  
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## **1.0 Project Objectives**

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This Demolition and Disposal (D & D) work plan presents IT Corporation's (IT's) detailed approach to the scope of work for the removal of structures and concrete foundations at Site 15, the former transformer storage area at Naval Air Station (NAS) Alameda. This D & D Work Plan is based upon the statement of work provided in the "Comprehensive Long-Term Environmental Action Navy (CLEAN)" report for the site, issued for Department of the Navy on April 27, 1994. The work plan is submitted as a part of Phase 01 of Delivery Order 0009 and is prepared in accordance with "Technical and Cost Proposal - Contract No. N62474-93-D-2151," submitted by IT Corporation on May 12, 1994.

This plan describes the activities required to implement the disassembling and disposal of two Quonset™ huts and five concrete foundations existing on the site, and associated asphalt pavement. It also includes discussion of sampling/analysis protocol and waste disposal options. This plan is meant to be implemented in conjunction with the "Phase 02 Work Plan for Soil Remediation at Site 15", submitted by IT Corporation in June 1994, and the Final Implementation Work Plan, Removal Action, Site 15, Transformer Storage Area, prepared by PRC Environmental Management, Inc., August 29, 1994.

A map indicating the general location of Site 15 is attached (Figure 1-1), along with a Plot Plan.

### ***Delivery Order Key Staff***

The key staff for the demolition and disposal activities of the Site 15 remediation are as follows:

Program Manager - Louis E. Stout, P.E.

Project Manager - Valerie Crooks, P.E.

Senior Project Supervisor - Bob Parkinson

Project Superintendent - Jamie Hargrave

CQC Manager - April Dixon, P.E.

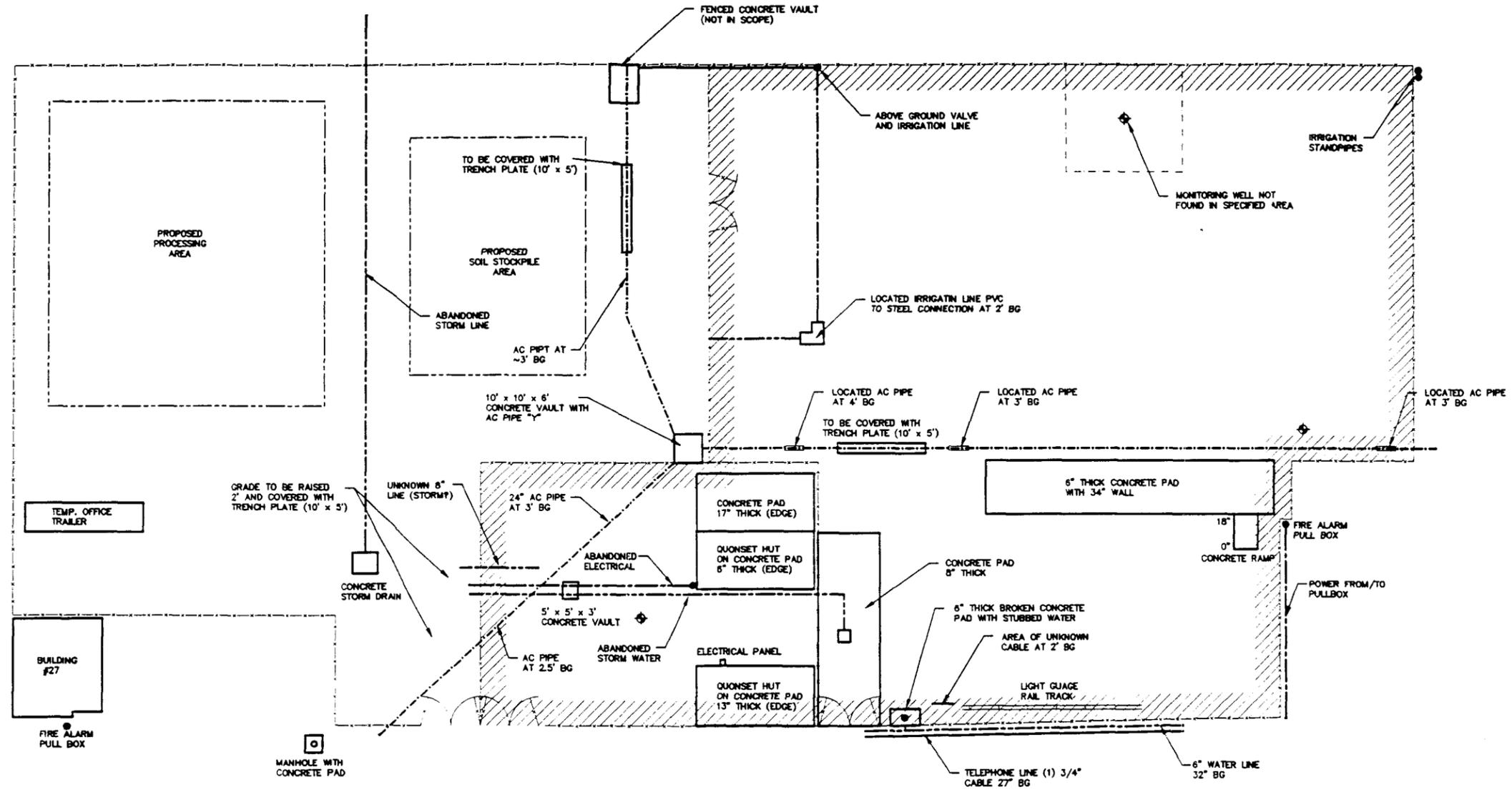


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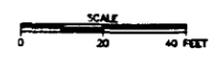
DATE 9/27/94

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DRAWN BY [Signature]



- SEWER LINES ARE STAKED GREEN
- STORM AND/OR WATER LINES ARE STAKED BLUE
- POWER LINES ARE STAKED RED
- TELEPHONE LINES ARE STAKED ORANGE
- ⊕ PLUME HAS BEEN DELINEATED WITH BLUE AND WHITE STAKES OR A BLUE CIRCLE WITH "PL" IN WHITE
- ⊕ APPROXIMATE LOCATION OF EXISTING MONITORING WELL
- ▨ AREA OK FOR DEMO PENDING ELECTRICAL CLEARANCE



SITE 15  
PLOT PLAN  
PREPARED FOR  
NAVAL AIR STATION ALAMEDA  
ALAMEDA, CALIFORNIA



All key staff members can be reached at the IT office in Martinez, California at telephone number (510) 372-9100.

## ***2.0 Site Background***

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Elevated concentrations of PCBs and lead were detected in the vadose zone soils during previous investigations at the former transformer storage area. Soil sampling was conducted in December 1993 and results were presented in the CLEAN report referenced above. The study determined that elevated levels of the contaminants were present in the immediate vicinity of two Quonset™ huts on the site (Buildings 283 and 301) and in an area ranging toward the east and northeast. The CLEAN report presented a statement of work for the D & D of the two buildings and a nearby concrete foundation, to be followed by soil remediation in the area.

As a result of Phase 01 activities at the site, it is now understood that two additional concrete foundations and some asphalted areas also exist within the delineated contaminated zone. Consequently, this work plan is based upon the removal of two Quonset™ structures with associated asphalt and concrete foundations, plus a total of three additional concrete foundations. Initial visual surveys of the site indicate that approximately 450 tons (or 225 cubic yards) of concrete and approximately 400 tons of asphalt will be excavated.

The plan also discusses the removal of selected sections of existing fencing in the area. A perimeter fence is located around the outside of the Site 15 compound; an additional fence is located within the compound, enclosing the Quonset™ huts on three sides. Approximately 100 linear feet of chain link will be removed and taken to the Base DRMO for recycling.

The site is easily accessible from the Perimeter Road, which runs along the south and the east sides of the area. The Oakland Inner Harbor is located north of the impacted property approximately 250 feet. In all other directions, the surrounding land use is limited to military tenant activities for several thousand feet.

## **2.1 Utilities**

Various utility lines exist on or near the site including telephone, power, water, stormwater and a sanitary force main. As a part of the Phase 01 activities at the site, a geophysical survey was conducted to more accurately characterize the lines and any other unknown subsurface structures that could impact excavation or movement of equipment in the work area.

An additional discussion of utility clearance is presented in Section 3.1.2.

## **2.2 Permits**

California OSHA regulation Title 8, Chapter 3.2, Subchapter 2, Article 2, Section 341 states that permits are not required for the demolition of any building or structure less than three stories high or for excavations of five feet deep or less. Consequently, IT will not seek a Cal-OSHA permit for demolition or excavation.

A base permit for demolition of buildings or foundation excavations will be obtained by the office of the Resident Officer in Charge of Construction (ROICC) from the Public Works office at NAS Alameda. In addition, the ROICC will also receive approval from the Department of Housing and Urban development prior to demolition of the Quonset™ hut structures.

## **2.3 Site Safety and Health**

All site activities will be conducted in accordance with the Program Safety and Health Plan for the contract. In addition, a site-specific health and safety plan (SHSP) will be developed for the work at Site 15 and will be implemented as an adjunct to the SHSP.

With the current understanding of the conditions at Site 15, the SHSP guidance indicates that work will be conducted in Level D personal protective equipment, modified to include Tyvek coveralls, gloves, hard-hat, eye protection and safety boots. As required in the SHSP, other safety equipment will be available onsite from the time of initial mobilization, including first aid kits, washing facilities, eye wash station, fire extinguishers, and air monitoring equipment.

A personnel decontamination area will be prepared on the west edge of the exclusion zone to provide a phased decontamination for personnel exiting from the zone. Personnel will remove

personal protective clothing (Tyvek, gloves) and deposit the clothing in a drum for later disposal in a Class II landfill. Washing facilities will be located nearby in Building 27.

### **3.0 Project Approach**

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IT plans to use a phased approach to the demolition and disposal activities:

- Implement the Phase 01 activities, which are described in the Technical and Cost Proposal referenced above. Activities involve various tasks associated with site preparation, including mobilization of the field office trailer; completion of a utility location and depth survey; and collection of volume estimates for D & D and soil treatment. These tasks were initiated in May 1994.
- Develop and submit a Demolition and Disposal Plan.
- Upon approval of the D & D Plan, mobilize personnel and equipment onsite for implementation. Personnel training for D & D activities will be conducted. An access road will be prepared into the site. Both personnel and equipment will enter the work area through two reduction zones, located to the east and west of the work area or exclusion zone. A materials staging area will be located in the reduction zone on the west side of the work area.
- Conduct sampling and analysis of structural materials and concrete.
- Upon receiving analytical results, identify and establish contracts with appropriate disposal facilities. For the purposes of estimating only, waste will be assumed to be above Title 22 limits for toxicity and require disposal at a Class I landfill.
- Remove existing interior fencing and transport to the NAS Alameda DRMO for metal recycling.
- Disassemble Quonset™ huts, staging materials temporarily in roll-off bins.
- Weigh and transport materials to appropriate disposal or recycling facilities, in compliance with applicable State and Federal waste handling and transportation regulations.
- Break up concrete foundations and asphalt, staging materials temporarily in stockpiles, then load, weigh, and transport material to appropriate disposal or recycling facility.

- Implement the remaining remediation activities at the site in accordance with the Phase 02 work plan. Upon completion of the remainder of the project, develop a complete report of the D & D activities and submit it as a part of the Site 15 remediation report.

Further details regarding the activities discussed above can be found in subsequent sections of this work plan.

### **3.1 Technical Approach to Demolition and Disposal Activities**

This section further describes the tasks to be conducted during the D & D activities.

#### **3.1.1 Mobilization**

Because mobilization will be essentially completed as a part of the Phase 01 activities, minimal mobilization tasks will be required prior to beginning D & D. Immediately following approval of the D & D Plan, IT will mobilize the remaining equipment and personnel needed.

A Bobcat excavator will be utilized during site preparations as a part of Phase 01, but additional equipment that will be mobilized include:

- Loader - with 4/1 bucket and ripper;
- Bulldozer - with ripper or angle dozer and ripper will be used.

Dismantling tools, such as power chisel(s), saws, hand tools, and an oxygen/acetylene cutting torch will be mobilized. A mobile single-person manlift will also be leased for use during demolition. Approximately three 40-cubic yard debris bins will be mobilized for staging the structural materials. End-dump trucks (14-wheel) will be subcontracted for offsite transportation of materials to disposal or recycling facilities. Different and/or additional equipment may be required, as conditions dictate.

All equipment will be inspected for readiness, checked for calibration status if appropriate, and tagged for this project. Telephone and written vendor quotes will be obtained for the rented or leased equipment; quotes will be evaluated by the Project Manager.

### **3.1.2 Utility Location and Clearance**

As a part of the Phase 01, a utility location and depth survey was conducted in the area. Prior to beginning the Phase 02 activities, including the D & D tasks, utilities that are not to be removed (telephone, water, sanitary and stormwater) will be clearly marked with either paint, caution flags, or temporary barricades, as appropriate to the activities at the location and the level of risk. Existing water, sanitary, and storm sewer lines that are located outside the contamination area will not be removed, nor will any associated vaults or drains be removed or interfered with. Work conducted in the immediate vicinity of the piping or associated structures will proceed by hand-digging and with extreme caution. Abandoned electrical, sewer and water lines that are located in contaminated soil will be removed or plugged with concrete grout.

The existing underground power lines on the site will be removed by base personnel to the point of termination, as designated by the Contracting Officer. The existing underground power cables located along the south perimeter of the area will not be removed, but will be clearly marked at all times during the project.

Should additional, unanticipated re-routing or removal of utilities be considered necessary during the project, all such activities will proceed only with the knowledge and approval of the Contracting Officer.

### **3.1.3 Fencing Removal**

The existing interior fencing, which surrounds the Quonset™ huts on three sides, and sections of the perimeter fence will be removed. The fence posts and chain link will be shaken and/or brushed off after removal to dislodge soil or debris, then placed into 40-cubic yard bins for recycling. The perimeter will immediately be secured with temporary fencing; the interior will be cordoned off as the exclusion zone during the site preparations.

### **3.1.4 Site Preparation**

The D & D activities will require minimal site preparation, once mobilization is complete. An area adjacent to the Quonset™ huts will be designated for concrete staging and will be rough graded with positive drainage toward the work area.

An exclusion zone will be established around the work area. The area will be marked by encircling grade stakes with caution tape and flags. The exclusion zone will at all times remain inside the perimeter fence, including the temporary fencing placed along the south and east sides of the site. To assure security, access to the exclusion zone will be monitored by the Site Health and Safety Officer and/or Project Superintendent, and a log of all persons entering the area will be maintained on the Tailgate Safety Form.

### **3.1.5 Building Demolition**

It is understood that the Quonset™ hut structures will be completely decommissioned prior to mobilization at the site and that all items/materials not structurally related to the building will have been removed by the base Public Works. Consequently, building demolition will begin promptly upon completion of the site preparations and after receiving analytical results from sampling (discussed in Section 4.0), which will allow the procurement of appropriate disposal facilities.

Working from the roof downward, bolts and rivets will be cut and removed, sections of the roof or walls may then be cut. The structure will be knocked down with the loader. The debris will then be loaded into 40-cubic yards bins for temporary staging and transportation offsite.

### **3.1.6 Concrete Demolition**

Following the structural demolition, the five existing concrete foundations and the asphalt will be broken up with the use of a hydraulic hammer. The material will then be loaded into 14-wheel end-dump trucks or rolloff bins for direct delivery to the disposal or recycling facility.

### **3.1.7 Dust Control**

A water truck will be used to intermittently sprinkle the work area, stockpile area, access road and vehicle parking areas during project activities to control fugitive dust emissions. In addition, movement of vehicles and heavy equipment through the work areas and along the access road will be carefully monitored and restricted by the Project Superintendent in order to further reduce emissions.

If wind or overall emissions create excessive dust generation, and particularly if dust appears to be drifting offsite, the Project Superintendent will temporarily cease operations and enhance the dust control procedures described above.

### **3.1.8 Waste Management**

When analytical results from the sampling of concrete and Quonset™ hut structural material are available, specific disposal or recycling options will be identified. At that time, waste profiles will be submitted to the disposal/recycling facility and their services will be procured. However, based upon information provided in the previous study of the site, referenced as the CLEAN report, it is anticipated that the structural material will be acceptable for disposal at a Class II facility. A Class II facility can accept material contaminated with lead at concentrations below 1,000 milligrams per kilogram, provided that the extract concentration (using WET procedures) does not exceed the soluble threshold limit concentration of 5 milligrams per liter. It is believed that the Quonset™ hut paint and other materials will be acceptable under this restriction, but until analytical results are complete, disposal options are uncertain. (For pricing estimates only, disposal as hazardous waste is assumed.)

The excavated concrete foundations and asphalt must also be sampled and analyzed, as described in Section 4.0, prior to procurement of a disposal/recycling facility. However, for estimating purposes, it is presumed that the concrete will be transported offsite for disposal as hazardous waste.

### **3.1.9 Subsequent Activities**

Because soil treatment and other remedial activities will follow demolition and disposal, full equipment decontamination will not be conducted at the completion of the D & D tasks. Equipment decontamination facilities will, however, have been constructed and utilized for the on-going remedial activities. The construction of equipment decontamination facilities and their usage is more logically an aspect of the later remediation phase of the project and is addressed in detail in the Phase 02 work plan.

Similarly, site restoration and demobilization will be conducted, but not as an aspect of demolition and disposal. The Phase 02 work plan will provide a detailed description of the scope of work for those and other tasks that will occur at the completion of the soil treatment activities.

## **4.0 Sampling and Analysis**

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An asbestos survey will be conducted on the Quonset™ hut structural components prior to any demolition activities at Site 15. In addition, prior to packaging of the concrete and structural material for disposal, sampling of the concrete pads, asphalt and Quonset™ hut materials will be performed, analyzing for PCB and lead contamination. The objective of the sampling activities is to assure that materials submitted for disposal at the designated facility meet the disposal criteria specified for that facility. Analytical profiling information is submitted with the waste manifest to the facility.

### **4.1 Asbestos Survey**

Prior to any demolition activities in the Quonset™ huts, asbestos sampling will be conducted to survey the structures for suspected friable and non-friable asbestos containing materials (ACM). Samples will be collected from structural materials, particularly roof sealants, which could potentially contain asbestos fibers. Sampling will not include asbestos containing materials which may be present in inaccessible areas, such as inside hollow concrete blocks.

Samples will be collected in accordance with the Environmental Protection Agency's (EPA) Asbestos Hazard Emergency Response Act (AHERA) protocol, with State environmental and OSHA requirements, and with the SHSP. The survey will be conducted by a California Registered Asbestos Supervisor. Color photographs will be taken of the overall structure and of each sample point.

#### **4.1.1 Asbestos Sampling**

Bulk samples of ACM will be collected in a manner that will minimize the potential release of any asbestos fibers to the air. Samples will only be collected from structural areas that appear to IT to potentially contain accessible ACM. Multiple samples will be collected from suspect thermal system insulation, if any exist, and from surfacing materials. Single samples will be collected from other miscellaneous suspect areas.

Materials to be sampled will be thoroughly wetted prior to the sample being collected. After the sample has been removed, the immediate area of the structure will be sealed using a spray sealant or silicon caulking. Samples will be placed in sealable ("zip-loc") bags immediately

upon collection to eliminate any potential fiber release to the environment. The sealable bags will be promptly labeled and prepared for analysis using the standard procedures for sample handling, documentation and custody described below in Section 4.3. Because only non-friable materials are believed to be present in the structures to be surveyed, the use of respirators by the sampling team will not be required. Should suspect friable materials be found, respirators equipped with high efficiency particulate air (HEPA) filter cartridges will be donned prior to disturbing the material.

#### **4.1.2 Asbestos Analysis**

All samples will be analyzed on a rush basis by Polarized Light Microscopy at a laboratory which is accredited for the analysis of bulk asbestos samples. Written results of the survey and a copy of the analytical results will be transmitted to the U.S. Navy as soon as they are available.

The Quonset™ huts will not be disassembled until the absence of ACM has been confirmed or the ACM has been removed. This work plan assumes that no ACM will be found in the structures at Site 15. Should the presence of asbestos be confirmed, an addendum to this plan will be written to address asbestos abatement procedures.

#### **4.2 Sample Locations**

Sampling will be performed for the five concrete pads, asphalt and two Quonset™ huts which are scheduled to be removed as a part of this delivery order. A composite sample will be taken from each of the concrete pads using a chipping hammer to excavate approximately one centimeter of the material from the pad. Samples will be collected from concrete areas and asphalt exhibiting the most staining, discoloration, etching and/or cracks. Samples of the paint coating the Quonset™ huts will be collected as a random composite sample from each hut and will be considered representative of the total coating surface area.

#### **4.3 Sampling Handling, Documentation and Custody**

Field personnel are responsible for the collection, packaging, labelling, custody control and shipping of samples to the designated analytical laboratory.

### **4.3.1 Sample Labels**

Sample labels (Figure 4-1) and proper sample identity are of critical importance in collecting samples. All information and data for a sample are keyed to each samples' unique sample number. This sample number appears on the sample containers and associated data forms.

Field personnel collecting samples will identify the samples by attaching a sample label to the sample container. The sample label will contain the following information:

- The project name and number
- A unique sample number
- The date and time of collection
- Sample collector's name
- Location of sample collection point (eg., identification on as-built drawing)
- The type of sample (eg., composite paint, composite concrete)
- Analytical method(s).

Sample labels will be placed on the sample containers in a way that does not obscure data existing on the containers. Information will be printed on sample labels using waterproof ink.

To ensure proper identification of samples, a unique alphanumeric sequence (sample number) will be assigned to each sample to be submitted for analysis.

### **4.3.2 Sample Documentation Forms**

Sample identification information will be recorded on a Sample Collection Log form (Figure 4-2). The Sample Collection Log form will contain, at a minimum, the following sample identification information:

- Project name and number
- Sample number
- Sample location
- Sample date and time
- Sample type
- Composite information
- Containers used
- Signature of sampling personnel.

Upon completion of the field sampling activity, the Sample Collection Log will be used to cross reference sample numbers with sample location and analytical results.

FIGURE 4-1  
EXAMPLE SAMPLE LABELS

	<b>INTERNATIONAL TECHNOLOGY CORPORATION</b>	
Project Name _____		
Project No. _____		
Sample No. _____		
Collection Date/Time _____		
Collector's Name _____		
Sample Location _____		
Sample Type/Depth/Description _____		
Analyze For _____ Preservative _____		
Bottle _____ of _____ Filtered _____ Nonfiltered _____		
23-8-85		



### **4.3.3 Analysis Request and Chain-of-Custody Records**

All samples collected in the field will be accompanied by an Analysis Request and Chain-of-Custody Record form (Figure 4-3), which will accompany the samples from the field to the designated laboratory.

Sampling personnel, upon collection of sample(s) to be analyzed for waste profiling information, will properly complete a chain-of-custody record. The chain-of-custody record will be the controlling document to assure that sample maintenance and custody are maintained, thereby assuring the sample(s) are representative of the environment from which they were collected. Chain-of-Custody is maintained by compliance with one of the following criteria:

- The sample is in the individual's possession.
- The sample is maintained in the individual's physical view after being in his/her possession.
- The sample is transferred to a designated secure area restricted to authorized personnel.
- The sample is sealed and maintained under lock and key to prevent tampering, after having been in physical possession.

Transferring of Chain-of-Custody from sampling personnel to the analytical laboratory will be performed in accordance with the requirements of Standard Operating Procedure 1.1 (Appendix A).

### **4.3.4 Sample Containers**

All samples for chemical analysis will be placed in individual pre-cleaned glass or plastic VOA bottles for shipment to the laboratory. Pre-cleaned bottles used for confirmation sampling will be obtained from the designated laboratory and inspected for obvious damage by the field sampler.

### **4.3.5 Sample Packaging and Shipping**

Samples will be deposited within the VOA bottles and sample labels will be affixed to the bottle. Sample personnel will assure the caps are tight and place custody tape over the

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD\*

Project Name/No. <sup>1</sup> \_\_\_\_\_ Samples Shipment Date <sup>7</sup> \_\_\_\_\_ Bill to: <sup>5</sup> \_\_\_\_\_  
 Sample Team Members <sup>2</sup> \_\_\_\_\_ Lab Destination <sup>8</sup> \_\_\_\_\_  
 Profit Center No. <sup>3</sup> \_\_\_\_\_ Lab Contact <sup>9</sup> \_\_\_\_\_  
 Project Manager <sup>4</sup> \_\_\_\_\_ Project Contact/Phone <sup>12</sup> \_\_\_\_\_ Report to: <sup>10</sup> \_\_\_\_\_  
 Purchase Order No. <sup>6</sup> \_\_\_\_\_ Carrier/Waybill No. <sup>13</sup> \_\_\_\_\_  
 Required Report Date <sup>11</sup> \_\_\_\_\_

## ONE CONTAINER PER LINE

Sample <sup>14</sup> Number	Sample <sup>15</sup> Description/Type	Date/Time <sup>16</sup> Collected	Container <sup>17</sup> Type	Sample <sup>18</sup> Volume	Pre- <sup>19</sup> servative	Requested Testing <sup>20</sup> Program	Condition on <sup>21</sup> Receipt	Disposal <sup>22</sup> Record No.
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	

**Special Instructions:** <sup>23</sup> \_\_\_\_\_

**Possible Hazard Identification:** <sup>24</sup>  
 Non-hazard  Flammable  Skin Irritant  Poison B  Unknown

**Sample Disposal:** <sup>25</sup>  
 Return to Client  Disposal by Lab  Archive \_\_\_\_\_ (mos.)

**Turnaround Time Required:** <sup>26</sup>  
 Normal  Rush

**QC Level:** <sup>27</sup>  
 I.  II.  III.  Project Specific (specify): \_\_\_\_\_

1. Relinquished by <sup>28</sup> <small>(Signature/Affiliation)</small>	Date: _____ Time: _____	1. Received by <sup>28</sup> <small>(Signature/Affiliation)</small>	Date: _____ Time: _____
2. Relinquished by <small>(Signature/Affiliation)</small>	Date: _____ Time: _____	2. Received by <small>(Signature/Affiliation)</small>	Date: _____ Time: _____
3. Relinquished by <small>(Signature/Affiliation)</small>	Date: _____ Time: _____	3. Received by <small>(Signature/Affiliation)</small>	Date: _____ Time: _____

**Comments:** <sup>29</sup> \_\_\_\_\_

FIGURE 4-3

container cap in order to prevent tampering with the contents. The bottles will then be placed in separate and appropriately sized polyethylene bags (Ziploc™). The Ziploc™ bags will be placed within shipping containers suitable for transportation to the designated laboratory. Overpacking material will be used to minimize damage to the sample containers during the shipping process. The analysis request and chain of custody record will be enclosed within the shipping container for custody transfer to the laboratory.

#### **4.4 Analytical Methods**

The analytical methods to be used for testing the concrete and structural debris are designed to supply sufficient information to the disposal facility for acceptance of the dismantled material. In addition, the analysis must provide the necessary information for completion of the waste manifest.

The analytical methods to be used for testing will meet State and Federal protocol. The painted sheet metal will be tested using EPA Method 7421 for total lead, and if necessary, for soluble threshold limit concentration (STLC) lead using the California Waste Extraction Test (WET) procedure. The concrete and asphalt will be tested for organochlorine (OC) pesticides/PCBs using EPA Method 8080.

**APPENDIX A**

**CHAIN-OF-CUSTODY STANDARD OPERATING PROCEDURE**

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# CHAIN OF CUSTODY

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## STANDARD OPERATING PROCEDURE

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### **1.0 Purpose**

This Standard Operating Procedure (SOP) establishes the method and responsibilities associated with the maintenance and custody of samples which are to be used to provide data relative to making project related decisions. It outlines the general procedures for maintaining and documenting sample chain of custody from the time of sample collection through sample disposition.

### **2.0 References**

- 2.1 IT WESTDIV RAC Contractor Quality Control Program Plan
- 2.2 IT SQP-4.2 "Records Management"

### **3.0 Definitions**

#### **3.1 Chain of Custody**

The Chain of Custody (COC) document is the written record that traces the sample possession from the time each sample is collected until its final disposition, sometimes called the "cradle to grave" record. Chain of Custody is maintained by compliance with one of the following criteria:

- The sample is in the individual's physical possession
- The sample is maintained in the individual's physical view after being in his/her possession
- The sample is transferred to a designated secure area restricted to authorized personnel
- The sample is sealed and maintained under lock and key to prevent tampering, after having been in physical possession.

### **3.2 Waybill**

A document that contains a list of the goods and shipping instructions relative to a shipment.

### **3.3 Common Carrier**

For the purpose of this procedure, the common carrier is any commercial carrier utilized for the transportation of the sample(s) from the field to the laboratory.

## **4.0 Procedure**

### **4.1 Responsibilities**

4.1.1 The Project Manager is responsible for assuring proper COC is initiated at the time the sample(s) are collected and maintained throughout the handling and subsequent transportation of the sample(s) to the designated laboratory. Additionally, he/she is the project authority for determining the disposition and fate of sample(s) which have identified deficiencies (e.g., missed holding times, elevated temperature at receipt, etc.).

4.1.2 The sample team member(s) are responsible for properly documenting and maintaining the COC from the time of sample collection until the sample is delivered to the lab.

4.1.3 Laboratory personnel are responsible for receipt and entry of samples into the laboratory which have been submitted under a COC document. Additionally, samples received will be entered into the laboratory COC procedures by properly documenting and maintaining COC from the moment that they take custody of the sample at the laboratory until the sample is disposed of or returned to the client.

### **4.2 General**

4.2.1 An overriding consideration for data resulting from laboratory analyses is the ability to demonstrate that the samples were obtained from the locations stated and that they reached the laboratory without alteration. Evidence of collection, shipment, laboratory receipt, and laboratory custody until disposal must be documented to accomplish this. Documentation will be accomplished through a COC Record that lists each sample and the individuals performing the sample collection, shipment, and receipt.

4.2.2 The COC document is a preprinted form with a unique six-digit control number in the upper right-hand corner. The white copy will accompany the samples while the yellow field copy will be retained in the project file.

### **4.3 Field Sample Custody**

4.3.1 Sampling personnel upon collection of samples to be analyzed for project information will properly complete a COC Record form (Attachment 6.1). The COC document will be the controlling document to assure that sample maintenance and custody are maintained thereby assuring the sample(s) are representative of the environment from which they were collected. At a minimum, the following information will be recorded on the COC document:

- The unique identification number assigned to each sample.
- A brief description of the sampling location and a physical description of the sample type.
- The date and time of the sample collection.
- Container type (e.g., glass, poly, brass sleeve, etc.).
- Sample volume and number of containers (e.g., 2 x 40 ml, 3 x 1 liter).
- Sample preservation (e.g., HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, 4°C).
- Requested analyses.
- Special instructions to the laboratory including handling requirements, quality assurance/quality control, health and safety, and sample disposition.
- The project name and number.
- The date the analytical report is due.
- The names of all sampling personnel.
- The name and phone number of the project contact.
- The name and phone number of the laboratory contact.
- The name of the courier and the waybill number (if applicable).

- A unique document reference number.

4.3.2 The COC document will be initiated in the field by the person collecting the sample and signed by each individual who has the samples in their possession. Each time that sample custody is transferred, the former custodian must sign over the COC as Relinquished By, and the new custodian must sign on to the COC as Received By. Each signature must be accompanied by the date, time, and the name of their project or company affiliation.

4.3.3 Transferring of COC from sampling personnel to the analytical laboratory will be performed in accordance with the requirements stated below.

4.3.3.1 If the sampling personnel deliver the samples to the laboratory, transfer of COC occurs as follows:

- The sample collector delivers the samples to the laboratory and relinquishes the sample directly to a laboratory representative.
- The collector signs the COC listing his/her name, affiliation, the date, and time. Any person involved in the collection of the sample may act as the sample custodian.
- The laboratory representative must receive the samples by signing his/her name, affiliation, the date, and time on the COC. The laboratory representative may decline to take receipt of the samples if the COC is not properly completed or if the samples are not properly packaged. All designated laboratory personnel may act as the sample custodian.
- One copy of the COC is given to the sample collector to be returned to the project files and one copy is maintained with the samples at the laboratory.

4.3.3.2 If the sampling personnel transfer sample(s) to the laboratory utilizing a common carrier, sampling personnel will retain COC responsibility and the common carrier is not responsible for maintaining sample custody. The sample collectors are responsible for packaging the samples in a manner that meets the COC definition criteria, that is, the samples are sealed to prevent tampering. When transferring samples to the courier for transport, COC procedures are maintained as follows:

- The sample collector lists the courier affiliation and waybill number on the COC.
- The sample collector relinquishes custody by signing his name, affiliation, date, and time. The collector keeps a copy of the relinquished COC for the project file.
- The relinquished original COC is sealed in a watertight plastic bag and taped to the inside of the lid of the container used for transportation.
- The transportation container is sealed to prevent tampering and given to the courier for delivery to the laboratory.
- The sample collector obtains a copy of the waybill from the courier for the project file.
- The laboratory representative must receive the samples by signing his/her name, affiliation, the date, and time on the COC. This copy is maintained with the samples at the laboratory.
- The laboratory representative obtains a copy of the waybill from the courier for the project file.

#### **4.4 Analytical Laboratory Custody**

4.4.1 Upon receipt at the analytical laboratory, the field generated COC document will be signed, dated, time marked, temperature marked, and laboratory identification will be provided in the appropriate spaces.

4.4.2 Laboratory receipt personnel will enter the samples into the laboratory by implementing the sample custody procedures addressed within their approved QA Program.

4.4.3 After completion of analytical testing, sample remnants not consumed during testing may be kept for six months beyond the completion of analysis, unless otherwise specified by on the COC to be returned to the project site for disposal. Once this time period has elapsed, the samples will be disposed of and the disposal record number will be recorded on the laboratory record copy of the COC.

## **5.0 Records**

5.1 Records generated as a result of implementation of this SOP are considered project records upon their completion and will be maintained in the project files (reference 2.2).

## **6.0 Attachment**

6.1 Chain of Custody Record Form