

Management Plan
for Asbestos Surveys

Camp Bonneville
Vancouver, WA
DELIVERY ORDER NO. 4

Prepared for:
U.S. Army Corps of Engineers Seattle District

Contract DACA67-95-D-1018
Delivery Order No. 04

Prezant Project Number:
U126-1004

June 26, 1997

Prezant Associates, Inc. · 330 Sixth Ave., North, Suite 200 ·
Seattle, WA 98109
Phone: (206) 281-8858, Fax: (206) 281-8922

CONTENTS	Page
1.0 INTRODUCTION	1
1.1 Organization of this Management Plan	1
2.0 ASBESTOS SURVEY WORK PLAN	1
2.1 Asbestos-Containing Building Materials	1
2.2 Regulatory Analysis	2
2.3 General Responsibilities of the Asbestos Inspection Team	4
2.4 Training Requirements	5
2.5 Documentation Review	5
2.6 ACM Sample Collection Procedures	6
2.7 Documentation and Reporting	19
2.8 Quality Control	19
3.0 SITE-SPECIFIC SAFETY AND HEALTH PLAN (SSSHP)	22
3.1 Introduction	22
3.2 Hazard Assessment and Risk Analysis	25
3.3 Accident Prevention	26
3.4 Staff Organization, Qualifications, and Responsibilities	28
3.5 Training	29
3.6 Personal Protective Equipment	29
3.7 Medical Surveillance	31
3.8 Exposure Monitoring/Air Sampling	31
3.9 Heat/Cold Stress Monitoring	31
3.10 Standard Operating Safety Procedures	33
3.11 Site Control Measures	35
3.12 Personnel Hygiene and Decontamination	35
3.13 Equipment Decontamination	35
3.14 Emergency Equipment and First Aid Requirements	36
3.15 Emergency Response Plan	36
3.16 Logs, Reports, and Recordkeeping	40
TABLES	
2-3 ACM Condition Assessment	12
2-4 Laboratory Observation Codes	16
3-1 Emergency Contingency Information	24
3-2 Activity Hazard Analysis	26

FIGURES

2-1	Suspect Asbestos Sampling Notes	7
2-2	AHERA Grid	10
2-6	Notification of Significantly Damaged Materials	13
2-7	Suspect Asbestos Bulk Sample Chain of Custody	17
2-8	Custody Seal	18
2-9	Suspect Asbestos Bulk Sample Chain of Custody (QC Samples) 21	
3-4	Prezant Asbestos Survey Team	29
3-1	Map to Southwest Washington Medical Center	38

**APPENDIX A
PROJECT PERSONNEL CERTIFICATES**

**APPENDIX B
TENTATIVE WORK SCHEDULE AND BUILDING LIST**

**APPENDIX C
SITE MAPS FOR CAMP BONNEVILLE AND CAMP KILPACK**

**MANAGEMENT PLAN FOR ASBESTOS SURVEYS
CAMP BONNEVILLE, WASHINGTON**

1.0 INTRODUCTION

The Department of Defense Base Realignment and Closure (BRAC) process requires Camp Bonneville to establish and maintain an Environmental Baseline Survey (EBS). As part of the EBS Camp Bonneville is required to conduct a facility-wide asbestos inspection to identify asbestos locations, quantities and conditions. In order to conduct the asbestos inspection, a document must be prepared which provides guidance to inspection personnel and establishes a system for performing the inspections. This is that document and it is referred to as the Management Plan for Asbestos Surveys, Camp Bonneville Washington (hereinafter referred to as the Management Plan).

1.1 Organization of this Management Plan

Section 1.0 introduces the issues and regulations relating to surveying ACM.

Section 2.0 addresses the overall work and sampling procedures Prezant will use in conducting its ACM survey at Camp Bonneville including information on sample collection protocol, condition assessments, and survey documentation. In addition, Section 2 outlines documentation and reporting of survey results. The filing system, CADD illustrations, weekly and final reports are described. Examples of forms we will use for recording data collected during the survey are included in Section 2.0.

Section 3.0 addresses survey team health and safety considerations in the form of a site-specific safety and health plan (SSSHP).

Appendix A contains AHERA Building Inspector and Management Planner certificates for specific project personnel.

2.0 ASBESTOS SURVEY WORK PLAN

An integral part of this Management Plan is the performance of an installation-wide survey of all structures for asbestos-containing materials (ACM). This survey will determine the location, quantity, and condition of friable and non-friable ACM not previously identified at Camp Bonneville.

Prezant will survey structures at Camp Bonneville which were not previously surveyed. A combined survey report listing all ACM detected at the site will be issued by Prezant.

2.1 Asbestos-Containing Building Materials

Because of its high thermal resistance, tensile strength, stability, and non-combustible nature, asbestos was widely used for many years as insulating material on pipes, boilers, ventilation ducts, tanks, and as a fireproofing material on structural steel beams and roofing decks. Asbestos was also applied extensively to control acoustics inside buildings prior to the 1970s.

Asbestos can also be found in materials such as flooring and ceiling tiles, linoleum, cement asbestos boards, gaskets, woven fireproof cloths and blankets, transite, wallboard, wallboard joint compounds, plasters (particularly textured wall and ceiling finishes), caulking, mortar (i.e., fireplaces, boiler rooms, and fire walls), roofing felts, shingles, and window putty. The materials mentioned above are among the most common sources of ACM and will be the focus of the survey. Materials such as concrete, wood products (e.g., paneling), wallpaper, carpeting, fiberglass, and ceramic tiles will not be identified as suspect ACMs because of their extremely low potential to contain asbestos.

2.2 Regulatory Analysis

This section discusses governmental regulatory requirements relating to asbestos emissions control and bulk sampling. Applicable regulations include:

- Air Emissions Control and Agency Notification: The National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR Part 61;
- Regulations of the agency that regulates asbestos air emissions in Clark County, the Southwest Air Pollution Control Authority (SWAPCA)
- Asbestos Sampling and Worker Certification: The Asbestos Hazard Emergency Response Act (AHERA) Regulations, 40 CFR Part 763; and
- Worker Health: OSHA Asbestos, 29 CFR Part 1926.1101.
- Department of Army Technical Manual (TM) 5-612.

Application of NESHAPs to Camp Bonneville

In Clark County, NESHAPs regulations are enforced by the SWAPCA. NESHAPs addresses emissions of asbestos from renovation and demolition activities. In essence, NESHAPs prohibits the emission of any visible asbestos-containing dust to the environment.

How Asbestos Might Be Released. The EPA's NESHAPs regulation distinguishes between "friable" and "non-friable" ACM. "Friable material" is defined as that material which when dry, may be crumbled, pulverized, or reduced to a powder by hand pressure. Intact and undisturbed non-friable asbestos poses little threat to the health of building occupants. On the other hand, both

friable and non-friable asbestos may be easily turned into a dust by routine building maintenance practices.

Therefore, before any demolition or renovation activity begins, it is important to determine whether the building materials contain asbestos above regulated limits. This is accomplished by bulk sampling of the suspect materials. Small pieces of the materials are collected and submitted to laboratory analysis, using polarized light microscopy (PLM) to determine asbestos content.

Asbestos Survey. Under the EPA's NESHAPs regulations, a survey to identify suspect ACM is required before beginning demolition and renovation projects to identify ACM. SWAPCA requires that certified inspectors perform asbestos surveys using the procedures contained in AHERA regulations (40 CFR 763.86) or an alternate method that has received prior written approval from PSAPCA.

Definition of ACM. The EPA's NESHAPs only regulates asbestos when analyzed materials contain greater than 1 percent asbestos. The SWAPCA definition of ACM includes materials containing greater than 1 percent asbestos.

Emission Controls. Under both EPA and SWAPCA regulations, all ACM must be kept adequately wet while being removed from the structure, building, or vessel, and no visible asbestos emissions are allowed.

Asbestos Sampling and Inspector Certification: AHERA Regulations

AHERA was originally passed to provide for detection of asbestos in schools and to provide for proper repair or removal from those structures. Inspectors properly trained and certified under AHERA were to conduct all surveys for asbestos in school buildings. AHERA was amended by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) on November 28, 1990. The amended law expanded requirements that asbestos-related activities in schools and public and commercial buildings be accomplished by accredited personnel trained according to AHERA specifications. AHERA-certified inspectors are trained to identify, sample, and analyze potential ACM according to 40 CFR 763.86 and 763.87.

Sampling of Suspect Materials. AHERA regulations under 40 CFR 763.86 define "surfacing material" as materials which are sprayed on, troweled on, or otherwise applied to surfaces. Examples include acoustical plaster on ceilings, fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes. Random samples must be collected that statistically represent a homogeneous area of friable surfacing material, which is not assumed to be ACM. "Homogeneous area" is defined as an area of material that is uniform in color and texture. With the exception of certain building materials identified by the COE, all accessible suspect materials will be sampled to provide a determination of the asbestos content.

If a decision is made to sample a homogeneous friable surfacing material, at least 3 samples must be collected from homogeneous

areas of 1,000 square feet or less, at least 5 samples must be collected from homogeneous areas greater than 1,000 square feet but less than 5,000 square feet, and at least 7 samples must be collected from homogeneous areas greater than 5,000 square feet. The EPA considers wallboard, joint compound, and tape to be a single wall system. Therefore, random samples of this material will include all components of the system.

For thermal system insulation (TSI), at least 3 bulk samples from each homogenous area should be collected. However, if the homogenous material is a patched area less than 6 linear or square feet, only one bulk sample needs to be collected.

For friable miscellaneous materials and for all other non-friable suspect materials, a minimum of three samples shall be collected to determine whether the material is ACM.

Analysis of Bulk Samples. AHERA regulations under 40 CFR 763.87 state that bulk samples of suspect materials collected during the asbestos survey are to be analyzed by accredited laboratories using PLM techniques. Bulk samples taken from a homogenous area cannot be composited.

When laboratory analysis shows that all samples collected from a single homogeneous area do not contain greater than 1 percent asbestos, the area is considered to be free of ACM. If even one sample, collected from a homogeneous area, contains greater than 1 percent asbestos, the entire homogeneous area is considered to contain ACM.

Worker Health

The purpose of the federal and state asbestos health regulations is to protect workers performing work in or around asbestos from inhaling the material. The health effects of asbestos include asbestosis (scarring of the lungs), lung cancer, and mesothelioma (cancer of the lining of the lung). There is a considerable body of evidence linking asbestos exposure to these health effects.

It is believed that by limiting asbestos exposure among workers to less than the Permissible Exposure Limit (PEL), the health effects can be minimized. The asbestos PEL is currently set by OSHA regulations under 29 CFR 1926.1101 at no more than 0.1 fiber of asbestos per cubic centimeter of air (f/cc), averaged over an 8-hour period.

Collecting asbestos samples as part of a routine building survey is not specifically included in the scope of 29 CFR 1926.1101, but an argument could be made that such work involves "disturbance" of asbestos (e.g., "contact which releases fibers from ACM or PACM [presumed ACM]"). Therefore, an initial exposure assessment will be performed to determine if employees collecting bulk samples are exposed over the PEL. Once the assessment has been made, and results indicate no employee is potentially exposed above the PEL, further air sampling is necessary only when exposures are expected to exceed the PEL, such as when collecting samples in areas with visible asbestos debris.

Health and safety requirements for this project are presented in Section 3.0.

2.3 General Responsibilities of the Asbestos Inspection Team

It is the responsibility of the asbestos inspector to:

- Utilize appropriate personal protective equipment and measures to avoid potential exposure to asbestos and other building-specific health and safety concerns;
- Collect samples and maintain complete and accurate sample documentation as described in this work plan;
- Repair locations where samples have been collected in all buildings suitable for occupation;
- Provide an accurate characterization of suspect ACM and/or debris and assure that the survey report accurately describes the materials sampled and other relevant building information; and

- Obtain and assess relevant blueprints, renovation histories, and other applicable information for each building to be surveyed, if available.

It is the responsibility of the Project Manager to:

- Ensure that sampling personnel comply with this work plan;
- Ensure that the work is conducted in a safe, professional, and cost-effective fashion; and
- See that project schedules and budgets are met.

2.4 Training Requirements

All personnel performing visual inspections and collecting bulk samples of suspect ACM must be accredited building inspectors in accordance with the Asbestos Hazard Emergency Response Act (AHERA) (40 CFR Part 763). Certificates for each inspector are included in Appendix C of this Management Plan, or will be provided to the Contracting Officer's Representative (COR) prior to start of field survey activities.

2.5 Documentation Review

Surveys will be conducted in buildings. At least two buildings will be made available per day. Floor plans, in the form of blue-line drawings, CADD drawings, or as-built drawings will be provided by the Corps of Engineers prior to the survey of the specific buildings.

Prior to conducting a building survey, available as-built specifications, remodeling specifications, and mechanical drawings showing heating and plumbing systems will be reviewed. Buildings that were constructed by the same contractor during the same time period using the same building materials (e.g., housing developments) will be considered homogeneous buildings for planning purposes.

Extreme caution will be used in classifying materials that appear homogeneous based on documentation review; these materials may not be homogeneous because of material changes during original construction and subsequent building renovations. During the inspection of each building, we will rely on conversations with the building maintenance personnel and/or building contact to provide pertinent information to supplement our visual inspections.

If available, the following information will be reviewed prior to the collection of samples:

- Date(s) of original construction;
- Dates of all known renovation;
- Locations of renovated areas within the building;
- Type(s) of heating system; and,
- Prior asbestos survey/sampling and abatement information.
- Maintenance records of the structures to be surveyed.

This information will assist the inspector in defining homogeneous sampling areas and formulating the overall sampling strategy for each building.

2.6 ACM Sample Collection Procedures

Identification of Homogeneous Materials

When materials are found to be uniform based on type, texture, color, and date of installation, they are considered to be homogeneous materials. Size and pattern changes for materials such as ceiling and floor tiles may indicate that materials should not be considered homogeneous. Research of a building's history, as described above, may help to identify homogeneous materials and the areas where they are located.

A thorough visual inspection of all accessible areas (including attics, basements, crawl spaces, pipe chases and runs, air plenums, maintenance areas, mechanical rooms, and the roof of each building/structure) will be conducted. During the inspection, a list of homogeneous materials will be developed, utilizing the Suspect Asbestos Sampling Notes form (Figure 2-1).

The visual inspection will include limited destructive procedures, as necessary to identify all suspect ACM. Survey personnel will enter all areas where access is reasonable including crawlspaces and attics. Any other suspect ACM, which is inaccessible or not able to be sampled, will be recorded using field sample numbers in the format "IN-9", where "IN" stands for inaccessible material. Although no actual samples of inaccessible ACM will be collected, this form will be used to document all IN materials.

Several different types of homogeneous thermal insulation may be found in a single room. For example, insulation on steam pipe runs and risers that appears identical may constitute one homogeneous material. Insulation on domestic water pipe runs and risers may be another homogeneous material.

Asbestos-containing cement, or mud on pipe fittings, around flanges, or valves may be yet a third homogeneous material, and block insulation on boilers (and breaching if similar) may represent a fourth.

Although the external wrapping (e.g., canvas or rewettable fiberglass cloth) of thermal insulation may appear to be the same, the internal insulation materials may not be the same. A determination of homogeneity should be based on the actual insulating material and the wrapping. It may be necessary, if existing areas of damaged insulation are not present, to wet the material and cut through the wrapping to conduct a visual inspection of the insulating material.

In multi-story buildings/structures, designating a separate homogeneous sampling material for each floor or level may not be necessary. For example, similar sprayed-on or troweled-on surfacing materials, such as acoustical or fireproofing ceiling or wall coatings, may be present on each floor of a multi-story building. A single type of surfacing material represents one homogeneous sampling material, assuming the date of installation, color, etc., are the same. Inspectors will not group materials on different floors together if it is known that the materials were applied at different times.

Renovated areas will most likely contain different building materials than original areas of the building. For example, ceiling tiles and floor tiles in a renovated area may be the same color and pattern, but should be considered different materials because they were manufactured at a different time. It is important to be able to distinguish the new tiles from the old.

Inspectors will lift and visually inspect the areas under carpet and linoleum for the presence of "hidden" floor material(s) (e.g., floor tile). Accessible "hidden" floor material under existing floor coverings will be sampled and a physical description of "hidden" floor material(s) (and its location by room number) present under existing floor coverings will be documented.

Because visual inspections of these "hidden" areas will be severely limited by the presence of existing floor covering, exact quantities of suspect ACM cannot be obtained for floor materials that may exist underneath existing floor coverings. If floor tiles, linoleum, or other floor materials are found underneath existing flooring in the area inspected, it will be assumed that the entire covered area is underlain with suspect ACM. This area should be reinspected during demolition when

flooring can be removed to allow visual inspection. Floor leveling compound will also be treated as an "inaccessible material."

Sampling locations will be sketched by hand on the CADD footprint drawings. Each sampling location will be identified by a unique sample number so that it is possible to identify the material from which the sample was collected.

A photograph of each sample location, including the sample number and the date of collection, will be taken and stored in the project files. Assumed ACM will also be photographed.

Sample Collection Procedures

All sampling will be conducted in accordance with 40 CFR 763 and the EPA publication "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials." Prezant will conduct a systematic inspection of all areas of the selected buildings/structures to locate suspect ACM.

Prior to surveying a building/structure, the asbestos field team leader, or his/her designee, will perform a walk-through of the facility to identify potentially hazardous conditions. At that time, the asbestos field team leader, will determine the appropriate level of personal protective equipment (PPE) to be used during the survey of that particular building/structure. If at any time during the course of the survey/inspection, a situation which presents a high risk of exposure is observed, the field team leader will immediately take steps to upgrade the PPE category for the asbestos survey team to the appropriate level as described in Section 3.0 of the Management Plan.

The surface of the material to be sampled must be completely wet with amended water prior to and during sample collection to reduce the potential for fiber release. Amended water is water to which a surfactant has been added to decrease the surface tension.

Number of Samples per Homogeneous Material. At least three core samples of thermal system insulation (e.g., boiler, pipe, pipe-fitting, and tank insulation) or miscellaneous materials (e.g., ceiling tile, floor tile, wallboard, and roofing materials) from each homogeneous material will be collected. If the boiler, water tanks, condensate tank, etc. appear to be insulated with the same material (under any protective coverings), all the tank insulation will be considered a homogeneous material. If a tank has been repaired with a different material, one sample from each type of insulation material present will be collected, as long as the "patched" area is less than 6 linear or square feet in size.

For surfacing materials (e.g., spray-applied insulation), three bulk samples will be collected randomly from each homogeneous area that measures 1,000 square feet or less, five bulk samples from each homogeneous area that measures greater than 1,000 square feet but less than 5,000 square feet, and seven bulk samples from each homogeneous, area that measures greater than 5,000 square feet.

Sampling above Ceiling Tiles. It will often be necessary to remove suspended ceiling tiles to locate sprayed-on fireproofing or acoustical material. Respiratory protection (half-mask air

purifying respirator) may need to be donned prior to exposing the materials above the suspended ceiling.

Assumed ACM. Inspectors will not sample materials designated by the COE as assumed to be asbestos-containing. However, inspectors must still assign a sample number, take a photograph, assess material condition, and quantify the material. Assumed asbestos materials will be recorded using field sample numbers in the format "AS-9", where "AS" stands for "assumed asbestos".

Mastic. Floor tile mastic will be collected as a separate sample.

Dry Wall and Plaster. Dry wall (or wall board) and plaster will be sampled utilizing the AHERA Grid (Figure 2-2). The inspector will provide adequate information in his/her notes of field floor plans to quantify the material should it be reported as positive.

Roofing Material. Roofing material should be collected using a hammer and chisel (or screwdriver) to cut a wedge of the material from the roof. It is important to include all layers of the roofing materials down to the roof deck.

Figure 2-2 AHERA Grid

Sampling Area	Sampling Locations	Sampling Area	Sampling Locations	Sampling Area	Sampling Locations																											
1	<table border="1"> <tr><td>9</td><td>8</td><td>1</td></tr> <tr><td>2</td><td>7</td><td>6</td></tr> <tr><td>5</td><td>3</td><td>4</td></tr> </table>	9	8	1	2	7	6	5	3	4	7	<table border="1"> <tr><td>5</td><td>8</td><td>1</td></tr> <tr><td>4</td><td>3</td><td>6</td></tr> <tr><td>2</td><td>7</td><td>9</td></tr> </table>	5	8	1	4	3	6	2	7	9	13	<table border="1"> <tr><td>8</td><td>5</td><td>2</td></tr> <tr><td>3</td><td>6</td><td>9</td></tr> <tr><td>7</td><td>1</td><td>4</td></tr> </table>	8	5	2	3	6	9	7	1	4
9	8	1																														
2	7	6																														
5	3	4																														
5	8	1																														
4	3	6																														
2	7	9																														
8	5	2																														
3	6	9																														
7	1	4																														
2	<table border="1"> <tr><td>8</td><td>7</td><td>1</td></tr> <tr><td>3</td><td>9</td><td>5</td></tr> <tr><td>4</td><td>2</td><td>6</td></tr> </table>	8	7	1	3	9	5	4	2	6	8	<table border="1"> <tr><td>5</td><td>7</td><td>1</td></tr> <tr><td>6</td><td>3</td><td>4</td></tr> <tr><td>2</td><td>8</td><td>9</td></tr> </table>	5	7	1	6	3	4	2	8	9	14	<table border="1"> <tr><td>4</td><td>1</td><td>6</td></tr> <tr><td>3</td><td>9</td><td>7</td></tr> <tr><td>8</td><td>5</td><td>2</td></tr> </table>	4	1	6	3	9	7	8	5	2
8	7	1																														
3	9	5																														
4	2	6																														
5	7	1																														
6	3	4																														
2	8	9																														
4	1	6																														
3	9	7																														
8	5	2																														
3	<table border="1"> <tr><td>4</td><td>1</td><td>7</td></tr> <tr><td>2</td><td>9</td><td>3</td></tr> <tr><td>8</td><td>5</td><td>3</td></tr> </table>	4	1	7	2	9	3	8	5	3	9	<table border="1"> <tr><td>3</td><td>6</td><td>4</td></tr> <tr><td>9</td><td>2</td><td>7</td></tr> <tr><td>5</td><td>8</td><td>1</td></tr> </table>	3	6	4	9	2	7	5	8	1	15	<table border="1"> <tr><td>3</td><td>5</td><td>6</td></tr> <tr><td>9</td><td>2</td><td>8</td></tr> <tr><td>7</td><td>4</td><td>1</td></tr> </table>	3	5	6	9	2	8	7	4	1
4	1	7																														
2	9	3																														
8	5	3																														
3	6	4																														
9	2	7																														
5	8	1																														
3	5	6																														
9	2	8																														
7	4	1																														
	<table border="1"> <tr><td>6</td><td>1</td><td>8</td></tr> </table>	6	1	8		<table border="1"> <tr><td>5</td><td>7</td><td>3</td></tr> </table>	5	7	3		<table border="1"> <tr><td>4</td><td>8</td><td>3</td></tr> </table>	4	8	3																		
6	1	8																														
5	7	3																														
4	8	3																														

4	5	9	3	10	8	1	6	16	2	5	9
	2	7	4		2	9	4		7	1	6

5	6	4	3	11	5	1	6	17	8	2	7
	1	5	8		3	4	9		4	5	3
	9	2	7		7	8	2		1	9	6

6	7	4	3	12	7	1	9	18	2	5	9
	6	1	5		2	4	5		6	1	8
	2	9	8		6	8	3		4	7	3

Insulation Material. When using a cutter sleeve (commonly used to sample certain types of pipe and pipe fitting insulation), the cutter sleeve should be pushed slowly with a twisting motion into the material. If a knife is used, the blade should be inserted all the way into the material and a small triangle core should be cut out of the material. A sample at least the size of a quarter is needed for analysis. The inspector should be sure to penetrate any paint or protective coating and all the layers of the material.

Sample Labeling

All sample bags will be labeled at the time of sample collection. The following information will be recorded directly on the bag:

- Sample ID number;
- Date of collection; and
- Inspector's initials.

The labeled samples will then be placed in a larger ZiplocTM-type bag and sealed for additional protection during handling and shipment.

Condition Assessment and Documentation

After collecting each sample, the inspector will complete the appropriate block of the Suspect Asbestos Sampling Notes Form (Figure 2-1) The inspector will also perform a condition assessment of the suspect ACM and will assign each homogeneous material to a condition category according to the specific guidelines provided in Table 2-3.

In the event that a Category 5 situation is encountered, a Notification of Significantly Damaged Materials form (Figure 2-6) will be generated and submitted to the Field Supervisor for further evaluation. If the Field Supervisor agrees with the assessment, the form will be completed and submitted to Bill Graney of the Corps, by fax or hand delivery.

Table 2-3 - ACM Condition Assessment

Category	General	Response
1	Friable and non-friable material in good condition	Implement as part of the Operations and Maintenance (O&M) Plan.
2	Friable material showing signs of isolated areas of damage (less than 10%)	Recommend abatement and implementation as part of the O&M Plan.
3	Friable material showing signs of isolated areas of damage (greater than 10%)	Recommend abatement as soon as possible and implementation as part of the O&M Plan.
4	Friable material with areas of moderate to significant damage and loss of integrity	Recommend abatement as soon as possible and implementation as part of the O&M Plan.
5	Highly friable and severely damaged	Recommend regulation of the area, abatement as soon as possible, and completion of Notification of Significantly Damaged Materials form.

Figure 2-6 Notification of Significantly Damaged Materials

1. Building No.:	2. Date:
3. Building POC:	4. Prezant Contact:
5. Description of Material	
6. Sample Number(s)	

7. Location of Significantly Damaged Material:	
--	--

8. Suggested Action:	
9. Inspector: Name (print): _____ Signature: _____	10. Supervisor: Name (print): _____ Signature: _____

Date: _____	Date: _____
-------------	-------------

Decontamination of Sampling Equipment

All sampling tools (except cutter sleeves which will not be reused) will be thoroughly sprayed with amended water and wiped with a disposable towelette prior to collecting another sample. When decontaminating equipment that has been used to sample materials such as floor tile mastic or roofing materials, it may be necessary to use a non-flammable solution that dissolves tar rather than amended water. Wipes or other towels used during decontamination should be placed in a Ziploc™-type bag for later disposal. If decontamination is not possible immediately after sample collection, contaminated sampling equipment will be placed in Ziploc™-type bags until decontamination can be performed.

Repair of Sampled Locations

Destructive sampling techniques will be employed during the course of this survey. Prezant will make every attempt to minimize fiber release to the lowest possible level. Each sampling point will be repaired and sprayed with an EPA accepted bridging encapsulant and/or filled with the appropriate heat-rated silicone caulk to prevent subsequent fiber release. Holes in roofing material will be filled with roofing tar. Exposed edges of other friable materials that can not be sealed with silicone caulk, such as ceiling tile, will be sprayed with a bridging encapsulant. Where painted surfaces are damaged due to Prezant sampling, Prezant will patch and repaint surfaces to original color with paint or paint colors provided by the Camp Bonneville Facilities Manager. Where paint or paint colors are not available from Camp Bonneville personnel the damaged surface will be patched and repainted with a primer coat.

Chain of Custody

A sample chain of custody form (Figure 2-7) will be completed with each batch of samples. A custody seal will be wrapped around each sampling container for shipment. Chain of custody records will include complete information for each sample. The inspector is responsible for providing a legible signature.

If the samples are shipped via commercial express carrier or other public transportation, the custody record will be signed to relinquish custody of the samples. The inspector, handling sample shipment, will relinquish custody only when directly transmitting the sample container to a receiving party or when handing the container to a shipper for subsequent transmittal to the analytical laboratory. A copy of the custody record should be retained by the inspector handling shipment and placed in the project file with other field notes. The inspector will place the original and remaining copies of the custody record into the shipping container.

The inspector will obtain custody seal(s) (Figure 2-8), and will sign and date them. The custody seal(s) will be used to seal the sample shipping container lid and will be covered with transparent packaging tape.

Upon receipt of the samples, the analytical laboratory will break the custody seal(s), open the shipping container, and sign "Received by" line on the sample chain of custody form. The laboratory will verify that the custody seal was intact at the time of opening. The analytical laboratory will then forward the original sample chain of custody form to Prezant to indicate that sample transmittal is complete. A copy of the sample chain of custody form will to be kept on file by the laboratory.

These chain of custody procedures must be followed for each shipment of samples.

Analytical Procedures

All suspected ACM bulk samples collected will be analyzed by polarized light microscopy (PLM) using the Interim Method for Determination of Asbestos in Bulk Insulation Samples (EPA Method 600/M4-82-020). At least two laboratories will be used: one for the regular samples, and another independent lab for analysis of QC samples. Both laboratories are currently certified by the National Volunteer Laboratory Accreditation Program (NVLAP) and will maintain this certification throughout the duration of the project.

If all PLM sample results for a homogeneous material indicate that the material does not contain asbestos or if the maximum quantity of asbestos found was a trace amount, the samples may be reanalyzed (at the Project Manager's and laboratories' discretion) by the transmission electron microscopy (TEM). In general TEM analysis will be reserved for negative materials that contain asphalt, vinyl, or other binders that may have interfered with the PLM procedure.

Plaster materials containing less than or equal to 3 percent asbestos will be reanalyzed utilizing the point-count method. If re-analysis determines that less than 1 percent asbestos is present, then the material will be considered not to be ACM. Laboratories will use the codes listed in Table 2-4 when reporting each result.

Table 2-4 Laboratory Observation Codes

Color Type	Code	Description
	0	Orange
	1	Brown
	2	Gray
	3	Tan
	4	White
	5	Red
	6	Various
	7	Black
	8	Silver
	9	Blue
	10	Green
	11	Yellow
Fibrous Codes	1	Fibrous
	2	Non-fibrous
	3	Other
Homogeneous Codes	1	Homogeneous
	2	Heterogeneous
	3	Other
	4	Not Applicable (NA)
Treatment Codes	1	Teased
	2	Crushed
	3	Dissolved
	4	Ashed

Figure 2-7 Suspect Asbestos Bulk Sample Chain of Custody form

Figure 2-8 Suspect Asbestos Bulk Sample Custody Seal

Custody Seal

<i>Custody Seal Custody Seal Custody Seal Custody Seal</i>
<i>Date _____</i> <i>Initials _____</i>

2.7 Documentation and Reporting

Filing System

Documentation relating to information for each individual building/structure or group of buildings/structures will be kept in 6-part file folders.

CADD Drawings

AutoCADD drawings of each building/structure or group of buildings/structures supplied by the Corps of Engineers will be utilized to depict sample locations. The sample locations will be hand-sketched onto the CADD prints and included in the final reports.

Weekly Reports

A one-page report will be provided to Bill Graney of the Corps by fax every Monday morning while work is underway. The report will consist of the following information:

- Buildings/Structure for which inspections were completed in the previous week; and
- Building/Structures scheduled for completion in the current weekly period.

Final Asbestos Survey Reports

A comprehensive final Asbestos Survey Report will be prepared after all survey and analytical work is completed. In addition, a separate report shall be prepared for each structure and premises surveyed. These reports will contain all information requested in Delivery Order 4 for contract DACA67-95-D-1018 dated May 5, 1997, including the following information:

- Summary of on-site survey activities;
- Tabular summary of findings for all building materials surveyed, indicating type and location. For confirmed or assumed asbestos, the estimated quantity, condition, and percent asbestos content;
- Characterization of all confirmed or assumed ACM, including type, specific location, relationship of ACM to building systems, quantity estimates, hazard assessment, and abatement control alternatives;
- Signatures of accredited inspectors, with certification numbers; and

- The brick red folders containing all project documentation, including the CADD drawings with field sketches.

2.8 Quality Control

The asbestos inspector will collect at least one quality control (QC) sample for each 20 regular samples with a minimum of at least one QC sample per building/structure or group of buildings/structures. QC samples are collected by splitting a regular sample. Care will be taken to help ensure that all layers of the samples are evenly divided. The QC sample will be analyzed by a second laboratory to confirm the results of the primary laboratory. The QC sample will be assigned the same sample number as the original sample, except the QC sample number will end with a "Q." QC samples will have their own chain of custody form (Figure 2-9).

Results from analyses of QC samples and related regular samples will be compared by Prezant staff. Samples which are not in agreement (e.g., positive or negative for asbestos) will both be reanalyzed by the appropriate method by the respective labs. Continued disagreement between the labs after re-analysis will result in declaring the sample as positive for asbestos.

**Figure 2-9 Suspect Asbestos Bulk Sample Chain of Custody for QC
Samples**

3.0 SITE-SPECIFIC SAFETY AND HEALTH PLAN (SSSHP)

ASBESTOS SURVEYS
CAMP BONNEVILLE WASHINGTON
DATE REVISED: June 26, 1997

3.1 Introduction

SSSHP Review

Prezant Review:	
Jim Catalano, CIH Certified Industrial Hygienist Project Health and Safety Officer	Date
Dick Sawyer Project Manager	Date

U. S. Army Corps of Engineers Review:	
Signature	Date
Name (print)	

Table 3-1 - Emergency Contingency Information

SITE LOCATION	Camp Bonneville Washington						
EMERGENCY INFORMATION	<table> <tr> <td>Police</td> <td>911</td> </tr> <tr> <td>Fire</td> <td>911</td> </tr> <tr> <td>Ambulance</td> <td>911</td> </tr> </table> <p>Southwest Washington Medical Center (see map 3-1)</p>	Police	911	Fire	911	Ambulance	911
Police	911						
Fire	911						
Ambulance	911						
EMERGENCY CONTACTS	<p>Chuck Haigh, Prezant Associates (206) 281-8858 Tim Grube, Corps Health and Safety Office (206) 764-3503 Bill Graney, Corps of Engineers (206) 764-3494 Jerry Cummings, Bonneville Facility Manager (360) 694-3280</p>						
IN EMERGENCY, CALL FOR HELP AS SOON AS POSSIBLE	<p>Give the following information:</p> <ul style="list-style-type: none"> · Where you are (cross streets or landmarks) · Phone number you are calling from · What happened - type of injury, accident · How many persons need help · What is being done for the victim(s) · You hang up last - let whomever you called hang up first 						

Communication

Cellular phones will not work at Camp Bonneville. The Prezant field crew will check in with Mr. Cummings each morning, lunch break, and end of shift during the project.

Plan Distribution

This SSSHP is for use by all Prezant and subcontractor personnel working on the asbestos surveys at Camp Bonneville, Washington. A copy of this plan shall be readily available at all times that Prezant employees are on-site. All employees assigned to site work shall read, sign, and abide by this SSSHP. Table 3-1 lists emergency contacts for the site. This SSSHP was prepared on June 11, 1997, by Jim Catalano, CIH, for Prezant activities relating to the referenced site.

Brief Description of the Site

Camp Bonneville is a U.S. Army installation located approximately 20 miles east of Vancouver, Washington. Numerous structures, including residential and multi-use buildings, are present on the site.

Brief Description of Planned Field Activities

The following field activities are currently planned:

- Collect samples of suspect asbestos-containing material (ACM).

Contamination Characterization

It is not anticipated that asbestos survey activities will typically involve substantial disturbance of other site contaminants. However, if inspection personnel have the potential for exposure to other site contaminants, protective clothing listed elsewhere in this plan (paragraph 3.6) will be followed.

Regulatory Compliance

Prezant ensures that all personnel comply with the basic provisions of the following as applicable to the specific project tasks:

- Washington State General Safety and Health Standards Chapter 296-24 WAC, Chapter 296-65 WAC, and General Occupational Health Standards Chapter 296-62 WAC;
- Occupational Safety and Health Administration (OSHA) Regulations (29 CFR 1910);
- U.S. Army Corps of Engineers Health and Safety Requirements Manual, EM 385-1-1 September 1996; and
- Southwest Air Pollution Control Authority

3.2 Hazard Assessment and Risk Analysis

Chemical Hazards

Descriptions of the principal health hazards of the contaminants of concern follow:

Asbestos. Asbestos fibers are usually mixed with various binder materials or resinous matrices. Collecting bulk samples of building materials may release extremely low concentrations of asbestos fibers. Asbestos occurs as bundles of fibers that, when disturbed, are easily separated into smaller and smaller sizes. Micron-size fibers tend to remain airborne and, because of their small size, can be inhaled down to the alveolar surface (smallest ends of air passageways) of the lungs.

Exposure to elevated levels of airborne asbestos fibers is known to cause a number of asbestos-related diseases, including asbestosis (fibrosis of the lung), mesothelioma (cancer of the lining of the lung), and other cancers of the lung, esophagus, stomach, and colon. Although the risk of developing asbestos-related diseases is greatest for individuals who are regularly exposed to relatively high airborne asbestos fiber concentrations (e.g., industrial asbestos workers), it is apparent that some degree of elevated risk exists for individuals chronically exposed to low airborne asbestos fiber concentrations, which may be present in a building that contains friable ACM. The actual degree of risk associated with prolonged exposure to asbestos levels in this range is still unknown at this time; however, it is prudent to take steps to limit asbestos exposure to the lowest extent possible.

OSHA has established standards for limiting the exposure of personnel working with asbestos. As described in the OSHA Standard (29 CFR 1926.1101), the current permissible exposure limit (PEL) for asbestos, as an 8-hour time weighted average (TWA), is 0.1 fiber per cubic centimeter of air (f/cc). There is no OSHA standard regarding asbestos exposure for the general public.

Potential Exposure Routes

Inhalation. Exposure via this route could occur if large amounts of asbestos dusts are encountered during sampling activities.

Skin Contact. Skin contact with asbestos are not considered significant routes of entry of those materials.

Ingestion. Exposure via this route could occur if individuals eat, drink or perform other hand-to-mouth contact while conducting sampling.

Permissible Exposure Limit

The Permissible Exposure Limit for asbestos is 0.1 fiber/cubic centimeter (f/cc), averaged over an 8-hour period. See Section 3.8 for air monitoring procedures.

Physical and Other Hazards

Physical hazards associated with transportation to and from the site, and site activities include those listed in the Activity Hazard Analysis, Table 3-2. No other physical, radiological, biological, or safety hazards are indicated for the work at this site.

3.3 Accident Prevention

The Activity Hazard Analysis is presented in Table 3-2.

Table 3-2 - Activity Hazard Analysis

Activity	Hazard	Control(s)
Driving to, on, and from the site	Striking pedestrians, runaway vehicles, striking structures, overturning vehicles	Wear seat belts at all times while vehicles are in motion. Use licensed drivers. Define vehicle routes of travel. Obey Washington State driving regulations. Do not drive over holes or down sides of improperly sloped depressions.
General site activities	Stinging insects (bees, wasps, spiders)	Use care when sampling near dense vegetation. Be sure individuals allergic to insect bites (if any) have obtained prescription for insect-bite kit.
	Contact with unexploded	Stay on roads or in areas in the immediate vicinity of the

	ordinances (UXOs)	buildings being surveyed. Do not venture away from these areas under any circumstances. Under no circumstances will any member of the field crew touch or otherwise disturb any suspect UXO encountered. The item will be immediately reported to the Camp Bonneville Facility Manager and within 12 hours to the Seattle District Project Manager.
--	-------------------	---

Table 3-2 - Activity Hazard Analysis (continued)

	Contact with dusts or heavy equipment from other site remediation activities	Coordinate activities with other site workers, as appropriate, and keep a close lookout for movement of heavy equipment, trenching and drilling operations, etc.
	Inhalation of asbestos in dusts from debris piles and from damaged insulation.	Wear protective clothing, and air-purifying respirators as appropriate.
	Bird droppings/manure	Wear protective clothing, and air-purifying respirators as appropriate if the bird manure dust is bothersome.
	Slipping on wet or oily surfaces	Wear appropriate slip-resistant boots
Collecting bulk suspect asbestos samples	Inhalation of asbestos in dusts	Use wet methods to collect samples. Spray areas damaged by sampling with adhesive or encapsulant to hold down fibers.
Using sharp tools	Cuts and punctures	Use extreme care when cutting or chipping samples with sharp instruments. Retract blades into containers, or hold blades and sharp tools away from body when walking.
Working at heights on ladders	Falls from heights, ladders slipping, dropping items	All ladders will be placed at a proper angle equal to 1 length of run for every 4 lengths of rise. Ladders will be tied off before work at heights will be attempted. Only Class I ladders with 300 lb. weight limits will be used. Weight limits on ladders will not be exceeded. Ladder footings will be level and on non-slippery surfaces before climbing. Individuals working under ladders will wear hard hats to protect against dropped objects. Requirements for

		working at heights listed by WISHA and in Corps of Engineers Safety Manual will be followed.
--	--	--

3.4 Staff Organization, Qualifications, and Responsibilities

Project Manager -Dick Sawyer

Mr. Sawyer will have overall responsibility for the fulfillment of the contract requirements.

Delivery Order Manager - Chuck Haigh

Mr. Haigh will have responsibility for production of the product. His duties include management of the technical and administrative activities. The Delivery Order Manager, works in coordination with the Certified Industrial Hygienist (CIH) for continued safety and health surveillance. The Delivery Order Manager has authority to act on all health and safety measures and to establish new controls as needed.

Certified Industrial Hygienist - Jim Catalano, CIH

Mr. Catalano will be responsible for Health and Safety issues associated with the project. He is a CIH and has over 10 years of working experience on environmental projects. As the Prezant CIH, Mr. Catalano reviewed the SSSHP, ensures training of employees, and provides overall management of the health and safety requirements covered in the SSSHP. The CIH is Prezant's representative, with overall responsibility for the preparation, implementation, and enforcement of the SSSHP. The CIH has a broad working knowledge of state and federal occupational safety and health regulations and formal training in occupational safety and health. In addition, the CIH has demonstrable expertise in air monitoring techniques and in the development of respiratory protection programs.

Periodic Inspections by CIH. The CIH shall conduct periodic inspections as necessary to determine the overall effectiveness of the SSSHP. Any deficiencies shall be submitted to the Contracting Officer (CO) in writing and the SSSHP shall be modified accordingly. Should deficiencies at any time be of a nature that presents an immediate danger, the CIH or Site Safety Coordinator (SSC) shall stop all work in the area and initiate changes as required immediately.

Site Safety Coordinator -Adam Chawes

The SSC will be assigned to the site on a full-time basis for the duration of the field work with functional responsibility for implementation and enforcement of the SSSHP. This individual will be responsible for implementing this SSSHP in the field.

Field Technicians - Adam Chawes and Peter Radano

Mr. Chawes and Mr. Radano will be responsible for all duties performed in the field. The field technicians conduct the asbestos survey and all data entry that is done on-site. The field technicians are also responsible for maintaining/replacing all field equipment.

3.5 Training

All personnel performing visual inspections and collecting bulk samples of suspect ACM must be accredited building inspectors in accordance the Asbestos Hazard Emergency Response Act (AHERA) (40 CFR Part 763). All personnel conducting condition assessments must be accredited management planners in accordance AHERA. For those persons wearing respirators, annual respirator training will be provided as required by WAC 296-62-07109.

3.6 Personal Protective Equipment

Sampling personnel will be required to wear the appropriate personal protective equipment. The selection of equipment will be based on the structure walk-through prior to beginning the survey, observing personnel working in the building, and identifying and adhering to all safety signs posted for each area of a building inspected.

Persons collecting bulk samples of materials suspected of containing asbestos at Camp Bonneville may be protected, at the direction of the SSC, by wearing a half-face, air-purifying respirator. All respirators will be equipped with high-efficiency particulate air (HEPA) filter cartridges. A higher level of respiratory protection (e.g., full-face respirator) may be chosen at the inspector's discretion. Depending on the friability of the material to be sampled and the extent of debris present in the area being inspected (e.g., spray-applied insulation in an attic), a higher level of respiratory protection, Tyvek coveralls, protective booties, and latex gloves may be required. Additional protective equipment, such as a hard hat, may be required in portions of certain buildings being surveyed.

Employees expected to wear air-purifying respiratory protection must be fit tested for the brand and model respirator they will be wearing during sampling. Fit tests are required to be performed in accordance with the OSHA standard every 6 months.

Levels of Protection

Levels of protection specified by 29 CFR 1910.120, Appendix B, Parts A and B, are not applicable to work on this project. Protective equipment to be worn is described in the following section.

Protective Equipment

Respiratory Protection. It is not anticipated that respiratory protection will be necessary during routine sampling activities, except when damaged asbestos is present. A half-mask respirator with HEPA cartridges will be worn by the inspectors whenever undue risk of exposure to asbestos exists. Such situations could arise if sampling in areas with a large amount of suspect dust or debris.

Respirators, if used, shall be NIOSH/MSHA-approved. Cartridges shall be changed whenever breathing resistance increases noticeably. Cartridge changes shall be made only in areas outside the area in which respiratory protection is being used.

All respiratory protection will follow OSHA Safety and Health Standards 29 CFR 1910.134 and the Prezant Respiratory Protection Program, found in the Prezant Health and Safety Manual.

Chemical-Resistant Clothing. In general, protective clothing will not be necessary while conducting routine sampling. However, if sampling is to occur in areas with large amounts of

dust or debris, then regular Tyvek, or equivalent, garments may be used.

Gloves. Work gloves will be worn as necessary to avoid skin contact with sharp objects or rough edges on equipment.

Other Protective Equipment. Safety glasses will be used while sampling for asbestos. For individuals who require prescription glasses for their work tasks, prescription safety glasses will be made available at no extra cost to the individual.

3.7 Medical Surveillance

Persons collecting bulk samples of suspect ACM must be current in an annual medical surveillance program.

This program includes a pulmonary function test performed by trained personnel to record Forced Vital Capacity (FVC) and Forced Expiratory Volume in One Second (FEV1). As directed by the physician, an audiogram and visual acuity measurement, including color perception, and a resting EKG with 12 lead ECG and PA and lateral chest X-Ray, is also provided. Furthermore, the physician must certify in writing if a person can or cannot wear a respirator. Prezant personnel routinely get exit medical exams upon completion of employment.

A written medical opinion signed by a physician for each employee on site will be available upon request.

Prezant routinely provides results of the employee's medical exam to that employee. Any employee who develops a work-related time loss illness or injury during the period of the Contract shall be evaluated by the Prezant physician prior to allowing the employee to re-enter the work site.

3.8 Exposure Monitoring/Air Sampling

To determine asbestos concentrations during bulk sampling, air samples will be collected during bulk sampling efforts. Air samples will be collected per WISHA asbestos air sampling protocols and analyzed by Phase Contrast Microscopy (PCM). Results will be reported to Jim Catalano, CIH, for review.

3.9 Heat/Cold Stress Monitoring

Use of impermeable clothing reduces the cooling ability of the body because of evaporation reduction. This may lead to heat stress. Cold stress, or hypothermia, can result from abnormal cooling of the core body temperature.

Heat Stress

Signs of Heat Stress. "Heat stress" is a term that is used to describe progressively more serious symptoms, as follows:

- An initial rise in skin temperature due to increased blood flow to the skin (skin redness);
- Increase in heart rate, to more than 30 beats/minute above the resting level;
- Collapse, or heat exhaustion, due to inadequate blood flow to the brain;

- Dehydration, due to excessive sweating;
- Hyperventilation, resulting in a reduction of the normal blood carbon dioxide concentrations;
- Tingling around the lips, dizziness, cramping of muscles of hands and feet, and blackout; and
- "Heat stroke," characterized by unconsciousness, hot dry skin, and absence of sweating.

Control of Heat Stress. On hot, sunny days (high radiant heat load), if using impermeable work clothing, maintain appropriate work-rest cycles (progressively longer rest breaks in a cool location or the shade as temperature and work tasks increase) and drink water or electrolyte-rich fluids (Gatorade or equivalent) to minimize heat stress effects. Impermeable clothing will only be worn when absolutely necessary for control of hazardous chemicals.

Also, when ambient temperatures exceed 70 degrees F, employees will conduct monitoring of their heart (pulse) rates, as follows:

- Each employee will check his or her own pulse rate at the beginning of each break period;
- Take the pulse at the wrist for 6 seconds, and multiply by 10; and
- If the pulse rate exceeds 110 beats per minute, then reduce the length of the next work period by one-third.

Example: After a one-hour work period at 80 degrees, a worker has a pulse rate of 120 beats per minute. The worker must therefore shorten the next work period by one-third, resulting in a work period of 40 minutes until the next break.

Treatment of Heat Stress. Individuals affected by mild forms of heat stress (heat exhaustion, dehydration, or cramping) should take a break in a cool or shaded location, drink liquids, and sit or lay down until feeling better. Shorter work periods should be used until temperature cools off.

Individuals affected by heat stroke are in critical condition. Summon emergency aid immediately, remove clothing, and bathe individual in cool water continually to bring down body temperature.

Hypothermia

Hypothermia can result from abnormal cooling of the core body temperature. It is caused by exposure to a cold environment, and wind-chill as well as wetness or water immersion can play a significant role. The following discusses signs and symptoms as well as treatment for hypothermia.

Signs of Hypothermia. Typical warning signs of hypothermia include fatigue, weakness, loss of coordination, apathy, and drowsiness. A confused state is a key symptom of hypothermia. Shivering and pallor are usually absent, and the face may appear

puffy and pink. Body temperatures below 90 degrees F require immediate treatment to restore temperature to normal.

Treatment of Hypothermia. Current medical practice recommends slow rewarming as treatment for hypothermia, followed by professional medical care. This can be accomplished by moving the person into a sheltered area and wrapping with blankets in a warm room. In emergency situations where body temperature falls below 90 degrees F and heated shelter is not available, use a sleeping bag, blankets and/or body heat from another individual to help restore normal body temperature.

3.10 Standard Operating Safety Procedures

Equipment

Motor Vehicle Operation (General). All employees who may operate motor vehicle equipment at or during transportation to the job site must hold a valid driver's license. Seat belts must be worn at all times when the vehicle is in motion. Vehicles must be operated in compliance with applicable state and federal laws as well as the provisions of WAC 296-155-600 through 296-155-630. Vehicles shall also be inspected in a regularly scheduled maintenance program. Visual inspections of the vehicle safety equipment will be performed daily. Maintenance records and daily inspection checklists must be maintained for the duration of the project plus one year.

Observe traffic patterns and stay out of the way. Traffic routes will have been established and demarcated by the UXO contractor. It is essential that all vehicular and personnel remain within the demarcated travel routes while on site.

Hand and Power Tools. Hand tools would include chisels, knives, and other devices used to collect building material samples. Care will be taken to avoid injury from routine use of tools.

Electrical Hazards

Electrical Circuits. No samples of electrical cords will be taken. Care will be maintained to avoid damage to existing building electrical circuits during all sampling activities.

Lockout/Tagout Procedures. It is not anticipated that work procedures requiring lockout/tagout will be performed during this project by Prezant personnel, as no confined spaces with energized parts or equipment will be entered.

Working around Power Lines. If sampling on roofs, care will be taken to avoid power lines to buildings.

Working at Heights/Fall Protection

Sampling on roofs will generally be from ladders. Care will be taken to use ladders properly, using the following guidelines:

Ladders will be set up so that a ratio of 1:4 (distance from base of building to height of ladder against building) is maintained at all times. An individual will remain on the ground to steady the ladder while another individual is climbing or descending. Items will not be passed up or down from ladders. No items will be intentionally dropped from ladders.

Individuals sampling on roofs will wear slip-resistant shoes or boots, and will not take any risks in collecting samples.

Explosives

Ordnance has been found at the site. Unexploded ordnance (UXO) may explode if disturbed. White phosphorus ignites on exposure to air and can cause ordnance to detonate. Radio frequency electromagnetic radiation may cause ordnance to detonate. Radios should not be used for communication in the exclusion zone. All personnel need to stay on the roads or in the immediate vicinity of the structures being surveyed. Under no circumstance is any person to go in the wooded areas or the open fields at Camp Bonneville.

Trenching and Excavation

No excavation or trenching will be conducted for this project.

Fuels, Cleaning Solutions, and Chemical Handling

No fuels or chemicals are anticipated for this project. Cleaning solutions will be limited to amended water for cleaning asbestos-sampling tools.

Hot Work

No hot work on site is anticipated for this project, as no welding, cutting, or burning is planned.

Slip and Fall Prevention

Suitable slip-resistant boots will be worn whenever conditions dictate. Site conditions are such that tripping over debris presents a real risk.

Compressed Gases

No compressed gases are anticipated for this project.

Confined Space Entry

Upon a visual inspection of Camp Bonneville by Chuck Haigh of Prezant Associates it has been determined that the field crew will not encounter any confined spaces during this project. Since the crawl spaces are above grade, the possibility of a build-up of toxic or oxygen displacing gaseous contaminants is non-existent. Moreover, these spaces are free of debris that would impede exit from the space. As such, the crawl spaces do not meet the OSHA definition of a confined space (1910.146). Similarly, there are no chemical or oxygen deficiency hazards present in the attics. Other hazards such as fall protection are addressed elsewhere in this SSSHP. If any confined spaces are found that do require entry, this SSSHP would require

modification. Furthermore, the field crew have completed six hours of confined space training and are capable of recognizing a potentially hazardous confined space. Should the crew encounter a questionable space, they will notify the CIH and a plan for evaluating the space will be developed and implemented prior to entry.

Housekeeping

Housekeeping

- Responsibility for good housekeeping rests with each employee and shall be enforced by the SSC.
- Keep all work areas clear (including all inside and outside areas).
- Clean up all liquid spills immediately to prevent slipping, or other hazards.
- Clean up the area after each job. Remove tools and surplus material, to their proper places. No job is complete until this has been done.

Illumination. All exterior work will be conducted during daylight hours only. Interior spaces will have electrical power and illumination. If necessary, flashlights will be used to illuminate dark areas for better visibility.

Sanitation. On-site sanitary facilities will be used.

Engineering Controls. Spraying a fine mist of deionized water on dry surfaces will be used to control dust release.

Hazard Communication. It is not anticipated that any chemicals requiring special hazard communication training will be brought on site during this project.

Signs and Labels. Labeling of all samples is discussed in the work plan sections of this document. Warning signs will not be necessary for this project, as it consists of short-term sampling as discrete locations for very brief periods.

3.11 Site Control Measures

No hazardous waste operations are anticipated to require sampling for this project, so site control requirements are not needed.

3.12 Personnel Hygiene and Decontamination

Respirators

All respirators, if used, shall be provided and maintained by the individual employer (Prezant and subcontractors) for their own employees and shall be cleaned per WISHA requirements and inspected daily (if used) by the individual user.

Disposable Materials

All disposable clothing, gloves, expendable protective wear, used respirator cartridges, and other disposable material generated during site activities shall be placed in suitable plastic bags and disposed of at an appropriate off-site waste disposal receptacle.

Personal Hygiene

All site workers will thoroughly wash hands and face before eating, drinking, or performing other actions with a hand-to-mouth component.

Minimization of Contamination

Do not kneel on contaminated ground, stir up unnecessary dust, or perform any practice that increases the probability of hand-to-mouth transfer of contaminated materials. Use plastic drop cloths and equipment covers where appropriate. Eating, drinking, chewing gum, smoking or using smokeless tobacco are forbidden while collecting samples. Coordination with other site workers will be accomplished, as necessary, to avoid cross-contamination.

3.13 Equipment Decontamination

Decontamination of equipment used in sampling is discussed in Section 2.6, ACM Sample Collection Procedures.

3.14 Emergency Equipment and First Aid Requirements

This section covers the emergency equipment to be utilized in the performance of the work.

Emergency Equipment

The following emergency equipment must be available on site at all times:

- First aid kit complying with 29 CFR 1926.50(d)(1);
- 1A 10BC fire extinguisher;
- A portable emergency eyewash bottle.

First Aid and CPR

Two individuals who are first aid/CPR trained shall be on site at all times when active work for this project is being conducted.

3.15 Emergency Response Plan

The Prezant Emergency Response Plan (ERP) outlines the steps necessary for appropriate response to emergency situations. This ERP addresses the following:

- Pre-Emergency Planning;
- Personnel Roles;
- Emergency Contacts;
- Emergency Recognition and Prevention;
- Site Characteristics;
- Site Evacuation;
- Medical Emergencies;
- Route to Hospital;
- Community Alert; and
- Critique of Emergency Response.

Pre-Emergency Planning

Although emergencies are unanticipated for the nature of work to be conducted for this project, field personnel shall always exercise caution and look for signs of potentially hazardous situations that could impact them or the project, including:

- Visible or odorous chemical contaminants;
- Live electrical wires or equipment;
- Underground pipelines or cables; and
- Poisonous plants or dangerous animals.

The ERP shall be reviewed, as necessary, during project-specific training.

Personnel Roles

The SSC shall act as the lead individual in the event of an emergency situation and evaluate the situation. He/she will determine the need to implement the emergency procedures, in concert with other resource personnel including client representatives, the Project Manager, and the CIH. Other on-site field personnel will assist the SSC, as required, during the emergency.

In the event that the ERP is implemented, the SSC or designee is responsible for alerting all personnel at the affected area by use of visual or verbal instructions, as appropriate. Cease all work immediately. Offer whatever assistance is required, but do not enter work areas without proper protective equipment.

Workers not needed for immediate assistance will leave the work area, pending approval by the SSC for re-start of work.

Emergency Contacts

Site personnel must know whom to notify in the event of ERP implementation. Table 3-1 will be readily available in each project vehicle's glove compartment. Refer to Table 3-1 for the following information:

- Emergency Contacts and Telephone Numbers; and
- Nearest Hospital.

Emergency Recognition and Prevention

Fires. Prezant personnel will attempt to control only very small fires. If an explosion appears likely, evacuate the area immediately. If a fire occurs which cannot be controlled with the 1A 10BC fire extinguisher located in the field equipment, then immediate intervention by the local Fire Department is necessary. Use these steps:

- Evacuate the area to a previously agreed upon, upwind location;
- Contact Fire Department (911); and
- Inform Project Manager of the situation, as soon as practicable.

Potentially High Chemical Exposure Situations. In some emergency situations, workers may encounter localized work areas where exposure to previously unidentified chemicals could occur. A similar hazard includes the situation where chemicals are unexpectedly present above permissible exposure levels and/or above the levels suitable for the personnel protective equipment at hand on site. If these situations occur, immediately stop work and evacuate the work area. Do not reenter the area. Do not attempt to rescue a downed worker from such areas without employing appropriate rescue procedures. Professional emergency response assistance (fire department, HAZMAT team, etc.) may be necessary to deal with this type of situation.

Site Characteristics

Prevailing weather conditions are rainy and cool during the fall and winter, mild during the spring, and warm during the summer.

Site Evacuation

In the unlikely event of an unforeseen release of a hazardous chemical, evacuate the sampling area to an upwind location. Since all individuals sampling will be within shouting distance, no special alarm system is anticipated as necessary. Contact

appropriate emergency authorities. No other situation calling for site evacuation is reasonably anticipated.

Medical Emergencies

Contact the emergency responders if a life-threatening medical emergency occurs. If any worker leaves the site to seek medical attention, another worker must accompany the patient to the hospital. When in doubt about the severity of an accident or exposure, always seek medical attention as a conservative approach. Notify the Project Manager of the outcome of the medical evaluation as soon as possible. For minor cuts and bruises, an on-site first aid kit will be available.

- If a worker is seriously injured or becomes ill or unconscious, immediately request assistance from the local emergency response agency (911). Do not attempt to assist an unconscious worker in an untested or known dangerous area without following appropriate rescue procedures.
- In the event that a seriously injured person is also heavily contaminated, use clean plastic sheeting to prevent contamination of the inside of the emergency vehicle. Less severely injured individuals may also have their protective clothing carefully removed or cut off before transport to the hospital.

If appropriate equipment or resources are not available on site, emergency removal will require professional assistance (fire department, rescue squad, etc.).

Route to Hospital

The nearest hospital is depicted on Figure 3-1.

Directions to Hospital

Exit Site at Main Gate
Head **West** on NE 88th St. proceed approximately 10 blocks
Turn left (**South**) on NE 222nd Ave., proceed 5 blocks
Turn right (**West**) on NE 83rd Street, follow to NE 182nd Ave.
Turn left (**South**) on NE 182nd Ave., follow 5 blocks to NE 78th Street.
Turn right (**West**) on NE 78th Street.
Turn **left** on NE Ward Rd., follow to State Rte 500 which becomes Fourth Plain Road.
Proceed on Fourth Plain Road to State Rte. 503
Turn **left** on SR 503, follow to I-205
Go **South** on I-205 to Exit 28 (Mill Plain Road).
Go **West** on Mill Plain Road to NE 92nd Ave.
Turn **right** on NE 92nd Ave, proceed to Hospital on left.

Southwest Washington Medical Center

Prezant
U126-1004

600 NE 92nd Ave.,
Vancouver, Washington
Telephone: 360-256-2064 (24-hr Emergency number)..

Figure 3-1 Map to Southwest Washington Medical Center

Community Alert Procedures

It is not anticipated that any Prezant site emergency would require the need to notify the local community, beyond that of calling the police or fire department. All accidents and unusual events shall be dealt with in a manner which minimizes continued health risk to site workers and the general public.

Critique of Emergency Response

The SSC will notify the Project Manager as soon as possible after the emergency situation has been stabilized. The Project Manager will notify the CIH, appropriate client contacts, and regulatory agencies, if applicable. If any individual is injured in conjunction with this project, the SSC will file a detailed Accident Report with the CIH within 24 hours. The Contracting Officer's Representative (COR) will receive a copy of the Report from the CIH.

The Project Manager, SSC, and the CIH will critique the emergency response action following the event. The results of the critique will be used in follow-up training exercises to improve the ERP.

3.16 Logs, Reports, and Recordkeeping

Site-specific health and safety records to be retained for this project include:

- Training records;
- Medical surveillance records;
- Daily safety inspection records;
- Asbestos air sampling results;
- Accidents, incidents, or unexpected events; and
- Other records as appropriate (see ER 385-1-92 Appendix B, Section 17b.)

These site safety records will be retained for 30 years.