

# Management Plan

## Transportation and Disposal of Household Waste Debris Pile

Camp Bonneville  
Vancouver, Washington

Contract Number: DACA67-97-M-0380

Submitted to:

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Revision 2, June 10, 1997

## REVISION 1 INSTRUCTIONS

Enclosed pages are replacements which revise the Camp Bonneville Transportation and Disposal of Household Waste Debris Pile Management Plan, 1 May 1997. Unchanged pages following or preceding changed pages are included in some cases or to ease in effecting the revision. USACE Seattle District comments are incorporated in this revision. A vertical bar appears to the right of the paragraph changed. All references to "Original", pertain to original 1 May 1997 pages in the work plan; all references to "New" pertain to the attached Revision 1, 9 June 1997 pages. Please follow the instructions below.

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## REVISION 2 INSTRUCTIONS

Enclosed pages are replacements which revise the Camp Bonneville Transportation and Disposal of Household Waste Debris Pile Management Plan, 1 May 1997. Unchanged pages following or preceding changed pages are included in some cases or to ease in effecting the revision. USACE Seattle District comments are incorporated in this revision. A vertical bar appears to the right of the paragraph changed. All references to "Original", pertain to original 1 May 1997 pages and Revision 1, 9 June 1997 pages in the work plan; all references to "New" pertain to the attached Revision 2, 10 June 1997 pages. Please follow the instructions below.

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## 1.0 INTRODUCTION

Environmental Chemical Corporation (ECC) is under contract (Contract Number: DACA67-97-M-0380) to the United States Army Corps of Engineers (USACE), Seattle District (hereafter referred to as "USACE Seattle"), to remove, transport and dispose of a household waste debris pile at Camp Bonneville, WA. UXO Avoidance will be conducted during the removal of this pile and confirmation of soils beneath the pile will be conducted to determine whether a hazardous or unknown substance release has occurred. UXO Avoidance is required to guarantee the safety and protection of both prime contract and subcontracted construction personnel and equipment.

### 1.1 Exclusion Clause (Deviations, Waivers or Changes)

Definitions of Deviations, Waivers and Changes are provided by the Government. Any departure or deviation from the procedures and processes specified in this Management Plan must be approved in writing by competent authority. Disputes, conflicts and grievances of a project work nature are resolved by adhering to specific contract and Federal Acquisition Regulation (FAR) applicable processes, steps contained therein, as well as communicating through accepted lines of authority.

### 1.2 (Reserved)

### 1.3 Management Plan Structure

ECC is tasked by USACE Seattle to develop Management, Sampling & Analysis and Activity Hazard Analysis plans that govern the Transportation and Disposal of the Household Waste Debris Pile at Camp Bonneville. The Sampling & Analysis and Activity Hazard Analysis Plans are included as subplans of the Management Plan. All definitions and general provisions outlined in the Introduction are applicable to all elements of the Management Plan and associated components. The contents of this Management Plan are subject to scrutiny and comment by Seattle USACE and representatives from ECC.



## 1.4 Applicability

The provisions of this UXO Work Plan are applicable to all ECC employees engaged in UXO avoidance, debris removal and sampling efforts performed under the auspices of this contract, and any individual/agent acting as a subcontractor or vendor to ECC to provide support services/commodities. Certain portions of this Management Plan apply to those personnel from a safety and health standpoint who might have dealings with ECC site personnel and who may visit the site. There are provisions herein with applicability to visiting personnel, primarily applying to safety precautions when suspect or actual UXO is encountered and for emergency notifications for the same or in the event of an accident or incident.

## 1.5 References/Publications

The publications listed below were researched in preparation of this Management Plan to ensure the Plan's completeness and accuracy for the Camp Bonneville site-specific conditions as they may effect this project: (FM=Field Manual; TM=Technical Manual; AR=Army Regulation; EM=Engineering Manual)

### Ammunition and Explosives

Safety Standards	DoD 6055.9-STD
Environmental Effects of Army Action	AR 200-2, AR 385-40, AR 385-63, AR 50-6, FM 5-260

Ammunition General	TM9-1300-206
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Identification of Ammunition for EOD	TM9-1385-51
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Artillery Ammunition	TM43-0001-28
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General EOD Safety Precautions	TM-60A-1-1-22
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USACE Safety Manual	EM 385-1-1
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USACE Sampling and Analysis	EM 200-1-3
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Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the National Contingency Plan (NCP)	Section 104 Sections 300.120 (e) and 300.400 (e);
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29 Codes of Federal Regulations	29 CFR 1910.120 and 1200
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49 Code of Federal Regulations	
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CEHNC's Basic Concepts and Safety Considerations for Unexploded Ordnance

CEHNC's Work Standards for Unexploded Ordnance (UXO) Personnel

CEHNC's MCX Quality Management Plan

ECC's Corporate Safety and Health Plan

Washington State and local applicable statutes and ordinances  
U.S. Army and Washington State applicable regulatory documents

## 1.6 Definitions, Abbreviations and Acronyms

In addition to those previously listed and addressed, the following terms, abbreviations and acronyms are used in this Work Plan:

**Access Procedures:** Those actions taken to locate exactly and to gain access to UXO, usually via excavation

**AP:** Army Pamphlet

**AR:** Army Regulation

**CEHNC:** United States Army Engineering and Support Center, Huntsville Center of Expertise (CX) and Design Center for Ordnance and Explosives

**EM:** Engineering Manual

**EMI:** Electromagnetic Induction

**Explosive Ordnance Disposal (EOD) Personnel:** Active duty military personnel who have graduated from an approved military school and specialize in handling UXO, CWM and other hazardous ordnance items;

**FM:** Field Manual

**Global Positioning System (GPS):** Satellite based survey and mapping instrument.

**Incidental UXO:** Unexploded ordnance discovered on the surface while searching for subsurface suspect ordnance (anomalies). Ordnance possibly overlooked during initial surface clearances.

**Inert Ordnance:** Inert ordnance is an item manufactured inertly to serve a specific training purpose or items certified free of explosives, incendiaries, reactive or other hazardous materials

**PPE:** Personal Protective Equipment

**Quality Control (QC):** The contractor's system to manage, control and document activities to comply with contract requirements

**RCWM:** Recovered Chemical Warfare or Weapons Materials - Any ordnance, dirt or scrap that has been potentially contaminated with a chemical compound designed for military operations to kill, seriously injure, or incapacitate persons through its chemical properties

**SAP:** Sampling and Analysis Plan

**SOP:** Standard Operating Procedures

**SOW:** Scope/Statement of Work

**SSHHP:** Site Safety and Health Plan

**Unexploded Ordnance (UXO):** An item of explosive ordnance which has failed to function as designed or has been abandoned, discarded, or improperly disposed of and is still capable of functioning, causing damage to personnel or

material. UXO is anything related to munitions designed to cause damage to personnel or material through explosive force, incendiary action, or toxic effects. This includes bombs, warheads, missiles and missile motors, artillery and its propellant, mortars, rockets and rocket motors, small arms ammunition, antipersonnel and antitank mines, demolition charges, fuzes, actuators, squibs, blasting caps and initiators, demolition materials, grenades, torpedoes and depth charges, flares, depleted uranium rounds, military chemical munitions/agents, and all similar and related items or components, explosive in nature or otherwise designed to cause damage to personnel or material (e.g. fuzes, boosters, bursters)

**UXO Personnel:** Former military EOD personnel who perform the same functions for civilian contractor firms

**UXO-related scrap/debris:** Ordnance-related scrap or debris is any portion of an ordnance item, excluding a complete round of either inert or live ordnance.

This includes: fragmentation, components of ordnance (such as tail fins, parachutes from retarding ordnance, tubes and assemblies, etc) but do not contain any explosive materials

**WP:** White Phosphorous

## 2.0 MANAGEMENT PLAN

This sub plan describes the method of work, and organization/responsibilities of site personnel in performance of transportation, disposal and confirmation sampling of the household waste debris pile at Camp Bonneville, WA.

### 2.1 Site Description/Background/Location

The household waste debris pile is located east of Landfill #3 at the burn pit area. The burn pit, a 10 foot by 15 foot area, is a former site used for the disposal of household debris, and building demolition debris. There is the possibility of unexploded ordnance (UXO) at the debris pile. Approximately 150 cubic yards of scattered debris will be removed and disposed of during this operation. Suspected hazardous material will be sampled and analyzed to determine the proper method of disposal. Confirmation soil sampling will be conducted to determine if an environmental release has occurred.

The burn pit, a 10 foot by 15 foot area, is a former site used for the disposal of household debris, and building demolition debris. There is the possibility of unexploded ordnance (UXO) at the debris pile.

To reach the property, from Interstate Highway 205, take Highway 500 exit and proceed east. At the intersection of Highway 500 and 503, turn right and continue east on Highway 500. Follow Highway 500 for approximately five miles until the first bridge is reached. Turn left before the bridge and follow yellow line road for approximately three miles to Camp Bonneville. Site location maps are located in Appendix A.

### 2.2 Scope of Work

The following bullets are a synopsis of the Project's Scope of Work:

- Perform UXO avoidance during segregation, removal and disposal of the household waste debris pile.
- Conduct confirmation soil sampling to determine whether an environmental release has occurred and identify contaminants to determine proper disposal and disposition
- Develop and submit for approval Management, Sampling and Activity Hazard Analysis Plans to govern field work.
- Prepare and submit a Project Final Report documenting the field work

and results of soil sampling.

This Plan does not contain provisions for:

- The removal of construction materials and investigation of UXO not incidental to the household waste debris pile
- Clearance of Chemical Warfare/Chemical Surety Materials

## 2.3 Project Objectives

The objectives of this effort are as follows:

- To provide a safe working environment for site personnel performing debris removal and disposal by performing an initial surface UXO sweep of the debris pile and ingress/egress routes to the site and exercising UXO avoidance during debris removal operations and confirmation sampling
- To ensure debris removed from the household waste debris pile is properly disposed of
- To conduct confirmation sampling of the soil beneath the household waste debris pile to ensure an environmental release of contaminants has not occurred
- To document field operations and findings in the Final Report

## 2.4 Organization

The following personnel are required to perform household debris removal, UXO Avoidance and soil sampling at the Camp Bonneville household waste debris pile. The organizational chart for the Camp Bonneville Project is shown in Figure 2-1. Resumes for key personnel are located in Appendix B to this Management Plan.

### 2.4.1 Personnel Requirements

- Project Manager (1)
- UXO Supervisor/Site Safety Health Officer(1)
- UXO Specialists (1)
- Field Chemist (1)

### 2.4.2 Personnel Responsibilities

Personnel required to complete the project have the following duties and responsibilities:

## **Project Manager**

- Initiates start up of the project
- Ensures the Management, SAP and AHA plans are developed and implemented
- Coordinates with the UXO Supervisor in the development of policies and procedures to make the safest working environment possible.
- Designates key personnel.
- Provides overall planning, command and control of operation
- Approves reports/documents
- Provides liaison with USACE Seattle District Representative

## **UXO Supervisor**

- Responsible for, and directs all field activities
- Performs surface and subsurface UXO sweeps and UXO avoidance in support of debris removal and sampling efforts
- Provides ordnance, introductory and daily safety briefings to all personnel
- Maintains liaison with the local US Army Explosive Ordnance Disposal Company
- Responsible for project property/equipment
- Ensures that all field operations are conducted efficiently and safely and all UXO is marked and reported
- Ensures operational, safety procedures/precautions are followed at all times in accordance with the Activity Hazard Analysis (AHA) Plan
- Maintains OSHA 200 Log

## **UXO Specialist**

- Performs surface and subsurface UXO sweeps and UXO avoidance in support of debris removal and sampling efforts
- Removes, inspects and loads debris
- Performs sampling
- Performs daily equipment checks

## **Field Chemist**

- Removes, inspects and loads debris
- Directs sampling efforts
- Performs hazcatting of suspected hazardous waste
- Provides sampling QC
- Prepares samples for shipment

- Interfaces with the analytical lab for sampling results



## 2.5 Project Schedule

All project field tasks will be accomplished within three days. The project schedule (figure 2-2) outlines the entire project from plan development to Final Report generation, and is based on the SOW and contingent upon plan approval and USACE Seattle and ECC scheduling.

Due to the inherent risks associated with this type of operation, ECC personnel performing UXO operations are limited to a 40 hour work week. Both the hours and days of operation are at the direction of the UXO Supervisor, to allow for weather delays and ensure that work is safely accomplished during daylight hours.

## 2.6 Method Of Accomplishing Work

ECC will provide all necessary equipment and personnel to remove, transport and dispose of household waste debris and perform confirmation sampling of the household waste debris pile at Camp Bonneville, WA as defined in the Statement of Work (SOW). All tasks required during performance of this contract are detailed in the following paragraphs. All UXO found during operations are evaluated, marked and reported in accordance with this plan.

## 2.7 Equipment Requirements

Equipment listed in the following paragraphs is required to accomplish the various tasks of this project. All equipment used during the project is the property of ECC. Government furnished equipment will not be used during this project. The UXO Supervisor will be responsible for the inventory and upkeep of project equipment.

### 2.7.1 General Team Equipment

General Site Team Equipment consists of the following:

1 each	Crew Vehicle
1 each	Cellular Phone
2 each	Crew handheld radios HT-1000
1 each	Camp Bonneville Range Control radio (sign out from Range Control)
1 each	5 gallon water container

- 1 each First Aid kit
- 1 each Fire extinguisher
- 1 each Copy of this Management Plan
- 1 bundle Marking flags, various colors

### 2.7.2 Personal Protective Equipment

Each member of the Site Team will be required the following equipment:

- 1 each Hearing protection
- 1 each Hard Hat, if overhead hazard exists
- 1 pair Safety Boots
- 1 pair Rubber Gloves, for sampling activities
- 1 pair Leather work gloves
- 1 pair Safety glasses
- As Req Level D work clothing

### 2.7.3 Debris Removal Equipment

Specialized equipment is not required for this task as a roll-off construction container will be placed in close proximity to the debris pile and will be hand-loaded.

### 2.7.4 UXO Avoidance Equipment

The following specialized equipment is required for UXO avoidance during debris removal and sampling of the soils beneath the debris pile:

- 1 each Schonstedt GA-52 Gradiometer
- 1 each Fisher Impulse EMI All-Metals Detector

### 2.7.5 Sampling Equipment

Equipment required for confirmation sampling of the soils beneath the debris pile are listed in the Sampling and Analysis Plan, Section 3.

## 2.8 UXO Actions

UXO avoidance will be performed during all field tasks, as UXO was recovered previously in the vicinity of the debris pile. The UXO Supervisor/SSHO will visually monitor debris pile during removal and loading of debris. As UXO actions for this project are limited to UXO avoidance, subsurface anomalies will not be



excavated and investigated. UXO actions for this project also include UXO safety briefings and UXO area sampling point sweeps as detailed below. All UXO site activities will be conducted in accordance with applicable ECC Standard Operating Procedures (SOPs).

### **2.8.1 Anticipated UXO**

UXO is not anticipated to be found in the household waste debris pile, however UXO precautions and avoidance will be observed, as UXO has been recovered from the general area.

### **2.8.2 UXO/Explosives Hazard Briefing**

Prior to the commencement of field activities, the UXO Supervisor will conduct a UXO and explosive safety briefing. This briefing will include UXO/explosives identification and the hazard marking system and may be given in conjunction with the daily tailgate safety briefing. Attendance to this briefing will be annotated on the daily tailgate safety briefing log. Additional UXO/explosive safety updates will be given as deemed necessary by the UXO Supervisor. The initial briefing will occur in conjunction with the initial Activity Hazard Analysis briefing

### **2.8.3 UXO Area Sweeps**

UXO avoidance sweeps will consist of a visual sweep of the debris pile before transportation and disposal. ECC's UXO Supervisor will conduct surface UXO sweeps prior to all field activities to clear sites for access by field crews. Surface sweeps will be performed along all ingress/egress routes and sampling sites. The UXO Supervisor will clearly mark all suspected surface/subsurface UXO to communicate hazards and allow avoidance by all site personnel. The on-site field chemist will provide the required size and location information of these sites to the UXO professional.

### **2.8.4 Sampling Point UXO Sweeps**

Prior to intrusive sampling activities, the UXO Supervisor will use a magnetometer to perform a subsurface sweep of the sampling points. Any anomalies detected will be marked for avoidance and the sampling point will be adjusted slightly to avoid the subsurface anomaly.

### **2.8.5 UXO Reporting**

All UXO actions and encounters are annotated on the UXO Daily Report. All recovered/located UXO/ suspect UXO will be reported to the Ft. Lewis EOD Detachment and included in the Project Final Report.

## **2.9 Debris Removal/Transportation/Disposal**

The removal, transportation and disposal of the household debris pile will be accomplished in accordance with the following paragraphs.

### **2.9.1 Debris Removal**

The household waste debris pile will be removed by the UXO/Sampling team and loaded by hand onto the construction debris roll-off container. All debris will be inspected prior to loading to ensure the item does not contain UXO or hazardous materials. Any items deemed hazardous will not be loaded onto the vehicle but placed to the side and the appropriate action taken. A loader will be used if the debris cannot be loaded by hand due to its weight or at the discretion of the UXO Supervisor/SSHO if hand-loading is deemed unsafe.

### **2.9.2 Transportation and Disposal of Debris**

Transportation and disposal of all non-hazardous waste recovered from the household waste debris pile will be accomplished by the vendor listed below. Their actions will consist of pick-up of the construction debris roll-off container, transport to the landfill and placement of the debris in the appropriate area.

BFI  
9422 N.E. 94th Ave.  
Vancouver, WA 98662  
(360) 892-9594

ECC is committed to use an approved recycling/reuse/disposal facility for disposal of all waste recovered from the debris pile. The disposal of all waste will be conducted in an environmentally acceptable manner conforming to all existing Federal, State and local regulations. Disposal of non-hazardous household debris will be accomplished at the landfill

listed below.

Central Transfer and Recycling  
110340 N.E. 117th Avenue  
Vancouver, WA 98662

### **2.9.3 Hazardous/Suspect Hazardous Waste**

Hazardous/suspect hazardous waste will be segregated and covered to minimize the possibility of accidental dispersal. Hazardous waste will be hazcatted as outlined in Section 3, recorded by category, remain on site, and the list sent to the Ft. Lewis BRAC office immediately upon completion of the field work. Hazcatted hazardous waste will also be documented in the Final Report.

### **2.9.4 Debris Reporting**

Written documentation will be provided in the Project Final Report of EPA and/or the Washington State Department of Ecology of notification disposal activities, if required.

## **2.10 Confirmation Sampling**

Confirmation sampling of soils beneath the household debris site will be accomplished in accordance with the Sampling and Analysis Plan(Section 3).

### **3.0 SAMPLING PLAN**

This Sampling Plan describes the sampling procedures and analytical parameters that will be followed during the course of this project. ECC plans to utilize the services of Analytical Resources, Inc. laboratory for this project. This laboratory is located in Seattle, Washington and is US Army Corps of Engineers - NPD validated and approved. A copy of the approval letter from USACE is placed in Appendix E for reference. Also, the QC document from the laboratory is appended to the plan. Additionally, hazcatting procedures are outlined for use in the event that unknown materials are discovered during removal of debris.

#### **3.1 Sampling associated project tasks**

The field activities associated with sampling consist of:

- Screening the debris pile for presence of UXO as described in Section 2
- Dividing the sampling area to develop sampling points
- Sampling soil in compliance with EPA, USACE and State protocols

#### **3.2 List of On-site Equipment, Containers, and Other Supplies**

ECC uses the following equipment to take samples on-site:

- Disposable gloves
- Stainless steel trowel/spoon
- Stainless steel bowl
- Distilled water for decontamination
- 16 oz. Sample Jars with Teflon sealed caps purchased from an EPA-approved supplier
- Cooler maintained at 4°C to preserve samples onsite
- Blue ice/ice for sample preservation
- Plastic bags
- Labels for sample containers of good quality
- Bubble Wrap/packing materials
- Packing Tape.
- Hazcat Kit
- Custody seals and forms
- Non-phosphate surfactant
- Catch container for rinsate

### 3.3 Sampling and Analytical Procedures

#### 3.3.1 Sampling Frequency

Three composite soil samples and one Quality Assurance (QA) sample will be collected from the soil beneath the debris pile. The 10 by 15 foot area will be divided by three equidistant lines on both the long and short sides of the rectangle. Each composite sample will consist of soil taken from the intersection of these lines on each plane as shown in figure 3-1. One of the composite samples will be split to obtain the QA sample. Two 16 oz. jars of sample will be obtained for each composite and QA sample. Sampling locations and depths may be adjusted at the judgement of the field chemist in accordance with soil stains observed after removal of debris.

#### 3.3.2 Procedures for Sampling Equipment Decontamination

During sampling activities, appropriate decontamination measures shall be taken to minimize sample contamination from external sources such as sampling equipment or sample containers. Decontamination procedures for sampling equipment will consist of the following:

- Non-phosphate surfactant wash
- Tap water rinse
- Acid rinse using 10% HNO<sub>3</sub> /distilled water solution
- Solvent rinse using methanol
- Final rinse using distilled water

Acid rinsate will be neutralized using baking soda. Rinsate catch containers will remain on site with the staged hazardous/suspected hazardous material until determined non-hazardous after sample analysis.

#### 3.3.3 Sample Collection Procedures

The following is the procedures that ECC will follow for the collection of soil samples.

- UXO Avoidance in accordance with Section 2.
- Soil samples will be collected with the help of a stainless steel trowel/spoon
- Sampling equipment will be decontaminated in accordance with 3.3.2 above
- All samples collected shall be preserved according to EPA and/or USACE protocols established for the parameters of interest as described in table 3-1. Information regarding sample depth will be recorded on the appropriate ECC Representative Sampling Document. An example of this form is included in Appendix F;
- The collected soil samples will be placed in the glass jars with Teflon end caps. The jars will be sealed with the custody seals and then will be placed inside a plastic bag, taped shut, and placed in the corresponding ice chest. Bubble wrap will be used as packing material to secure the jars

- while transporting to the laboratory;  
Chain of Custody (COC) forms will be attached to the sample transport container. ECC's standardized COC forms are included in Appendix G.

- Plastic bags containing ice or blue ice will be placed inside the ice chest in order to maintain its contents at the required 4° C temperature. Custody seals will be used on the ice chest. In addition, a chain of custody form and an analytical request form will accompany each ice chest.

### 3.3.4 Labeling

Sampling locations will be numbered sequentially and be shown on a sketch in the field sampling log book. Each sample container will be clearly identified with the field sample number, date/time of sampling, and the names of the sampling personnel. Field information will be written in indelible ink, and label will be affixed in such a manner to ensure it does not become separated from its respective container. The numbering system for the sampling locations will be coordinated with the on-site representative to ensure that the proposed four-digit identifiers are discrete and have not been used elsewhere for other sampling locations in the data set.

ECC will utilize an alpha-numeric system to identify sample ID strings, consisting of three or four character strings, with an additional two characters for the QA sample. The format is:

CBDP-xaaa-bb

CBDP stands for Camp Bonneville Debris Pile. The second string, "xaaa" indicates the unique sample numbering scheme for this location. "x" describes the sample medium, where 1=groundwater, 2=soil or rock, 3=tank contents, 4=rinsate/decontamination fluid, 5=surface water. String "aaa" will be used to number the samples sequentially. The third string, "bb" will be used to identify QA sample. TB indicates a trip blank, while EB indicates equipment blank.

The specific numbering scheme for use on this removal action will result in the first composite soil sample taken from the soil beneath the debris pile being labeled as follows:

CBDP-2001.

ECC utilizes good quality labels, so that they will not "float" or soak off, destroying the integrity of the sample. Clear plastic tape may be used to augment the integrity of the label in moist conditions. Sample tags

may also be used in addition to the labels. Sample ECC labels are presented in Appendix H.

Apart from the above, each sample label will have date and time at which the sample was taken and the sampler will put down his/her name and initial the label. All the information mentioned above will be recorded in field log book. The field log book will also contain the salient observations and the location map of each sample collected.

### **3.3.5 Packaging and Shipping**

ECC will follow the procedures listed below for packaging and shipping the samples:

- The samples will be stored in water-proof insulated plastic coolers;
- The sample will be kept in a glass jar with Teflon lid;
- Three inches of inert cushioning material (bubble wrap) will be placed at the bottom of the cooler;
- The jars will be enclosed in clear plastic bags, through which sample tags and labels will be visible. The jars will be kept upright in the cooler;
- An additional layer of inert packing material will be placed to partially cover sample jars. Bags of ice will be placed on top, around, on and among the jars. A preliminary temperature of the cooler contents will be recorded in the field logbook to assure a packaging temperature near 4° C;
- Remaining space of the cooler will be filled with packing material;
- The chain of custody record will be placed in a water proof plastic bag and taped to the inside portion of the lid of the cooler, using masking tape;
- The drain of the cooler will be shut and the cooler will be secured by duct tape;
- The completed shipping label will be placed on the top of the cooler. "This Side Up" and "Fragile" labels will be attached on at least two sides of the cooler;
- The numbered and signed custody seals will be affixed on front right and back left of the cooler;
- ECC will insure minimum weight of each cooler, as per specifications.

The above described procedure will be followed for all samples. The samples will be Fed-Ex'ed overnight to:

Analytical Resource, Inc.



333 Ninth Ave. North  
Seattle, WA 98109-5187  
(206) 621-6490

### **3.3.6 Receipt for Samples**

This receipt compiles and describes samples obtained from the site. The original form will be retained by ECC's Project Manager (PM) to be filed at ECC's Corporate Headquarters and a copy will be given to the on site representative.

### **3.3.7 Sample Handling and Preservation Procedures**

All samples collected shall be preserved according to EPA protocols established for the parameters of interest. Appropriate measures should be taken to ensure that temperature requirements are maintained during transport to the laboratory, and prior to log-in and storage at the laboratory. ECC will follow the procedures recommended by USACE in "Chemical Data Quality Management for Hazardous Soil Remedial Activities, ER1110-1-293", for sample handling and preservation.

This sample handling protocol describes three different types of procedures. This protocol provides guidance on sample volume, containers, packing, shipping, for low, medium, and high sample concentration environmental samples taken for chemical analysis. Table 3-1 provides the summary of the analysis to be carried out, type of the containers to be used, kind of preservation required and holding times.

## **3.4 Internal Quality Assurance Objectives**

### **3.4.1 Accuracy**

All samples will be spiked with surrogate compounds, where applicable. The laboratory will perform matrix spikes and matrix spike duplicates on samples, as specified by USACE. All matrix samples will be fortified with a series of method target compounds. An additional aliquot of the samples will be analyzed unfortified. Accuracy will be measured in terms of percent recovery for each of the fortified compounds.

### **3.4.2 Sensitivity**

The sensitivity of each analytical method employed shall be determined according to the established standard protocols.

### **3.4.3 Precision**

The laboratory will analyze field duplicate samples and will report Relative Percent Difference (RPD) between each sample and duplicate. Field duplicates shall be collected at a frequency of one duplicate for each ten samples of a given matrix.

### **3.4.4 Completeness**

Completeness is a measure of the amount of valid data obtained from the analytical measurement system, expressed as a percentage of the number of valid measurements that should have been or were planned to be collected.

Completeness will be evaluated both qualitatively and quantitatively. The qualitative evaluation of completeness will be determined as a function of all events contributing to the sampling event including items such as correct handling of chain of custody forms, etc. The quantitative description of completeness shall be defined as the percentage of controlled laboratory QC parameters that are acceptable. Analytical Resource, Inc's analytical laboratory quantitative assessment for completeness will include surrogate percent recovery of organic analyses, analysis of field and laboratory for RPD, analysis of matrix spike/matrix spike duplicate analyses for percent recovery and RPD, and analysis of laboratory control samples for percent recovery. As per the requirement, laboratory QC Officer will supervise laboratory performance and achieve 90% quantitative assessment of completeness.

## **3.5 QA Sample**

This sample will be analyzed for the purpose of assessing the quality of the sampling effort and of the analytical data. QA samples include splits or replicates of field samples.

### **3.5.1 QA Samples**

One QA sample will be collected by the sampling team for analysis by the USACE North Pacific Division (NPD) Laboratory. This sample will be Fed-Ex'ed overnight to:

USACE North Pacific Division Laboratory  
1491 Graham Rd.  
Troutdale, Oregon 97060-9508  
ATTN: Pam Hertzberg  
(503) 666-8143

The identity of this sample is held blind to the analysts and laboratory personnel until data are in deliverable form. The purpose of the samples is to provide site-specific field-originated checks that the data generated by the laboratory are of suitable quality.

### 3.5.2 Soil Samples

One of the total soil samples collected shall be duplicate and designated as noted below:

1. A field sample to be shipped to Analytical Resource Incorporated's analytical laboratory
2. A QA replicate to be shipped to the USACE NPD analytical laboratory

### 3.6 Reporting

After the analysis from the laboratory is received, data from the debris pile site will be compared to the regulatory limits. Soil will be characterized based upon the comparison with 40 CFR part 261 and Washington State regulatory limits of the respective analytes.

The detailed analysis reports from the laboratory along with a chain of custody form, representative sampling documents, and field drawing denoting sample locations will be attached to Project Final Report.

### 3.7 "Hazcat" Fingerprinting Analysis

Fingerprint testing, many times referred to by the USEPA as Hazardous Categorization ("Hazcat") testing, is used to identify the general physical and chemical characteristics of waste material in the field. This procedure is used to develop criteria for field handling (e.g. compositing) and disposal requirements. This Sampling and Analysis Plan has been developed to provide

guidance for "hazcat" fingerprint tests and environmental sampling of the drums if found to be present in the debris pile. This will significantly reduce the number of samples that need a full analysis thereby reducing the analytical costs substantially.

Onsite compositing is a cost effective means to remove and dispose of the materials from the site. In order to composite the materials, the chemical characteristics of the materials in each container must be determined. Chemical characterization is performed on site to determine which materials are chemically compatible prior to the compositing procedure. This information is also necessary to properly complete the TSDF profiling activities and the DOT manifesting requirements. Fingerprinting will be done on each drum which has been inventoried and classified by ECC to check for compatibility and to identify waste streams which may require special handling.

### 3.7.1 Fingerprinting Process

The following field analysis provides a qualitative and semi quantitative analysis of the waste stream in order to ascertain any hazardous constituents in each sample. The following techniques may be used to determine unknown materials, if required.

#### Flammability Screen

An aliquot or sample is passed through a propane flame. The sample must sustain a flame on its own to be considered flammable. This test will determine if the sample has a flashpoint lower than 200 degrees Fahrenheit (approximate). During the test, chlorinated solvents give observable traits for further testing/segregation.

#### H2O Screen/Solubility

A small amount of the sample is mixed with water. Reactivity is visually checked by observations of the emitting of gas, an exothermic reaction, polymerization, etc. Water solubility is checked, inclusive of specific gravity for non-soluble material. This can aid in the separation of insoluble/soluble oils, solvents and chlorinated materials.

#### Chlorine Screen

Chlorinated materials will give specific observations during flammability and solubility tests. If further confirmation is required, a Bielsstein Wire Test can be used to check for the oxidation of copper by the chlorine ion in exothermal conditions.

### Corrosivity Test

Utilizing pH paper, or a pH meter, the pH is determined for less than 2 and greater than 10. The caustic pH level has been dropped to 10 (from EPA regulated 12.5) to facilitate the cyanide and sulfide screens.

### Oxidizer Screen

Using oxidizer test strip paper (potassium iodide), the sample is screened for reactive electrochemical potential.

### Peroxide Screen

Peroxide test strips will detect and qualify peroxides. The paper can be used to help separate organic and inorganic peroxides, an important factor in reactivity and stability evaluations.

### Cyanide Screen

ECC utilizes the Prussian Blue cyanide screen, capable of detecting greater than 50 ppm cyanide content (approximate).

### Sulfide Screen

ECC utilizes wet lead acetate test strips to evaluate off-gasses produced from acidified sample. This test detects sulfides down to approximately 10 ppm.

## 4.0 Activity Hazard Analysis Plan

### 4.1 General

The Camp Bonneville household waste debris pile project has been divided into three major phases of field work. These phases are:

1. Initial UXO sweep of the debris pile and ingress/egress routes/sample points
2. Debris inspection, removal and disposal
3. Confirmation sampling

Activities to be performed during these phases along with their potential hazards and recommended controls are shown in figures 4.1, 4.2 and 4.3. Hazards expected to be encountered during these phases of field work have been identified and analyzed in order to develop appropriate safety measures to provide a safe work environment. The overall hazard rating for this site is low to moderate. Accident prevention during the project will consist of adherence to the controls listed in the hazard analyses in combination with daily tailgate safety briefing. The UXO Supervisor/SSHO will inspect for and enforce the recommended controls listed in the Hazard Analysis.

### 4.2 Personnel Protective Equipment (PPE)

All personnel will utilize Level "D". Safety shoes, safety glasses and gloves will be worn while handling debris. Hard Hats will be worn as necessary to prevent injury from overhead hazards. The UXO Supervisor/SSHO will dictate a higher level of protection as required. Rubber gloves will be worn during sampling to prevent contamination of individuals.

### 4.3 Ordnance

Personnel will follow the below safety precautions:

- General Information
  - a. The cardinal principle to be observed involving explosives, ammunition, severe fire hazards or toxic materials is to limit the exposure of a minimum number of personnel, for the minimum amount of time, to a minimum amount of hazardous material consistent with a safe and efficient operation.

b. The age or condition of an ordnance item does not decrease the effectiveness. Ordnance that has been exposed to the elements for extended periods of time become more sensitive to shock, movement, and friction, because the stabilizing agent in the explosives may be degraded.

c. Consider ordnance that has been exposed to fire as extremely hazardous. Chemical and physical changes may have occurred to the contents which render it more sensitive than it was in its original state.

➤ On-Site Instructions

a. DO NOT touch or move any ordnance items regardless of the marking or apparent condition.

b. DO NOT visit an ordnance site if an electrical storm is occurring or approaching. If a storm approaches during a site visit, leave the site immediately and seek shelter.

c. DO NOT use radio or cellular phones in the vicinity of suspect ordnance items.

d. DO NOT walk across an area where the ground cannot be seen. If dead vegetation or animals are observed, leave the area immediately due to the potential contamination of chemical agent.

e. DO NOT drive vehicles into a suspected OEW area; use clearly marked lanes.

f. DO NOT carry matches, cigarettes, lighters or other flame producing devices into an OEW site.

g. DO NOT rely on color code for positive identification of ordnance items or their contents.

h. Approach ordnance items from the side, avoid approaching the front and rear areas.

i. Always assume ordnance items contain a live charge until it can be determined otherwise.

- Specific Action Upon Locating Ordnance
  - a. DO NOT touch, move or jar any ordnance item, regardless of its apparent condition.
  - b. Approach the item cautiously, take photographs and full description. Take notes of the markings or any other identifiers.
  - c. DO NOT be misled by markings on the ordnance item stating "practice bomb", "dummy" or "inert". Even practice bombs have explosive charges that are used to mark/spot the point of impact; or the item could be mis-marked.
  - d. DO NOT roll the item over or scrape the item to identify the markings.
  - e. The location of any ordnance items found during site investigation should be clearly marked so it can be easily located and avoided.
  - f. 27th Ordnance Company (EOD) should be notified upon location of any ordnance. See paragraph 4.4 for phone number.

#### 4.4 Emergency Response:

Team members are to be alert to the dangers associated with the site at all times. If an unanticipated hazardous condition arises, stop work, evacuate the immediate area and notify the SSHO.

A first aid kit and cellular phone will be located in the UXO Supervisor/SSHO's vehicle.

For emergency response or notifications use the below listed numbers:

MEDICAL FACILITY: 911 (360) 256-2064

FIRE DEPARTMENT: 911

POLICE DEPARTMENT: 911

POISON CONTROL CENTER (NJ): (800) 962-1253



USACE SAFETY OFFICE: Bill Graney (206) 764-3494

LOCAL EOD: 27th Ordnance Company (EOD)  
FT Lewis, WA  
(208) 967-5507

ECC PROJECT MANAGER: Chuck Welk  
(619) 576-0107  
Pager: (800) 748-2241

#### 4.5 Medical Emergencies

All injuries will be reported to the SSHO. If medical treatment is required the medical facility for this project is:

Southwest Washington Medical Center  
600 N. E. 92nd Avenue  
Vancouver WA  
(360) 256-2064

A hospital route map is included as Appendix D to this plan. Directions to this facility are as follows:

West on Pluss Rd. To N.E. 88th, (turn right)  
West on N.E. 88th St. to N.E. 222nd Ave. (turn left)  
South on N.E. 222nd Ave to N.E. 83rd St. (turn right)  
West on N.E. 83rd St. to N.E. 182nd Ave. (turn left)  
South on N.E. 182nd Ave. to State Route 500 (turn right)  
West on State Route 500 to Interstate 205 South (turn left)  
South on Interstate 205 to Exit 28, Mill Plain Rd.  
West on Mill Plain Rd. to N.E. 92nd Ave. (turn right)  
North on N.E. 92nd Ave to Hospital (on the left)

#### 4.6 Accident Reporting

The Project Manager will immediately contact the USACE Safety Specialist of

any accident/incident. Within two working days of any reportable accident, the Project Manager will complete and submit to the COR an accident report on ENG Form 3394 in accordance with AR 2385-0 and USACE Supplement 1 to that regulation.