FINAL INTERIM REMOVAL ACTION REPORT
LANDFILL 4/DEMOLITION AREA 1
FOR
CAMP BONNEVILLE, WASHINGTON

Prepared for:

Department of the Army
Atlanta Field Office
1347 Thorne Avenue SW
Building 243
Ft. McPherson, Georgia 30330-1062

Prepared by:

Tetra Tech, Inc.
800 Oak Ridge Turnpike
Suite A-500
Oak Ridge, Tennessee 37830

February 2006

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ACRONYMS

ARAR	applicable or relevant and appropriate requirement
ASTM	American Society for Testing and Materials
bgs	below ground surface
CADs	cartridge actuation devices
CAIS	Chemical Agent Identification Sets
CAPS	cartridge actuation devices
CAWP	Corrective Action Work Plan
CBL4	Camp Bonneville Landfill 4/Demolition Area 1
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CKPS	contaminants known to be present at the site
CLARC	cleanup levels and risk calculations
COPC	chemical of potential concern
CWM	chemical warfare agent
DoD	Department of Defense
EO	Enforcement Order
EOD	explosive ordnance disposal
EPA	U.S. Environmental Protection Agency
FCR	Field Change Request
ft	feet
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRA	Interim Removal Action
IRAR	Interim Removal Action Report
MC	munitions components
MD	munitions debris
MEC	munitions and explosives of concern
mg/kg	milligrams per kilogram
mm	millimeter
MPM	most probable munition
MTCA	Washington State Model Toxics Control Act
NCP	the National Oil and Hazardous Substances Pollution Contingency Plan
ND	non-detectable
OB/OD	open burn/open detonation
OSHA	Occupational Safety and Health Administration
PRG	preliminary remediation goal
QAPP	Quality Assurance Project Plan
QC	quality control
RAB	Restoration Advisory Board
RBC	risk-based concentrations

RTS	Robotic Total Station
SAP	Sampling and Analysis Plan
SOP	standard operating procedure
SUXOS	Senior Unexploded Ordnance Supervisor
USEPA	U.S. Environmental Protection Agency
UXO	unexploded ordnance
VOCs	Volatile Organic Compounds
WAC	Washington Administrative Code
WDOE	Washington State Department of Ecology

EXECUTIVE SUMMARY

This Interim Removal Action Report (IRAR) describes the approach, and documents the successful completion and final status of the interim soil removal action conducted at Landfill 4/Demolition Area 1 (the Site) located on the Camp Bonneville Military Reservation (Camp Bonneville) near Vancouver, Washington. The action was documented in the Time Critical Removal Action (TCRA) Action Memorandum (Department of Army 2005) for the site (initial draft dated September 2, 2004) after it was determined that the action was appropriate to protect the public and the environment based on the criteria described in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as codified in 40 CFR, §300.415(b)(2).

This interim removal action (IRA) represents the first of two phases of cleanup to be performed at CBL4 by the U.S. Army. The first phase included removal and disposal of open burn/open detonation ordnance and landfill materials, and associated contaminated soils. The second phase of the cleanup, if deemed necessary, will address groundwater contamination at CBL4. Tetra Tech, Inc. was contracted to perform the first phase of the cleanup under Contract No. DAAD11-03-F-0102 with the Department of the Army, Atlanta Field Office. The IRA for remediation of contamination at CBL4, involved excavation and disposal of the landfill material and associated soils contaminated above Washington State Model Toxics Control Act (MTCA) Method B cleanup levels for protection of groundwater for explosives, propellants, volatile organic compounds, and metals.

Remedial activities at CBL4 were completed under the Comprehensive Environmental Response, Compensation, and Liability Act; National Oil and Hazardous Substances Pollution Contingency Plan; and Washington State MTCA. In addition, the remediation complied with all associated applicable or relevant and appropriate requirements (ARARs) established by the State of Washington and local agencies. The goal of the IRA was to obtain all necessary regulatory approvals from relevant local, state, and Federal authorities.

The Washington State Department of Ecology (WDOE) indicated on December 20, 2004 that excavation was complete, and that after final status samples were collected from the bottom of the excavation to determine the concentration of perchlorate at the top of the groundwater table, the excavation could be backfilled. This IRAR validates and documents that unexploded ordnance (UXO) clearance, UXO disposal demilitarization, landfill excavation (i.e., removal of debris and impacted soil), and disposal of all excavated material were completed in accordance with appropriate work planning documents, and all associated ARARs established by the State of Washington and local agencies. Deviations from work planning documents are also documented in this report to show where they occurred, rationale for the change (e.g., addition of trenching to increase the probability of finding additional burial areas, etc.), and the concurrence by WDOE and the Army. In addition, this report contains analytical results of samples collected to guide the excavation, as well as confirmatory samples that were collected after the IRA to document that risk-based cleanup levels had been achieved in the landfill soil.

This IRAR presents sufficient data to verify and document that cleanup levels (i.e., applicable points of compliance) for each contaminant of potential concern, as specified in the Corrective Action Work Plan (Tetra Tech, Inc. 2004a) and the Action Memorandum for this action, were reached.

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1. INTRODUCTION

This Interim Removal Action Report (IRAR) describes the approach used for environmental remedial action at Landfill 4/Demolition Area 1 (CBL4) located on the Camp Bonneville Military Reservation (Camp Bonneville) near Vancouver, Washington (Figure 1-1). The U.S. Army (Army) completed the actions described herein in order to remove and dispose of munitions and explosives of concern (MEC) as necessary to support the environmental remediation of CBL4 in order to be protective of groundwater in the area. This IRAR documents the work performed during the first of two phases of cleanup to be performed at CBL4 by the Army. The first phase of site remediation, as documented in the Action Memorandum for the Request for a Time Critical Removal Action at Camp Bonneville (initial draft dated September 02, 2004) and the subject of this IRAR, was an interim removal action (IRA) that included: 1) removal and disposal of open burn/open detonation (OB/OD) ordnance; and 2) removal of landfill debris and associated contaminated soils which exceeded the site-specific interim remediation guidelines developed for this action to meet the regulatory requirements to gain a declaration of "no further action" for the landfill debris/soils and support the early transfer of the property to Clark County. Therefore, the final goal of the remediation was to obtain all necessary regulatory approvals and concurrences from relevant local, state, and federal authorities that the action was complete. The second phase of site cleanup, if deemed necessary, will address groundwater contamination at CBL4. Tetra Tech, Inc. was contracted to perform the first phase of the remediation under Contract No. DAAD11-03-F-0102 with the Department of the Army, Atlanta Field Office.

This IRAR validates and documents that the unexploded ordnance (UXO) clearance, UXO disposal, landfill excavation (i.e., removal of debris and impacted soil), and the disposal of all excavated material were done in accordance to all of the appropriate planning documents generated for this action. Deviations from the work directing documents are also documented in this report to show where the deviation occurred and the rationale for the change (e.g., required due to site conditions, regulator oversight, etc.) and concurrence by the applicable stakeholders.

The focus of this IRAR, therefore, is on specific activities which were undertaken at CBL4 to meet regulatory requirements to obtain a "no further action" declaration for landfill debris and soils (to ultimately support the early transfer of the property to Clark County). The cleanup of impacted groundwater was not part of the remedial action or this IRAR.

Remedial activities at CBL4 Site were completed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); National Oil and Hazardous Substances Pollution Contingency Plan (NCP); and Washington State Model Toxics Control Act (MTCA). In addition, the remediation complied with all associated applicable or relevant and appropriate requirements (ARARs) established by the State of Washington and local agencies and documented in work directing documents generated for this action. The goal of the remediation was to obtain all necessary regulatory approvals from relevant local, state, and federal authorities that "no further action" was necessary to address the debris and contaminated soils at CBL4.

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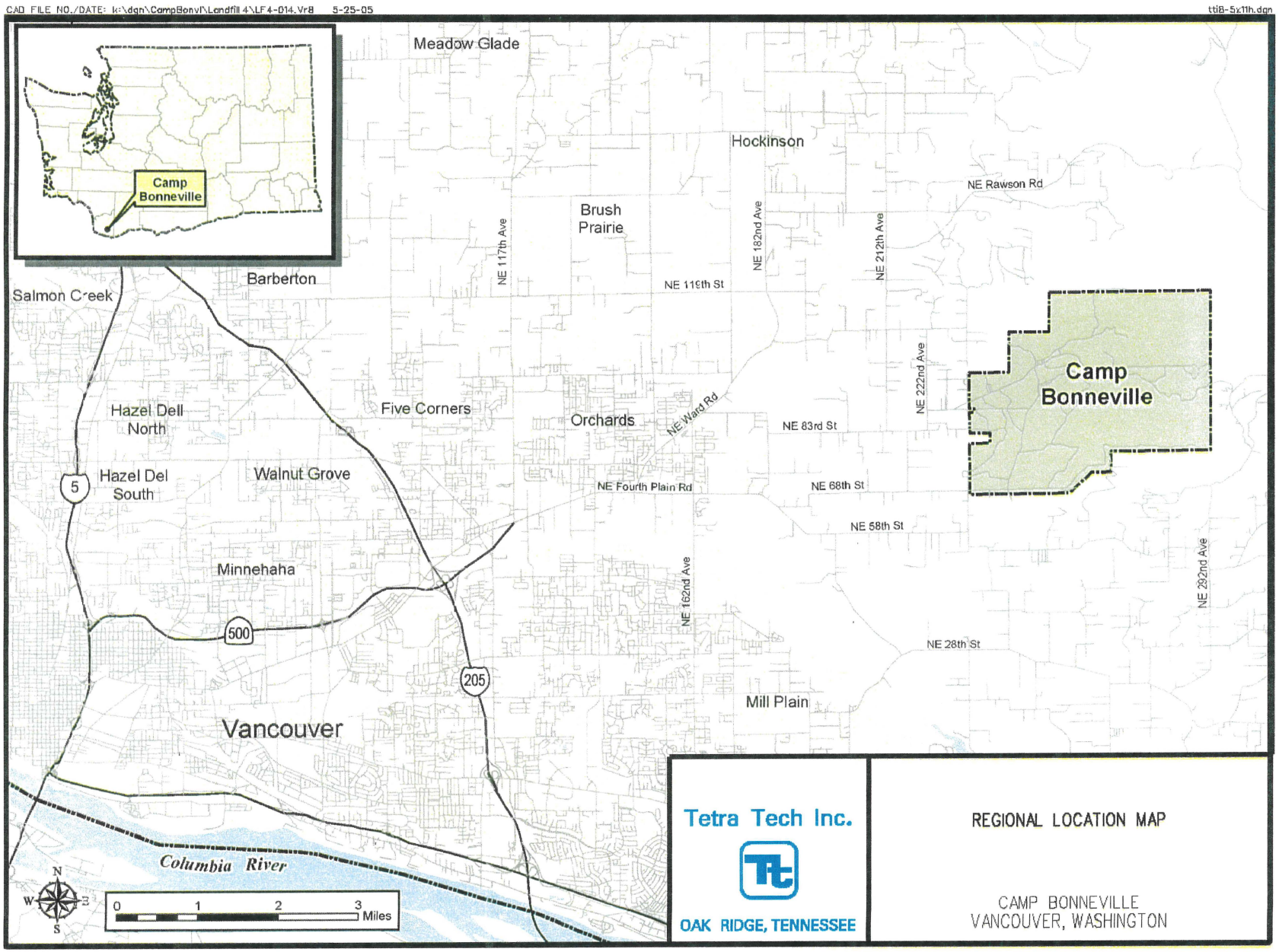

Figure 1-1 Regional Location Map

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1.1 ORGANIZATION OF THE INTERIM REMOVAL ACTION REPORT

The general purpose of this IRAR is to:

- Describe the IRA;
- Present sufficient data to verify that cleanup levels and points of compliance for each contaminant of potential concern were reached; and
- Provide the post-interim action status of CBL4.

Major components of the IRAR are:

- Mobilization and Site Preparation;
- UXO Investigation and Removal [including clearing MEC and munitions components (MC) from the upper debris/soil portion of CBL4 prior to excavation of the landfill debris and soils];
- Remediation Activities (excavation and removal of remaining landfill debris and soils contaminated above the cleanup criteria);
- Wastes Activities; and
- Site Restoration and Demobilization Activities.

1.2 BACKGROUND

Camp Bonneville was established in 1909 as a drill field and rifle range for Vancouver Barracks. The 3,020 acres upon which Camp Bonneville was established was purchased by the federal government in 1919 (Figure 1-2). In addition, the Army leased 840 acres of adjacent property, in two separate parcels, from the State of Washington in 1955. Of these 840 acres, 20 acres were returned to the State of Washington in 1957. The Army used Camp Bonneville for live fire of small arms, assault weapons, artillery, and field and air defense artillery between 1910 and 1995. In 1996, all military training units ceased operations at the camp.

Historic activities at Camp Bonneville have included the disposal of unserviceable ammunition and training. In addition, the site has been used by a number of groups and agencies, including the Portland Air National Guard, local fire departments, and law enforcement for training and disposal operations. Camp Bonneville is a sub-installation of Vancouver Barracks, which is a sub-installation of Fort Lewis, Washington.

Camp Bonneville was selected for transfer and reuse by the U.S. Government in 1995 under the Base Realignment and Closure authorization. Since that time, the community has been evaluating ways to transform the surplus military property and facilities into an area that can be used by the general public. The Camp Bonneville Draft Reuse Plan (September 1998) outlines the potential options for the property.

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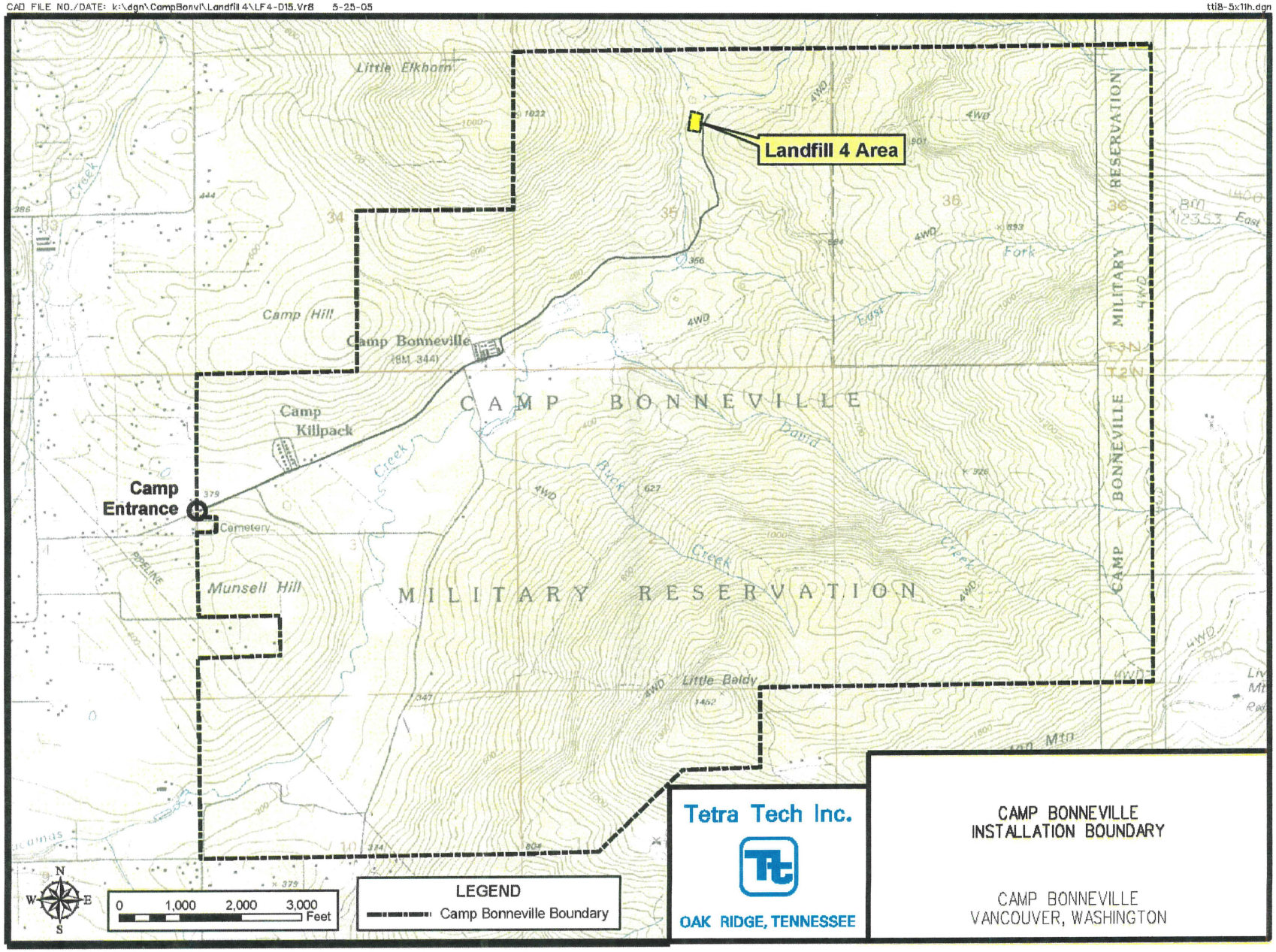

Figure 1-2 Camp Bonneville Installation Boundary

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1.3 SITE DESCRIPTION

CBL4 is located in the northern part of the Camp Bonneville Military Reservation approximately one mile northeast of the Cantonment Area. Figure 1-2 presents the location of the site within the Camp boundary. The Army proposes to use risk-based cleanup to close CBL4 and ultimately transfer the property to Clark County. The landfill reportedly received building demolition debris during the mid-1960s and later was used as an OB/OD area. The OB/OD area is, therefore, underlain by the old landfill.

In early 2003, an Expanded Site Investigation was conducted to evaluate potential impacts to groundwater resulting from the historical landfill and OB/OD activities at CBL4. It was determined that CBL4 was likely contributing to the contamination of the underlying groundwater with the potential of impacting the nearby Lacamas Creek.

The area of CBL4 has initially reported to be 120 feet (ft) × 200 ft, and based on available information, the depth of landfilled material appeared to extend beyond 11 ft below ground surface (bgs). The Army indicated that all UXO activities at CBL4 were limited to the upper portion of the landfill. Shallow soils at CBL4 were comprised primarily of silts and clays. Based on available data, the average depth to groundwater at CBL4 is 15 to 19 ft bgs, depending on seasonal fluctuations. Groundwater flow direction at CBL4 appeared to follow the surface topography and generally flowed from east to west toward the North Fork of Lacamas Creek. The fine-grained nature of the soils at CBL4 results in low hydraulic conductivities.

Available historical munitions data was reviewed, along with anecdotal information from past and present employees at Camp Bonneville, to assess the most probable munitions (MPM) for the site. The MPM for a site is the round with the greatest fragmentation distance that can reasonably be expected to exist in any particular MEC area. Based on the widespread use of large artillery projectiles on the ranges at Camp Bonneville and the discovery of a 155 millimeter (mm) projectile at CBL4, the 155 mm projectile was selected as the MPM for the majority of the site work. Two of the tasks outlined in this IRAR (tiered soil removal and soil screening) involved soils that had already been subjected to rigorous MEC removal procedures. For these two tasks, the MPM was identified as a 20 mm projectile.

The historical data available suggested that Chemical Warfare Materiel (CWM) was not present at CBL4; however, records indicate that Chemical Agent Identification Sets (CAIS) were utilized at Camp Bonneville and were disposed of at CBL4. Suspect CWM procedures outlined in Section 2.3.6 were used during excavation of the landfill.

1.4 INTERIM REMOVAL ACTION OBJECTIVES

A primary goal of the action was the removal of residual contamination in soils in order to be protective of groundwater. The secondary objective of the IRA was the removal and disposal of OB/OD ordnance and landfill materials and associated contaminated soils to meet regulatory requirements to gain a declaration of "no further action" for the landfill debris/soils to ultimately support the early transfer of the

property to Clark County. Therefore, the ultimate goal of the remediation was to obtain all necessary regulatory approvals and concurrences from relevant local, state, and federal authorities that the action was complete.

1.5 INTERIM REMOVAL ACTION GUIDELINES

Remedial action guidelines for the IRA were established and documented in the Corrective Action Work Plan (CAWP) (Tetra Tech, Inc. 2004a). The concentration-based remedial action guidelines for soil set forth in the CAWP were developed in accordance with the MTCA Cleanup Regulation (WAC Chapter 173-340) for the protection of groundwater. Per this method, cleanup levels were established at the concentration at which the site-specific contaminants would no longer pose an unacceptable risk to human health or the environment. Points of compliance, which designate the location at CBL4 where cleanup levels must be met, were also developed and documented in the CAWP. The MTCA regulation provides three options for establishing cleanup levels, Methods A, B, and C.

The goal of the IRA was to remove groundwater contaminant sources by excavation. Based on the likely operational history of CBL4, the anticipated contaminant sources were most probably associated with landfill operation and disposal practices and ordnance demolition. Because normal landfill construction typically does not result in excavation below the water table (and it is unlikely that landfill debris was placed below the water table), it was anticipated that contaminated soil did not extend into the saturated zone. Likewise, since demolition activities occurred after landfill operations ceased and typical demolition activities were unlikely to have included excavation through landfill debris to the water table to destroy munitions, planning assumptions for the remedial action were developed to anticipate the excavation to remove the sources within the landfill would most likely terminate once native soil was encountered in the floor of the excavation.

Compliance with IRA guidelines was verified by collecting and analyzing confirmatory samples (taken on a maximum 20-ft grid spacing with biased samples collected from locations determined by site conditions). Identified areas of soil contamination were excavated to native soil prior to the collection of confirmatory samples.

Prior to beginning excavation activities, the Army received regulator approval to excavate all of the landfilled material present on site vertically to an estimated average depth of 15 ft or to groundwater. A "no further action" vertical point of compliance for soil contamination was therefore established at CBL4 at the point where MTCA Method B limits for soil were met. Where soil contamination extended into the saturated zone, the results of the confirmatory sampling were to be discussed with WDOE to identify a path forward, and obtain concurrence with the regulators, for further remedial action. No remediation of groundwater was to be included in this cleanup effort. The lateral, "no further action" point of compliance for soil contamination at CBL4 was therefore established at the point where MTCA Method B limits for soil were met.

Table 1-1 presents MTCA Method B soil cleanup levels for the selected indicator hazardous substances which were established using the MTCA Method B. This table also includes a comparison to the U.S. Environmental Protection Agency (USEPA) Region 9 preliminary remediation goals (PRGs). These values were used for comparison to intermediate (i.e., excavation guiding) and confirmatory sampling results and to determine when the interim remediation goal (i.e., comparison to the MTCA concentrations) was achieved. All intermediate sample results are discussed in Section 2.4 (and included in Appendix C, Table C-1) and all confirmatory sample results are discussed in Section 5 and included in Appendix C (Tables C-2 through C-5) of this report.

Confirmatory soil sampling results were averaged by discrete area and compared to MTCA Method B Soil Cleanup Level concentrations [milligrams per kilogram (mg/kg)] in order to determine the IRA guidelines and objectives were achieved.

Table 1-1 Interim Removal Action Cleanup Criteria for Soil

Selected Indicator Hazardous Substances	Site Cleanup Criteria derived from MTCA Method B Soil Cleanup Level[a] (mg/kg)	USEPA Region 9 PRG[b] (mg/kg)
Explosives and Propellants		
2,4-dinitrotoluene	0.5	120
Perchlorate Ion	0.5	7.8
HMX	3.2	3,100
RDX	0.5	4.4
Volatile Organic Compounds (VOCs)		
Benzene	0.05	0.6
Dichlorodifuoromethane	6.4	94
1,1-dichloroethene	0.003	120
1,1,1-trichloroethane	1.584	1,200
Tetrachloroethene	0.053	1.5
Metals		
Arsenic	6.0	22
Barium	450	5,400
Chromium III	576	100,000
Chromium VI	27	30
Copper	267	3,100
Iron	36,100	23,000
Lead	17	400
Zinc	96	23,000

Notes: a – WDOE Model Toxics Control Act Cleanup Regulation, Washington Administrative Code Chapter 173-340, Method B Cleanup levels derived using WDOE's MTCASGL10 workbook for the protection of groundwater.
b – From USEPA Region 9 website: http://www.epa.gov/region09/waste/sfund/prg/files/02table.pdf.

1.6 INTERIM REMOVAL ACTION APPROACH

The approach for the interim removal action at CBL4, specified in the Action Memorandum, was excavation and disposal of the landfilled material and associated soil contaminated above MTCA Method B cleanup levels for the selected indicator substances.

Because topography limited the available working area around the former landfill, sorting, stockpiling, and profiling of the excavated materials from CBL4 prior to transportation/disposal took place a short distance away from the landfill. A relatively flat clearing, located adjacent to the Camp Bonneville cantonment area, was used for these activities. The layout of the Staging/Stockpile Area is presented in Figure 1-3. Prior to the excavation of the former landfill, both site preparation and ordnance-related support activities were required. The following sections provide a general summary of the activities associated with the IRA.

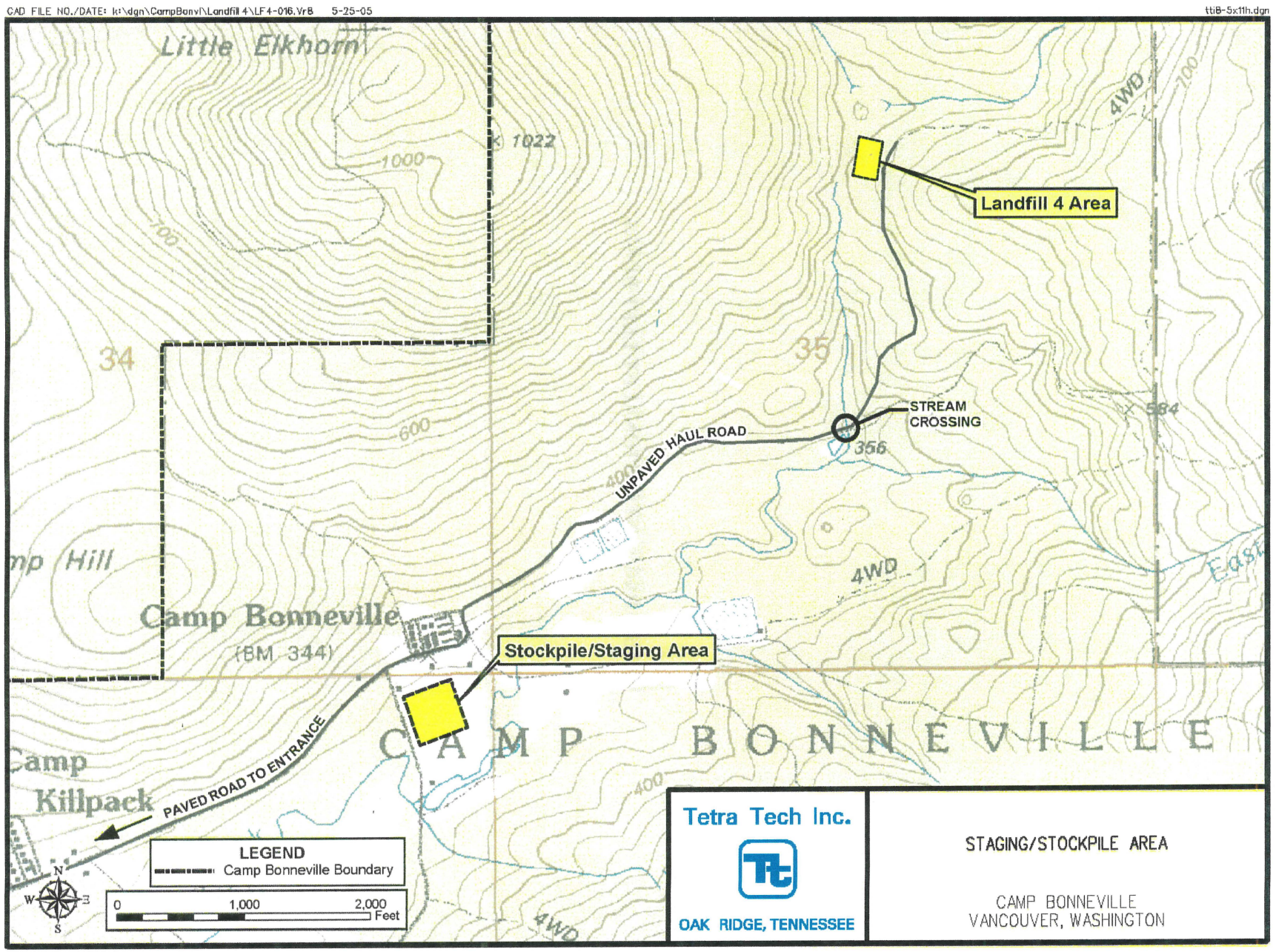

Figure 1-3 Staging/Stockpile Area

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2. INTERIM REMOVAL ACTION SUMMARY

The IRA, performed as part of the first phase of the action, was performed in accordance with the Corrective Action Work Plan for the Interim Cleanup Action, Landfill 4/Demolition Area 1, Camp Bonneville Military Reservation, Washington (Tetra Tech, Inc. 2004a). The CAWP describes the approach and procedures for the environmental remedial action at the site. The CAWP focuses on the tasks included in the first phase of site restoration undertaken to meet the regulatory requirements to gain a "no further action" declaration for the landfill debris/soils to ultimately support the early transfer of the property to Clark County. Since cleanup of impacted groundwater is not part of this IRA, and will be performed under a separate program and contract if deemed necessary, the CAWP did not include direction and guidance for the groundwater remediation phase. The CAWP underwent a public review and was presented to, and concurred with by, the Restoration Advisory Board (RAB).

In order to meet the objectives of the IRA as documented in the Action Memorandum, the CAWP provided direction and guidance for each of the activities required to perform: 1) Ordnance Support Activities; and 2) Soil Removal. These activities include the following: Mobilization; Site Preparation; Cleanup Activities; Landfill Excavation; and Site Restoration.

2.1 INTERIM REMOVAL ACTION WORKING DOCUMENTS

In addition to the CAWP, a Sampling and Analysis Plan (SAP) (Tetra Tech, Inc. 2004b) was developed to describe the sample collection, handling, and analysis procedures that were implemented during this project. The SAP, in conjunction with the Quality Assurance Project Plan (QAPP) (Tetra Tech, Inc. 2004c), which includes the Data Management Plan, addressed sampling and analysis, data quality, data management, and reporting requirements.

In addition, a Health and Safety Plan (HASP) (Tetra Tech, Inc. 2004d) was developed to establish and document the policies and procedures to protect Tetra Tech personnel, subcontract personnel, and site visitors from the potential hazards posed by IRA activities planned at CBL4. The HASP provided measures to minimize potential exposure to hazardous substances, accidents, and physical injuries that could have potentially occurred during daily activities on site and during adverse conditions. It also provided contingencies for emergency situations.

This action also necessitated the development and approval of an explosives safety submission. The Explosives Safety Submission, MEC Support Services for Interim Action Soil Removal, Landfill 4 / Demolition Area 1, Camp Bonneville, Washington (Tetra Tech, Inc. 2004e) was completed prior to the IRA in order to obtain U.S. Department of Defense (DoD) Explosives Safety Board approval for MEC operations to support the IRA of the contaminated soil at the site.

2.2 SITE PREPARATION AND MOBILIZATION

Tetra Tech coordinated mobilization to CBL4 very closely with all site personnel and Army staff assigned to the project to ensure that all equipment, supplies, and other resources needed to support ordnance and removal activities were delivered, staged, and present on site at the appropriate time. Tetra Tech also scheduled arrival of the work force to allow immediate and efficient productivity. All Tetra Tech and subcontractor personnel that were mobilized to CBL4 for ordnance operations and remediation activities had completed U.S. Occupational Safety & Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training and been determined to meet the medical surveillance requirements, as specified in the HASP, prior to their arrival on site.

Mobilization and site preparation began at the site the week of May 3, 2004. Technicians preformed UXO surface clearance and cleared and grubbed along the roadway, turnout, and magazine area at the landfill during the first week to facilitate completion of the site set up. Local emergency responders (i.e., the Clark County Fire Department) were contacted to conduct a site walk over to familiarize themselves with the site in case of an emergency.

2.2.1 Personnel Training Requirements

All Tetra Tech employees and subcontractors conducting MEC-related activities on this project were expected to maintain vigilance at all times to ensure that the work was conducted in a safe and efficient manner. They were also required to follow Tetra Tech's general safe work rules, as well as site-specific provisions as discussed in the HASP (Tetra Tech, Inc. 2004d).

Tetra Tech personnel were assigned specific project roles and responsibilities to ensure that lines of authority, efficient communications, and well-defined work requirements and responsibilities were maintained throughout the project. The necessary qualifications for each key position, as well as site personnel are described in detail in the CAWP and the HASP. During the first week on site, employees received site-specific training, CAWP and HASP training, site indoctrination, work plan Standard Operating Procedure (SOP) training, Explosive Submittal training, demolition SOP training, demolition kit training, and Vallon metal locator training. All training was documented by using site sign-in sheets which were retained in the project files.

Although the UXO cleanup action and initial clearance were conducted as the first phase of the action and prior to the start of the hazardous waste/landfill cleanup action, the potential to encounter UXO existed throughout the entire project. Because of this, all site operations personnel were trained at an awareness level in UXO safety. This training was conducted by a member of the Tetra Tech UXO removal team and included information necessary to recognize possible UXO and the proper safety procedures to follow, if UXO was encountered. The training also included guidance for contingency plans if UXO was encountered in the removal phase of the cleanup action, to include instruction for halting operations and contacting the Tetra Tech UXO removal team to be recalled to evaluate and determine the most appropriate means to remove the UXO and clear the site.

2.2.2 Site Preparation

Three work areas were required to provide sufficient space for ancillary activities such as equipment and materials storage, stockpiling of excavated soil, soil screening to remove MEC/MC, and equipment decontamination. The first area of approximately 2 acres was used for screening, sorting, stockpiling, and profiling of the materials excavated from the former landfill. The second area of approximately one acre was used for equipment staging and decontamination. The last area, also approximately one acre, was used for stockpiling backfill and other construction material. All of the areas were surveyed and enclosed with silt fencing.

Due to space limitations at CBL4, all sorting, stockpiling, and profiling of the excavated landfill material (performed prior to transportation and disposal off site) were conducted a short distance away from the Landfill (Figure 1-3). An area adjacent to Camp Bonneville cantonment area (located approximately one-half to three-fourths mile south of CBL4 on the south side of Lacamas Creek) was designated for use as the stockpile and lay-down area. The stockpile area (approximately 2 acres) was graded and a bermed constructed at one end to control surface water runoff and leachate from excavated material during site operations. The bermed stockpile area was covered with a 20-mil thick liner to catch and hold any incidental water escaping from the excavated landfill material and to collect any precipitation that came in contact with the excavated material. The liner was protected from damage (from equipment traversing it) with 3 to 6 inches of compacted common fill. This fill material was treated as stockpiled soil and ultimately used for backfill of the excavation after confirmatory sample results indicated that the "end point" of the remediation had been achieved.

The stockpile itself was covered with plastic to protect it from rain and erosion during construction and the conduct of the removal action. All surface water and leachate collected within the berm was removed and temporarily stored in a Baker-type tank at the site. Samples collected from the tank were collected and analyzed at the conclusion of the field-work. The only analyte detected above the detection limit in the tank sample was perchlorate which was detected at a concentration of 14.8 µg/L (0.0148 mg/L). The stored water was subsequently disposed in accordance with all applicable requirements.

In addition to the stockpile area, a one-acre equipment and materials lay-down area was cleared and graded. The lay-down area also included an equipment decontamination pad. The decontamination pad was lined with plastic and bermed to collect all decontamination-related liquid and solid waste. All liquid waste generated during decontamination was pumped to the same on-site, Baker-type tank for disposed in accordance with all applicable requirements. All solid waste was profiled and disposed of off site. Solid waste profile data is included in Appendix B.

Because of the long history of ordnance use at Camp Bonneville, site preparation tasks also included MEC/MC avoidance training and removal prior to soil removal activities in order to protect construction workers performing intrusive tasks. Avoidance operations began with UXO technicians performing vegetation removal and an initial surface sweep of each planned work area to identify and remove MEC/MC. A White brand electromagnetic metal detector and a Schonstedt gradiometer (ferrous metal

detector) were used to aid in the location of potential MEC/MC. The boundaries of each swept area were marked with pin flags and non-UXO personnel were briefed on MEC safety requirements specific to each area, including the requirement to remain within the flagged boundaries when performing intrusive activities. As site preparation work was conducted in each work area, a UXO technician monitored all intrusive activities to identify MEC/MC that might be unearthed.

MEC avoidance was performed in accordance with the approved CAWP and field change requests (FCRs) were generated to document any deviation from the approved methodology.

The road accessing CBL4 was not originally designed or constructed to handle the volume or type of traffic required for the execution of the proposed IRA. Therefore, the roadway that accessed CBL4 and the bridge that crossed Lacamas Creek required improvement, including application of 3 inches of base material (i.e., crushed stone) on the road from the soil screening plant area to the landfill. This activity involved grading, widening, and general improvement of the roadway and stream crossing at the site to support the extensive truck traffic. A steel traffic plate was also placed on the bridge crossing Lacamas Creek for added protection and to minimize the probability of bridge damage or failure.

A buffer was established around CBL4 for equipment to maneuver, and an additional small working adjacent area was established to load and maneuver trucks. This area also housed an approved explosive storage magazine (constructed for this action) and accumulation areas for MC and metal debris (MD) removed from the landfill. Both the buffer around CBL4 and the adjacent working area were cleared of vegetation. The working area adjacent to CBL4 was also improved to facilitate site activities. Because of its proximity to the landfill, preparation of the adjacent working area also required inclusion of surface clearance and MEC/MC avoidance to protect construction workers performing intrusive tasks associated with site preparation (e.g., earthwork.).

2.2.3 Staging and Storage of Equipment and Supplies

Site setup and staging activities consisted of setting up a site office trailer and receiving and storing containers to be used for waste transport on site at the lay-down area and at CBL4. In addition, Camp Bonneville took delivery of 3,791 tons of one and one-fourth inch crushed stone base. This material was staged at CBL4 to be used in the construction of the foundation for the magazine and upgrading of the site roadways. Camp Bonneville also took delivery of the Ultra Block Ecology Blocks® for construction of the magazine and the liner material to be used during the screening plant operation. Lastly, Camp Bonneville took delivery of the screening plant.

2.2.4 Regulatory Compliance

Tetra Tech evaluated the environmental conditions of the site in compliance with the WDOE MTCA Cleanup Regulation (WAC chapter 173-340). Indicator hazardous substances, applicable MTCA cleanup levels, points of compliance, and ARARs are defined and described in the appropriate sections of the CAWP.

Contaminants known to be present at CBL4 (CKPS) were identified based upon results presented in the Landfill 4 Site Investigation Report (Shannon and Wilson 1999), and the Expanded Site Inspection Report (URS Greiner Woodward Clyde 2003). Given that contaminants detected in groundwater underlying CBL4 likely originated from either the materials buried in the landfill or the surface and near-surface ordnance detonation activities conducted at CBL4, the indicator hazardous substances selected for soil included substances that had been detected in both soil and groundwater. The selection was based upon the magnitude of results obtained during past investigations and the toxicity and persistence of the compounds under consideration. The CKPS for soil and groundwater and the selected indicator hazardous substances are presented in Sections 3.1.1 and 3.1.2 of the CAWP, respectively. During the IRA, analytical results of the indicator hazardous substances and other chemicals of potential concern (COPCs) were compared to MTCA soil cleanup criteria to determine when the cleanup action had reached compliance with MTCA cleanup criteria and considered complete.

2.2.5 Erosion Control

Surface water at CBL4 was controlled with upstream trenches and sand bags around the perimeter. The creek was protected from siltation from the excavation with a combination of silt fences and catch basins.

After backfill was completed, the site was stabilized with erosion mats and revegetated with native or grass-type species.

2.3 UXO ACTIVITIES

This section describes ordnance activities performed at Camp Bonneville in support of the IRA soil removal at CBL4. Ordnance support for the project consisted of several interrelated tasks designed to ensure the safety of construction workers and other site personnel involved in the excavation of the landfill. Specifically, the actions included:

- Setup and training for MEC operations;
- MEC avoidance during site-preparation activities;
- Initial MEC/MC surface clearance at the landfill;
- "Mag and dig" MEC/MC removal alternating with tiered soil removal in the upper soil horizons at the landfill;
- Intrusive investigation (identification and removal of metallic anomalies) of the lower soil horizons at the landfill;
- MEC/MC avoidance during general excavation of deep landfill soils;
- Screening of soil excavated during "mag and dig" operations to remove residual MEC/MC;
- Disposal/Demilitarization of MEC/MC and disposal of metal scrap; and
- Auxiliary functions including safety and quality oversight and community relations support.

The ordnance-related support actions performed throughout the course of the IRA soil removal are described in more detail in the following sections.

2.3.1 Setup and Training

Setup for the IRA at CBL4 included several special provisions and tasks to ensure the safe, efficient execution of MEC activities required for the project. During preparation of the work plans, all emergency service providers for CBL4 were contacted to inform them of the impending ordnance work and to discuss any special requirements necessary to ensure efficient, effective emergency response in case an incident involving ordnance should occur. Input was solicited from the Sheriff's Department, State Police Department, local hospital, and Fire Department. Prior to the start of MEC operations in the field, all of these service providers were contacted again and notified that MEC operations were being initiated. A Battalion Chief from Vancouver Fire Services also toured the site to identify emergency access routes and to become familiar with the work sites and planned operations. An emergency drill was performed on the first day of field operations to practice implementation of the site emergency response plan.

Another unique setup task for this project was the placement of a portable storage magazine to hold donor explosives and other materials needed for disposal of MEC/MC by detonation. Since Camp Bonneville is an inactive facility, there are no longer any explosive storage magazines on site. Locating a magazine near CBL4 eliminated the need for a local explosives vendor to travel through the surrounding neighborhoods on a potentially daily basis to deliver explosives. Tetra Tech prepared an Explosive Safety Submittal containing the necessary location, exclusion zone, and procedural information and obtained approval from the DoD Explosive Safety Board to place and use a portable explosive storage magazine on site. A special Ecology Block containment area was constructed as part of project setup to provide blast protection in case of accidental detonation of the magazine contents. Ecology Blocks are very large, reinforced concrete blocks resembling children's Lego® blocks that can be stacked to create walls or enclosures. The portable magazine was placed in the containment area and grounded by a local electrical contractor to protect the sensitive explosive contents from lightening and static electricity.

Personnel training requirements were unique for MEC work. Safe execution of MEC operations requires extensive training for UXO technicians, as well as detailed basic ordnance safety training for non-UXO personnel. Some of the required training is considered the industry standard (or is required by governmental agencies) and is provided to UXO personnel on an annual basis. Additional training was considered site- or task-specific and tailored to the safe execution of specific projects or tasks. Prior to beginning fieldwork at CBL4, all Tetra Tech and subcontractor personnel completed on-site training regarding potential site-specific MEC/MC hazards. Appropriate safety precautions and emergency response procedures were also reviewed to ensure a safe working environment. Daily safety briefings, including discussion and review of MEC hazards, continued throughout the course of the project to ensure that personnel were alert to the potential hazards present and prepared to deal with these hazards in a pro-active, safe manner.

2.3.2 Support for Soil Removal Action

This portion of MEC work consisted of three distinct phases. Phase I entailed providing MEC/MC removal using "mag and dig" techniques to protect construction personnel performing tiered soil removal. During this phase of the work, MEC/MC removal was alternated with the mechanical removal of shallow soil lifts. Prior to the removal of each soil lift, a team of three UXO technicians marked out 5-ft wide survey lanes on the landfill and performed an intrusive MEC/MC clearance to approximately 12 inches bgs. A Vallon VMH-3 electromagnetic metal detector equipped with a small diameter head was used for the "mag and dig" operations. This instrument is capable of accurately detecting most metallic items located in the upper 18 inches of the soil horizon, depending on size and orientation. Use of this instrument allowed UXO teams to accurately evaluate shallow lifts of soil without interference from deeper metallic targets. All metallic items located were removed and managed in accordance with the approved CAWP (see Section 2.7 of this report). Following each round of "mag and dig" MEC/MC removal, a 6-inch layer of soil was mechanically removed (using an excavator or dozer) and loaded into a dump truck under the supervision of a qualified UXO technician. The soil was transported to a remote staging area where it was then staged until such time as it could be mechanically screened to remove residual MEC and MC.

A single FCR was filed during the course of the "mag and dig" operations. Approval of this request allowed UXO personnel to pursue and complete disposal/burn pits and trenches to depth in order to facilitate organized investigation and analysis of these areas. Initial removal of the MEC/MC from these pits/trenches in layers was inefficient and led to fragmented data and an incomplete understanding of the nature of these areas. The approved FCR also allowed UXO personnel to manually screen the soils removed from pits and trenches using a screen constructed from cyclone fencing. If no discoloration or other indication of soil contamination was observed, the screened soil was placed back in the pit or trench to create a relatively level work surface and allow reevaluation of soils for MEC/MC during subsequent "mag and dig" rounds.

The "mag and dig" operations were initially limited to the estimated footprint of CBL4; however, during this phase of operations, the work area was expanded to include outlying areas of concern to WDOE. Since this action did not involve a change in process, no FCR was filed for the expansion of the work area boundary. Figures 2-1 and 2-2 show the initial and expanded boundaries for the CBL4 work area.

Phase II of MEC support consisted of identification and removal of metallic anomalies from the deeper soils of CBL4. Two geophysical technicians performed a geophysical survey using a Geonics EM-61 Mark II electromagnetic induction, high-sensitivity metal detector. Location data for the survey was collected using either a Differential Global Positioning System or a Robotic Total Station (RTS). The geophysical team laid out one-meter wide survey lanes and traversed the lanes back and forth over the landfill work area to obtain two-dimensional, 100 percent geophysical coverage of the work area. The data was collected using a Juniper Allegro data collector and was interpreted using specialized software developed by Geonies Limited to evaluate anomalies based upon size, shape, return signal strength, and other relevant parameters. Those anomalies that were interpreted to be subsurface metallic items were placed on a target list that included the coordinates where the anomaly occurred along with an estimate of the size and depth of the

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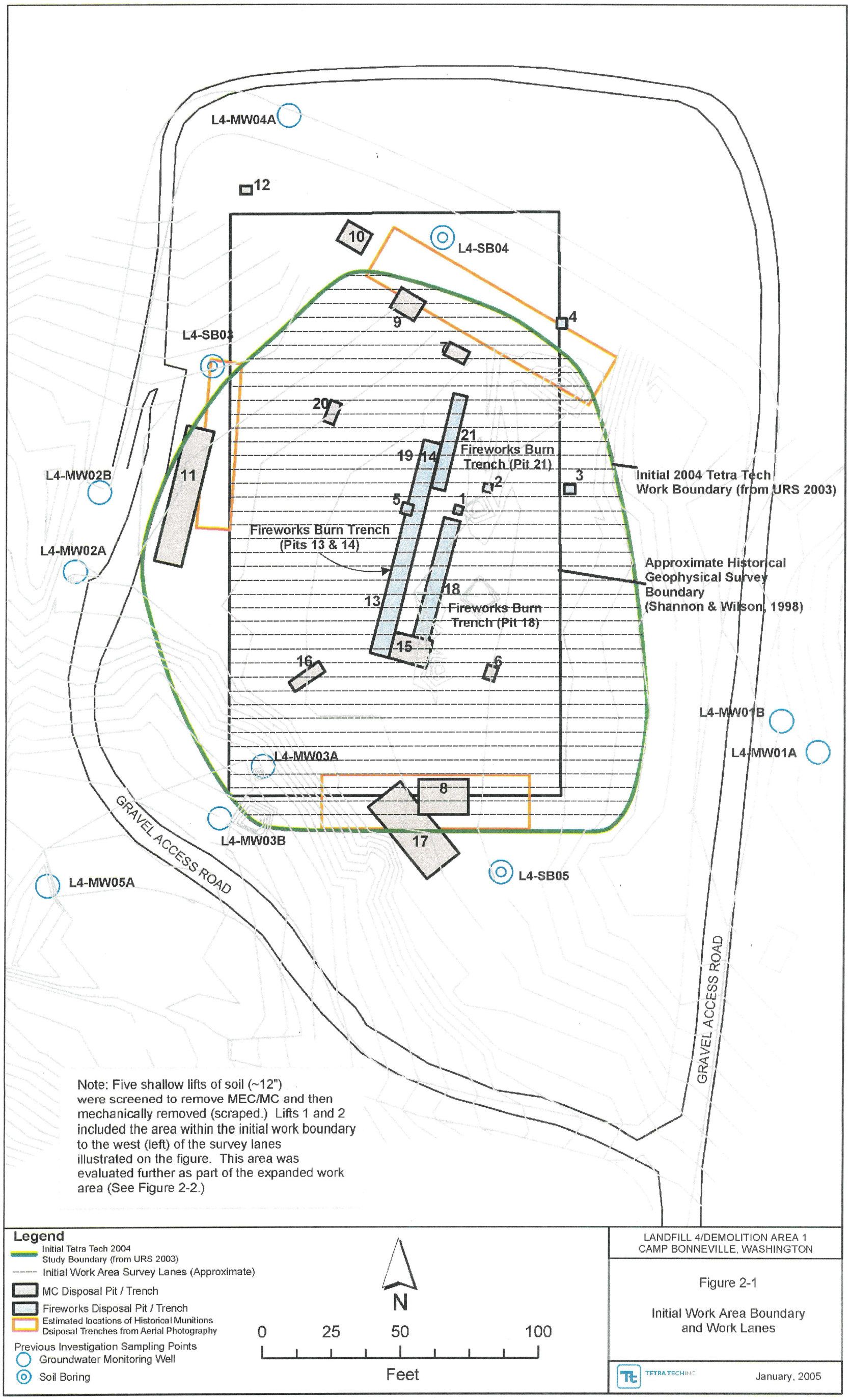

Figure 2-1 Initial Work Area Boundary and Work Lanes

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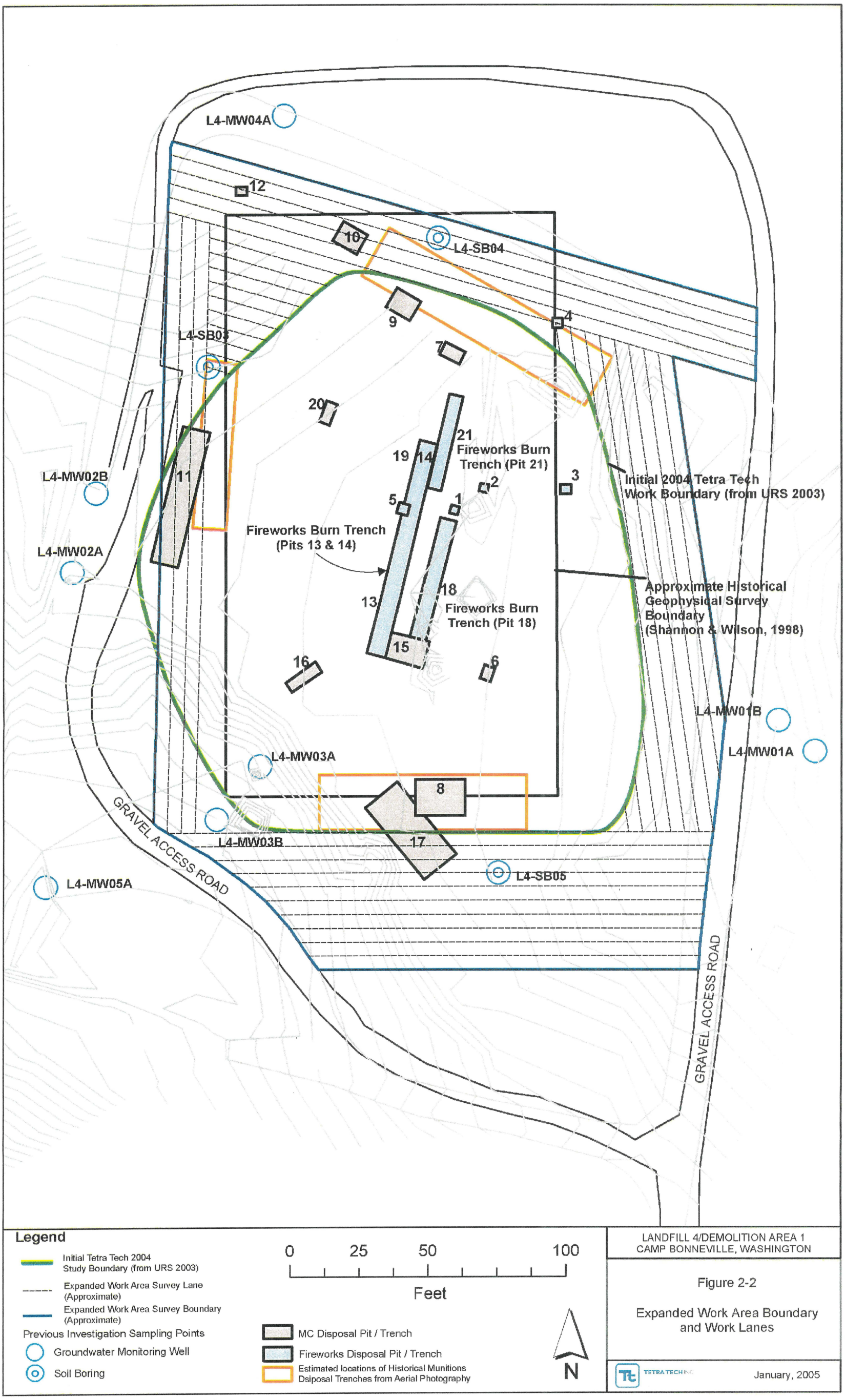

Figure 2-2 Expanded Work Area Boundary and Work Lanes

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objects. Because interpretation of geophysical data of this nature is highly subjective, the interpretation was conducted by a senior geophysicist with extensive experience working with data from ordnance sites.

Following receipt of the suspected metal "target" list, UXO personnel on site used an RTS to locate coordinates assigned to the targets. These locations were marked with pin flags, and an intrusive investigation of the subsurface anomalies was then performed. Generally, this intrusive investigation was conducted using manual excavation with shovels and hand trowels. Excavation of deeper targets was conducted by using an excavator to carefully dig beside the target location until the anomaly could be safely investigated laterally (i.e., from the side). A Vallon VMH-3 electromagnetic metal detector and a Schonstedt gradiometer were used during intrusive investigation to guide excavation. All valid targets within the initial estimated boundary of CBL4 were excavated during this phase of work. In addition, a number of targets were investigated in outlying areas to ensure that concentrated areas of MEC/MC that could represent a source of groundwater contamination were removed. All items found were removed and managed in accordance with the procedures in the approved CAWP. Geophysical surveying and investigation of identified targets were conducted in accordance with the procedures in the approved CAWP and, as a result, no FCRs were required during this activity.

Phase III of MEC support for soil removal consisted of providing qualified UXO technicians to observe general excavation of landfill soils at depths where minimal MEC was anticipated to be found. UXO personnel also observed soil handling and truck loading operations. Technicians performing MEC avoidance were equipped with a White brand electromagnetic metal detector or a Schonstedt gradiometer to assist in the location of metallic items in the excavated soil. All operations were conducted in accordance with the approved CAWP and, therefore, no FCRs were required during this activity.

2.3.3 Soil Screening

Soil excavated from CBL4 during the "mag and dig" operations was mechanically screened to remove small, residual ordnance items prior to off-site disposal. A screening area was constructed southwest of CBL4 to house a Kolberg, dual-deck mechanical soil screen equipped with a grizzley (i.e., a large, heavy-duty debris screen) on the feed hopper. The grizzley removed debris greater than 6 inches in diameter from the soil stream prior to screening. Soil and debris smaller than 6 in diameter passing through the grizzley were carried up a conveyor and processed first through a 3-inch minus screen, then through a three-fourths inch minus screen. Screened soil fell into a stockpile below the screen plant, while debris was carried out to the end of the screens and dropped in a special area protected on three sides with Ecology Blocks. The Ecology Block enclosures were intended to provide blast protection in the event that a live ordnance item was processed through the screen plant and detonated on impact with the debris pile. The feed hopper was also shielded with a steel plate to provide added protection for the loader operator feeding the soil into the plant. A UXO technician observed all screening operations from a vantage point behind a Plexiglas shield supported by Ecology Block walls. The observation point was also equipped with a stop/kill switch for the screen plant that allowed the UXO technician to immediately shut down the plant due to explosive or physical hazards concerns.

The soils at CBL4 contained a high percentage of clay resulting in a tendency to form lumps and clods in the stockpiles. Since these lumps were similar in size and shape to small ordnance items including small arms cartridges, debris from the screening operations was run through the screen plant multiple times to maximize the opportunity to identify and remove MEC/MC. The approved soil screening methodology did not specifically state how many times soil should be passed through the screen plant; therefore, no FCR was required to screen the soil multiple times. All MEC/MC that was found during screening operations was managed in accordance with the approved CAWP.

2.3.4 Auxiliary Functions

Auxiliary functions included activities that are integral to all tasks performed during MEC operations. These functions included health and safety support, quality control (QC) activities, and community support tasks.

Health and safety support was required for all MEC operations. This support was key to the safe and efficient execution of the project. The Tetra Tech corporate environmental management system includes a Zero Incident Performance program that incorporates comprehensive incident reporting with rigorous incident analysis to eliminate unsafe practices and prevent accidents. This program supports the development of strong, comprehensive site-specific safety programs for each project. For the IRA at CBL4, the MEC safety program included:

- Provision of MEC safety orientation briefings for all employees on site;
- Daily MEC safety briefings to elevate awareness of potential hazards;
- Inspections of the various work areas and activities to ensure compliance with HASP requirements (specifically MEC-related requirements); and
- Preparation of reports used to identify problems requiring resolution and evaluate the effectiveness of the MEC safety program

For the CBL4 project, a UXO qualified combination safety/QC specialist was assigned to perform safety-related tasks. This individual identified a number of minor safety issues during the course of the project and took steps to prevent accidents by modifying equipment use, procedure implementation, and personnel behavior as necessary. No MEC-related accidents occurred during the course of this project.

QC is an integral part of any MEC operation. Even though MEC activities at CBL4 were designed to protect site workers rather than ensure removal of all ordnance at the site, it was still necessary to implement a comprehensive QC system to identify and correct problems that could compromise the project or endanger personnel. The QC program for this project included the following elements:

- Daily function testing for ordnance detection equipment to ensure proper operation;
- Daily QC inspection of field operations to ensure that field personnel were properly executing the approved field procedures and correctly operating detection equipment; and

- QC inspection of 5 percent of all MEC detection/removal work conducted to ensure that the approved procedures were effective in accomplishing the project goals.

For the CBL4 project, a UXO-qualified combination safety/QC specialist was assigned to perform QC-related tasks. No specific quality issues were identified during the project. Two pieces of equipment malfunctioned (a White metal detector and a remote firing device) during the MEC activities. Both equipment failures were identified promptly during field function tests and the equipment was taken out of service to ensure the safety of site staff and the quality of MEC operations. QC inspection reports are included as Appendix D of this IRAR.

Another important auxiliary function for this project was community relations support efforts. The Senior UXO Supervisor (SUXOS) assigned to the project assisted in the preparation of presentation materials for RAB meetings and was present at the meetings to answer questions and supply MEC-related information to the public. Other project team members with UXO experience attended a public open house, RAB meetings, and planning meetings; prepared presentation materials; participated in public visits to CBL4; and, otherwise provided support to Army personnel in addressing community issues.

2.3.5 Summary of Ordnance Data

Various MEC, MC, and civilian items of interest (e.g., fire works, tear gas canisters, etc.) containing explosives or ordnance-related chemicals were found during the MEC support activities at CBL4. Table 2-1 summarizes the ordnance data for the project by type (MEC, MC, scrap metal) and according to the support function being performed when the items were found. The following sections present the results of the MEC/MC avoidance and removal in more detail. Photographs of representative MEC items are presented in Appendix A of this IRAR, along with other photographs of site activities, features, items and conditions of interest related to the MEC operations.

Table 2-1 – Summary of MEC Data

Type of Support Process	MEC	MC	Scrap Metal (lbs)[1, 2]
Surface Clearance	1	16	5,150
Mag and Dig (shallow soils)	754	9042	6,250
Intrusive Operations (deep soils)	3	459	approx. 932
Screen Plant	122	3174	950
MEC Avoidance	14	87	50

Notes:
1. The scrap metal category includes munitions related items classified as Munitions Debris (MD). These items, such as ammunition cans and mortar fins were, by design, never in contact with explosives or other reactive ordnance materials. Although they were associated with munitions, they are considered inert scrap metal.
2. Ninety-three pieces of scrap were collected. The weight has been estimated at an average of one pound (lb) per piece.

2.3.5.1 Surface Clearance

During surface clearance activities at CBL4, very little MEC or MC were found; however, a large amount of scrap metal was found scattered over the area. No particular area contained significantly more or less scrap metal than any other. The scrap metal consisted primarily of motor vehicle parts and pieces,

Marston matting, fencing materials (concertina wire and fence posts), and railroad rails. These items (except the fencing materials) were commonly used by military personnel to practice explosive techniques such as precision cutting with shaped charges. Their presence is consistent with the historical use of the area as a demolition range.

2.3.5.2 Mag and Dig Operations

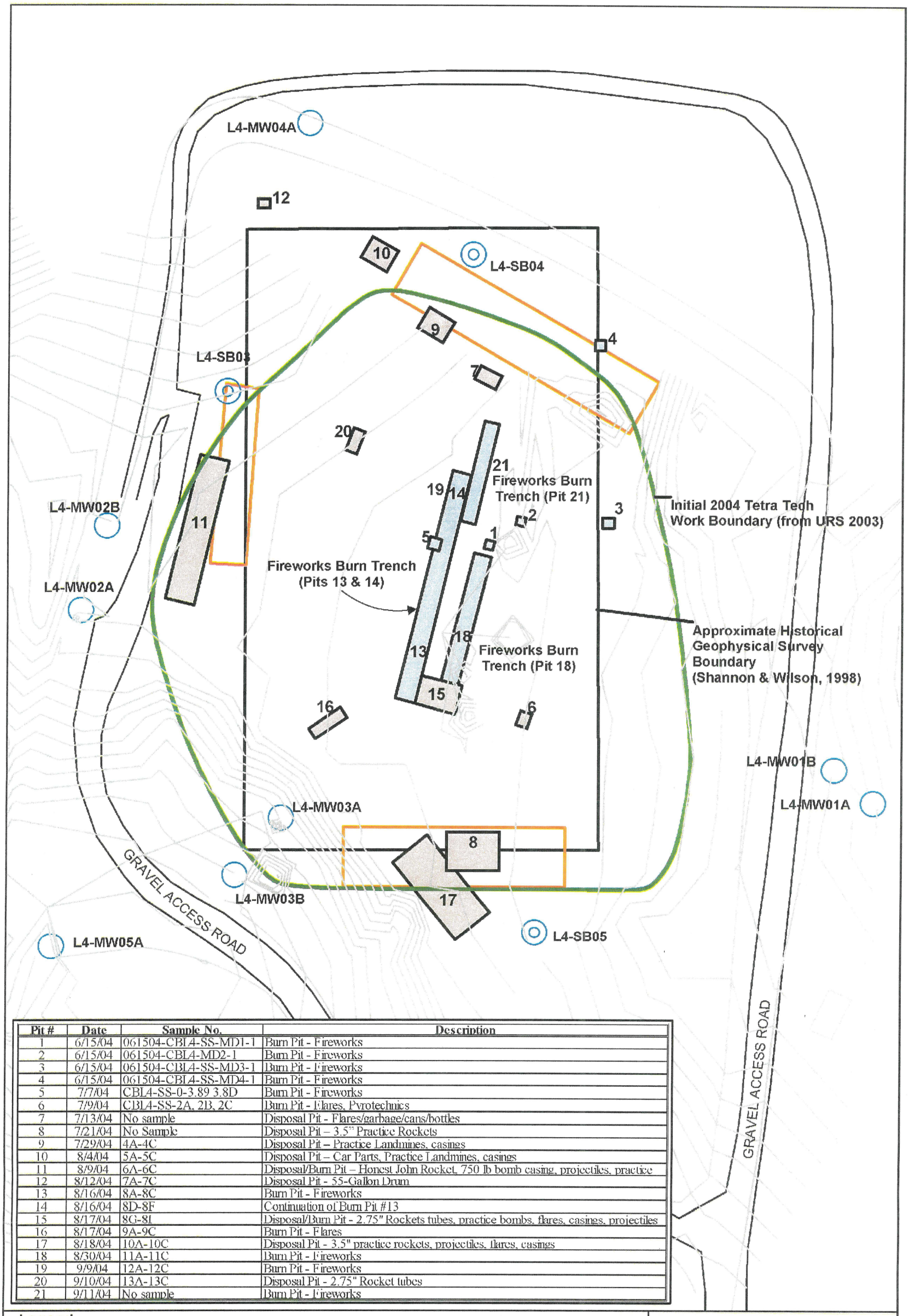
The "mag and dig" phase of the MEC support work yielded large amounts of MEC, MC, and scrap metal. There was no apparent pattern in the distribution of these items with the exception of 17 pits/trenches found during the "mag and dig" process. All disposal/burn areas were designated as pits by the field staff regardless of configuration. However, a number of the fireworks disposal pits found resembled trenches more than pits (long and narrow configuration). While these areas are labeled as trenches in the figures included in this report, for consistency they are also labeled with the appropriate pit numbers and are referred to by pit number in the report text.

Four of the pits discovered [Pits 6, 11, 15 and 16 (see Figure 2-3)] were used for open burn disposal of MC. These pits contained remnants of burned military flares and rocket motors along with practice ordnance, ammunition casings and other MD. Blackened soil and/or fuel-related odors were noted at each of these locations. Generally, the MC burn pits were located near the perimeter of the landfill area.

Six additional pits discovered [Pits 7, 8, 9, 10, 12 and 17 (see Figure 2-3)] contained MC, MD, and scrap metal that had been disposed of by burial. They were classified as disposal pits rather than burn pits since no visual or olfactory signs of burning were observed (i.e., no blackened soil or fuel odors). Items found in these pits included bomb casings, empty or inert filled projectiles, rocket pods and tubes, missile sections, empty casings of various sizes, practice landmines, and practice rockets. One pit contained 276, 3.5-inch practice rockets while another contained 120, 2.36-inch practice rockets. These pits were generally located near the outer estimated boundary of the landfill.

Seven of the pits discovered [Pits 1, 2, 3, 4, 5, 13 and 14 (see Figure 2-3)] were used for open burn disposal of civilian fireworks and other ordnance-like items. The fireworks disposal areas were generally clustered in the central portion of the landfill and sometimes overlapped. For example, Pits 13 and 14, which are long and narrow, are adjoining and appear to be part of a single fireworks burn area (trench) about 80 ft long. The areas used to burn fireworks were characterized by a black layer of waste containing items such as whole bottle rockets, star shells, and whirligigs, along with flares (civilian), and tear gas/mace canisters. All of the fireworks burn pits/trenches exuded a diesel fuel odor indicating the use of an initiating fuel for the burn. The fireworks, flares, and tear gas canisters found in the fireworks burn pits and trenches at CBL4 (during both "mag and dig" and intrusive work) filled three, 55-gallon drums.

The different types of pits/trenches that were found varied in dimension. The open burn pits for MC were small to moderate in size ranging from 4-ft × 5-ft to 15-ft × 25-ft. Depth of the bottom of the burn pits (measured from the original landfill surface) ranged from 4-ft to 13-ft. The MC/MD/scrap metal pits were also small to moderate in size ranging from 3-ft × 4-ft to 13-ft × 18-ft. Depth of the bottom of the



Pit #	Date	Sample No.	Description
1	6/15/04	061504-CBL4-SS-MD1-1	Burn Pit - Fireworks
2	6/15/04	061504-CBL4-MD2-1	Burn Pit - Fireworks
3	6/15/04	061504-CBL4-SS-MD3-1	Burn Pit - Fireworks
4	6/15/04	061504-CBL4-SS-MD4-1	Burn Pit - Fireworks
5	7/7/04	CBL4-SS-0-3.89 3.8D	Burn Pit - Fireworks
6	7/9/04	CBL4-SS-2A, 2B, 2C	Burn Pit - Flares, Pyrotechnics
7	7/13/04	No sample	Disposal Pit - Flares/garbage/cans/bottles
8	7/21/04	No Sample	Disposal Pit – 3.5" Practice Rockets
9	7/29/04	4A-4C	Disposal Pit – Practice Landmines, casings
10	8/4/04	5A-5C	Disposal Pit – Car Parts, Practice Landmines, casings
11	8/9/04	6A-6C	Disposal/Burn Pit – Honest John Rocket, 750 lb bomb casing, projectiles, practice
12	8/12/04	7A-7C	Disposal Pit - 55-Gallon Drum
13	8/16/04	8A-8C	Burn Pit - Fireworks
14	8/16/04	8D-8F	Continuation of Burn Pit #13
15	8/17/04	8G-8I	Disposal/Burn Pit - 2.75" Rockets tubes, practice bombs, flares, casings, projectiles
16	8/17/04	9A-9C	Burn Pit - Flares
17	8/18/04	10A-10C	Disposal Pit - 3.5" practice rockets, projectiles, flares, casings
18	8/30/04	11A-11C	Burn Pit - Fireworks
19	9/9/04	12A-12C	Burn Pit - Fireworks
20	9/10/04	13A-13C	Disposal Pit - 2.75" Rocket tubes
21	9/11/04	No sample	Burn Pit - Fireworks

Figure 2-3 Location of Disposal Pits and Trenches

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disposal pits (measured from the original landfill surface) ranged from 2 ft to 13 ft. The first fireworks burn areas found were relatively small, ranging in size from 1-ft × 1 ft to 4-ft × 4 ft. Depth of the bottom of these fireworks burn pits (measured from the original landfill surface) ranged from 1-ft to 4-ft. Later in the "mag and dig" process, larger fireworks burn pits were found. These pits were long and proportionately narrow, resembling trenches more than pits. Pits 13 and 14, which were adjacent to one another, appeared to be part of a single burn trench based on location and configuration. The aggregate size of this trench (both pits) was 6-ft × 80-ft. Depth of the bottom of this trench (measured from the original landfill surface) was 12 ft.

Two incidents occurred during the "mag and dig" phase that required Tetra Tech to call for assistance from the Explosive Ordnance Disposal (EOD) detachment response at Fort Lewis, Washington. Tetra Tech was required to contact this entity in the event that any suspect chemical munitions were located. The first incident occurred during the removal of the second 6-inch lift of soil from CBL4 when the excavator operator uncovered an item that had color-coding similar to a chemical munition. The item was actually an empty rocket motor; however, the portion of the motor exposed bore a significant resemblance to a chemical round. The second incident involved a 5-inch rocket that also had the color-coding of a chemical munition. This item was identified by EOD detachment from Fort Lewis as a practice rocket that was painted to look like a chemical rocket. Pictures of the suspect chemical warfare material (CWM) items are included in Appendix A.

Other items of interest discovered during the "mag and dig" operations at CBL4 included a 3-inch, Civil War era Burton Projectile and an inert, segmented (broken up) Honest John Rocket. The Burton Projectile was turned over to the Army for evaluation and preservation as an historical artifact. The Honest John rocket was disposed of along with other MC. During the "mag and dig" phase a CAIS canister was also found. This type of hollow metal canister, commonly called a "Pig", was used from the early 1940s (World War II) until the 1960s to ship chemical identification sets. These sets contained very small quantities of chemical agents or "simulants" used to perform training exercises. The small glass vials containing training material were stored inside wooden cases that were then placed inside the Pig for shipping. The Pig had square holes cut in the sides and was found in a pit containing MC and trash. No glass vials, broken glass, or discolored soils were observed in the area around the Pig. The condition of the Pig and the environment in which it was found indicated that it was likely used to practice cutting with shaped explosive charges. The Pig itself was not classified as MEC or MC and, based on field observations and past experience, its presence was not considered a significant indicator of potential CWM contamination. Pigs have been found on many historical ordnance use sites where no CWM has been located and no indications of CWM are present.

2.3.5.3 Intrusive Investigation

The UXO team acquired and investigated 378 subsurface anomalies during the intrusive investigation. Two MEC items were located during these investigations (both .50 caliber cartridges), along with 352 MC items primarily consisting of empty shell casings. MEC/MC found was relatively uniformly distributed over the site with the exception of four pits found during the investigation.

One pit discovered during the intrusive work [Pit 20 (see Figure 2-3)] contained MC, MD, and scrap metal. It was classified as a disposal (burial) pit rather than a burn pit since no visual or olfactory signs of burning were observed (i.e., no blackened soil or fuel odors). Items found in the pit were primarily 2.75-in rocket tubes. This pit was thought to be an extension of a pit (Pit 8) found during "mag and dig" operations. The pit was located near the outer estimated boundary of the landfill.

Three of the pits discovered [Pits 18, 19 and 21 (see Figure 2-3)] were used for open burn disposal of civilian fireworks. These disposal areas were generally clustered in the central portion of the CBL4. As in some of the fireworks pits discovered earlier, two of these pits (Pits 18 and 21) resembled long, narrow trenches rather than square or circular pits. The areas used to burn fireworks were characterized by a black layer of waste containing items such as whole bottle rockets, star shells, and whirligigs. All of the fireworks burn pits exuded a diesel fuel odor indicating the use of an initiating fuel for the burns.

The pits found during the intrusive phase varied in size. The MC disposal pit measured 4-ft × 8-ft. Depth to the bottom of this pit was about 7 ft. Pit 19 (fireworks disposal) was small (approximately 4-ft × 4-ft), while Pits 18 and 21 were long and narrow and appeared to be part of a single fireworks burn trench. Pit 18 measured 6-ft × 50-ft and was about 13 ft deep. Pit 21, nearly adjacent to Pit 18 was 5-ft × 35-ft. This pit was also about 13 ft deep.

2.3.5.4 Soil Screening

MEC discovered during soil screening consisted primarily of small arms rounds. Two unfired, 40-millimeter (mm) projectiles with casings were found, as well as one 90-mm practice projectile and a small number of flares and cartridge actuation devices (CADs) were also found. MC found during soil screening predominantly consisted of empty shell casings.

2.3.6 Disposal and Demilitarization Activities

MEC, MC, and MD were disposed of in accordance with the approved CAWP. Techniques applied included: disposal by detonation of MEC and other items containing explosives; detonation of MC potentially contaminated with ordnance compound residues to remove the explosive hazard; and demilitarization of inert and practice items to verify their inert state and eliminate their resemblance to munitions items (i.e., items disposed of by recycling with civilian firms were cut or deformed so that they no longer looked like munitions or ammunition).

All disposals by detonation were conducted in sand-bagged enclosures consistent with the guidance provided in USACE HNC-ED-CS-S-98-7, Use of Sandbags for Mitigation of Fragmentation and Blast Effects due to Intentional Detonation of Munitions (U.S. Army Corps of Engineers 1998). Implementation of this guidance minimized noise, over pressure, and potential damage from disposal operations. Following disposal of all MEC items, surface soil in the disposal area was characterized to ensure that ordnance contamination was not present which would require soil removal and disposal.

MC requiring thermal treatment to ensure that no explosive or reactive chemical residue was present was placed on planned disposal shots along with MEC, optimizing explosives use and reducing the total number

of disposal shots required. Heat generated during the disposal burned off all potential explosive/reactive chemical residues. There was one exception to this procedure for thermal treatment. The remnants of several Mark 6, red phosphorus distress flares were discovered at CBL4. These flares are supported by a heavy zinc end-cap that kept the flare upright during its decent or when floating in water. The end-caps were attached to the wooden flare box by adhesive. The adhesive on the end-caps found at CBL4 were suspected to contain red phosphorus residue, based on the auto-ignition of a cap, which was exposed to sunlight and high air temperatures. Burning is typically used to remove this type of residue; however, this technique was not approved for the CBL4 project, and detonation is ineffective in removing this type of residue. Therefore, the adhesive residue was scraped from the end caps prior to disposal via recycling. The residue was containerized and shipped to a hazardous waste landfill for disposal.

Demilitarization of inert items to eliminate their resemblance to munitions was conducted using jet perforators and shaped-charges to cut and deform the items. These items were first cut open to allow inspection and to confirm that the items were inert. The items were then re-cut using sufficient shaped-charges to render the items unrecognizable. The demilitarization process was not subject to the requirements in USACE HNC-ED-CS-S-98-7 since the operation did not involve "disposal" of munitions or explosives; however, sandbags were placed atop the items treated in order to reduce noise and protect UXO personnel performing this operation.

Nineteen disposal shots were performed to destroy MEC items found and thermally treat MC items to ensure that they did not contain any explosive residue. UXO personnel conducting disposal utilized approximately 40 pounds of pentolite booster (donor charge), along with 50 pounds of Kinepak (binary explosive) and 27 jet perforators (specialized shape charges that create perforating/cutting jets). Several types of explosive were used in disposal operations (and demilitarization) since each type has particular characteristics that make it more desirable for disposal of certain types of MEC.

Demilitarization operations were conducted for 13 days. The objective of demilitarization operations was to deform and fragment inert/practice ordnance prior to recycling. Items that bore a visual resemblance to ordnance could not be turned over for civilian recycling. Demilitarization operations required approximately 20 pounds of pentolite booster, along with 25 pounds of Kinepak, 60 jet perforators, and 50 linear feet of shaped-charge.

2.3.7 Scrap Handling and Disposal

All scrap metal resulting from disposal and demilitarization operations was thoroughly inspected for explosive/reactive chemical residue by the SUXOS and the UXO QC/safety specialist on site prior to being turned over to a local recycling facility for dispensation. The manifest documenting transfer of the scrap material is included as Appendix B of this report.

The approved CAWP called for all ordnance-related scrap leaving the site to be jointly inspected with Army personnel to ensure proper disposal. At the end of the project, Tetra Tech was informed that the Army had not formalized the requirement for this joint inspection and would not be providing personnel for this activity for the CBL4 project. As a result, inspection of the scrap material was not performed by an Army representative.

2.4 REMOVAL ACTION

2.4.1 Interim Removal Activities

Following completion of MEC/MC removal activities, excavation of contaminated soils and other debris at CBL4. All landfilled material and associated soil contaminated above MTCA Method B soil cleanup levels was excavated and removed.

Limits of the material and soil excavated (i.e., above the MTCA method B soil cleanup levels) were determined through a combination of visual inspection and confirmatory sampling. Figures 2-4 through 2-7 show areas that required additional excavation based on intermediate or "excavation guiding" sampling results. In instances where the excavation extended to the water table and results of the intermediate sampling still exceeded MTCA Method B cleanup levels for soil, sampling results were discussed with the WDOE prepresentative assigned to the project to determine if additional excavation or some form of treatment was appropriate. Prior to the last excavation (i.e., in the west side), when perchlorate sampling results indicated that some of the perchlorate concentrations at the bottom of the excavation were still above criteria, WDOE and the Army directed Tetra Tech (on December 17, 2004) to excavate the area an additional 1 to 3 ft, or until water saturated soils were encountered. This direction was based on a review of well logs and associated groundwater elevation data from wells MW02A and MW02B, located immediately west of the pit excavation. This elevation data (collected on December 2, 2004) indicated that the groundwater table was approximately the same as, or slightly above, the bottom of the west side excavation at that time. It was therefore anticipated that completely saturated soils would be encountered within 3 ft of the bottom of the excavation. At this point, it was determined that safety issues associated with excavation and sampling of saturated soils at this depth (approximately 27 ft bgs) would preclude any further excavation or sampling once an additional 3 ft of saturated soil was removed from the bottom of the west side pit. The last 3 ft of soil was then removed from December 18-20, 2004. WDOE inspected the final excavation on December 20, 2004 and directed Tetra Tech to conduct one last round of confirmation sampling in the excavated area. The final confirmation sampling of the saturated soils was conducted on December 22, 2004. It was also reasoned that any residual contamination remaining at this final depth of approximately 30 ft (i.e., within the saturated zone) would be addressed in the future second phase of the remediation (i.e., the groundwater remediation phase), if deemed necessary. All intermediate or "excavation guiding" soil sampling results are included in Figures 2-4 through 2-7 and in Appendix C (Table C-1). Final confirmation sample results, indicative of the final residual concentrations of the analytes in remaining soils at the conclusion of the excavation, are discussed in Section 5.0 of this report.

The excavated material was visually sorted into three classifications (landfill debris, obviously stained or contaminated soil, and visually uncontaminated landfill soil) before loading it for transport to the stockpile area. After transportation to the stockpile area, the material was further sorted and profiled for appropriate disposal. Soil waste profile data is included in Appendix B of this report.

UXO personnel remained onsite during all excavation and sorting activities following the MEC/MC removal phase to provide MEC/MC avoidance. All construction equipment used on the cleanup action was decontaminated before being removed from Camp Bonneville.

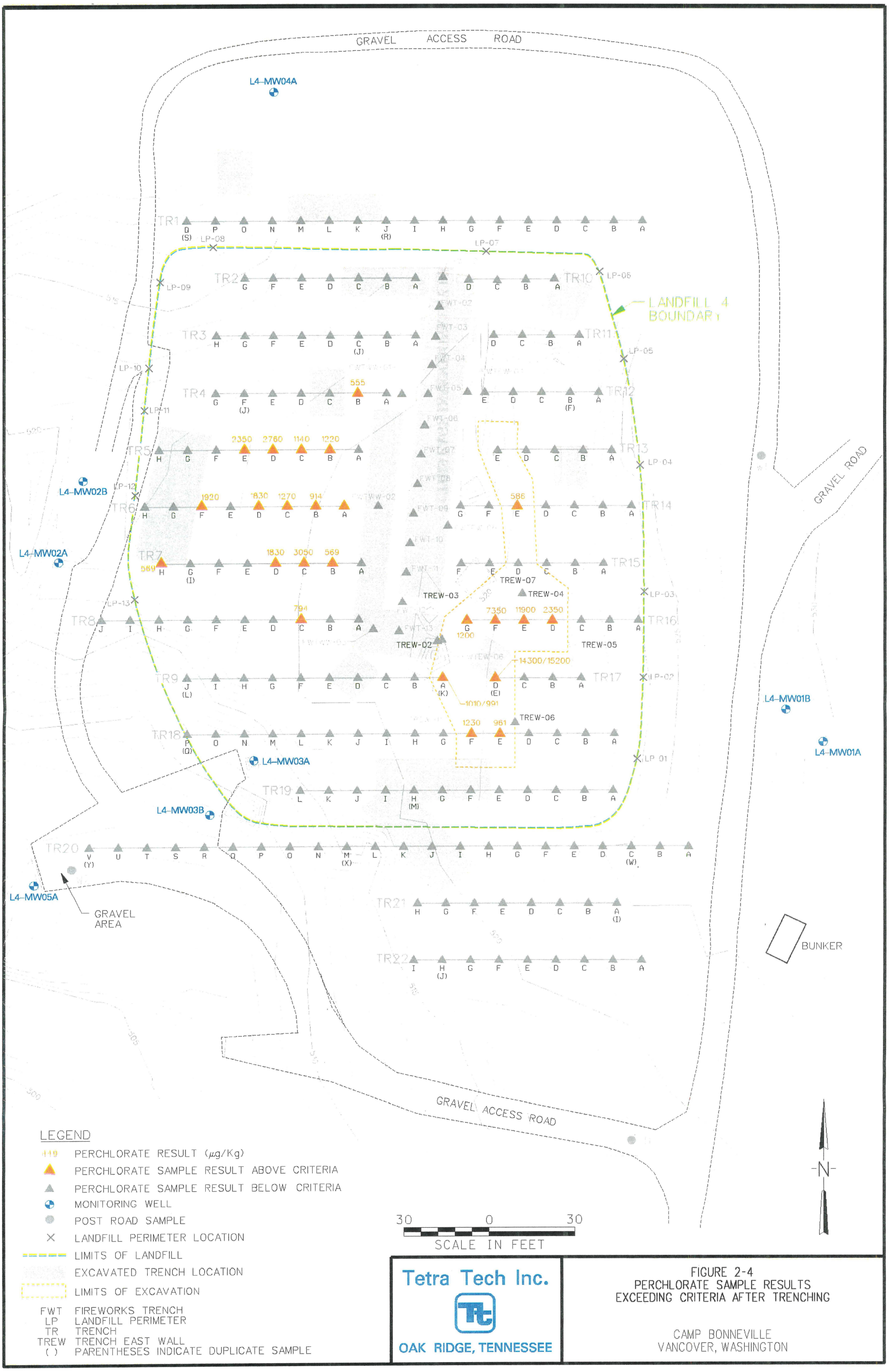

Figure 2-4 Perchlorate Sample Results Exceeding Criteria after Trenching

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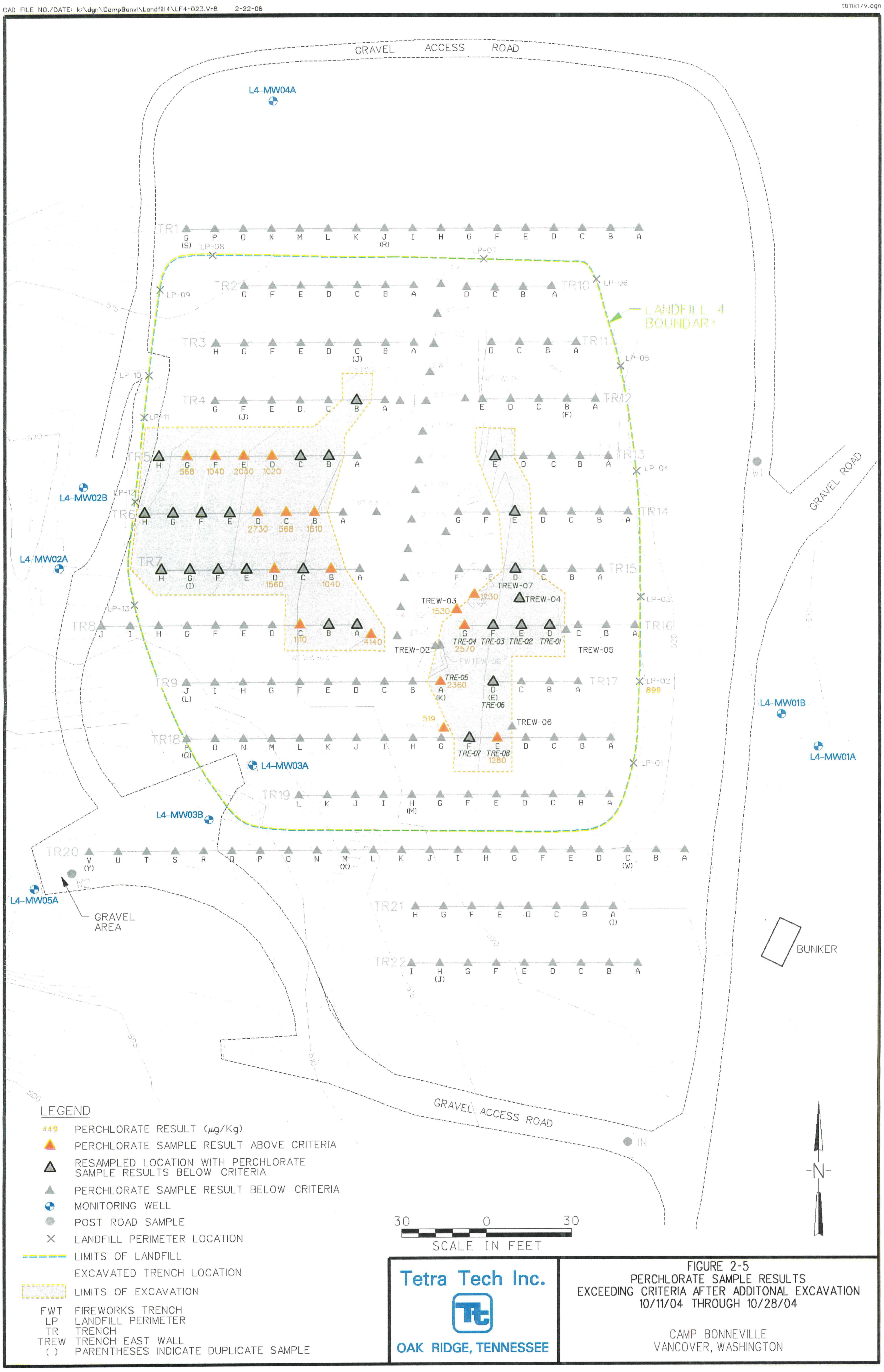

Figure 2-5 Perchlorate Sample Results Exceeding Criteria After Additional Excavation 10/11/14 through 10/28/04

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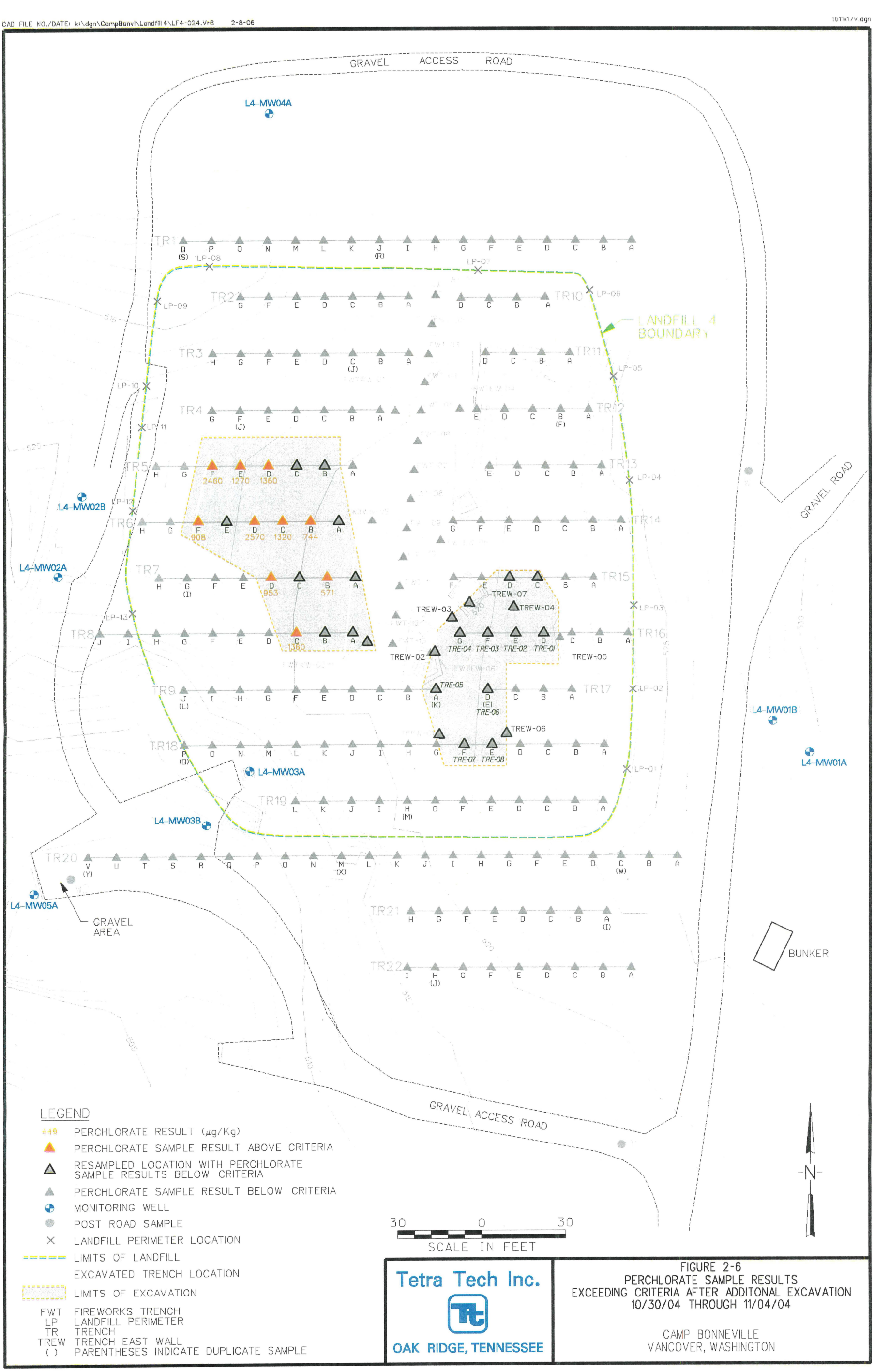

Figure 2-6 Perchlorate Sample Results Exceeding Criteria After Additional Excavation 10/30/04 through 11/04/04

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Figure 2-7 Perchlorate Sample Results Exceeding Criteria After Additional Excavation 11/26/04 through 12/17/04

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2.4.2 Quantities and Types of Wastes Generated

2.4.2.1 MEC/MC and MD Wastes

The final component of MEC/MC support actions was the inspection and disposal (i.e., destruction) of MEC/MC and MD and final disposition of the wastes. All MEC and MC were disposed of by sand bag tamped detonation at the landfill. The method and location were selected in order to: 1) prevent the spread of contamination at Camp Bonneville; 2) limit the amount of handling and transport required; and 3) ensure that items were free of energetic materials prior to disposition. Although the CAWP directed that this activity also include a joint inspection of the final waste material with the Army prior to disposition off site, at the end of the project Tetra Tech was informed that the Army had not formalized the requirement for this joint inspection and would not be providing personnel for this activity for the CBL4 project. As a result, inspection of the material requiring off site disposal was not performed by an Army representative.

2.4.2.2 Non-MEC/MC and Non-MD Excavated Wastes

Excavated material from CBL4 was visually sorted into three classifications: 1) landfill debris; 2) obviously stained or contaminated soil; and 3) visually uncontaminated landfill soil. Each of the three types of material was then sampled to obtain sufficient information for profiling prior to disposal. The total volume of material to be disposed of was estimated to be 13,333 cubic yards (yd^3) (in place). It was estimated this would produce 16,667 yd^3 of excavated waste.

Waste profiling was accomplished, in accordance with disposal facilities' waste acceptance criteria (WAC), by collecting and analyzing a sample every 200 yd^3 for the first 2,000 yd^3 and a sample every 500 yd^3 thereafter. The samples were analyzed for all parameters required by the WAC for each of the receiving disposal facilities. Actual quantities are included in Table 2-2 and waste classification sample results are included in Appendix B.

Table 2-2 provides a summary of the various wastes produced during the IRA.

Table 2-2 Waste Summary

Month	CBL4 Soil Excavated (tons)	CBL4 Soil Screened (tons)	Scrap Metal Collected (lbs)	Soil to Hillsboro Landfill (tons) [1]	Soil to Coffin Butte Landfill (tons) [1]	Total soil moved to landfill (tons)
May	0	0	5400			0
June	863	0				0
July	1688	0				0
August	2549	1590		1973		1973
September	4274	9988				0
October	3809			5866.72	2544.26	8410.98
November	1429			3011.14	1907.22	4918.36
December	997			1197.88		1197.88
Totals	15609	11578	5400	12048.74	4451.48	16500.22

[1] non-hazardous waste

All excavated soils were classified as non-hazardous waste, and were transported to, and disposed of at the Waste Management Facility located in Arlington, Oregon and the Hillsboro municipal landfill located in Hillsboro, Oregon. All wastes were transported by properly placarded, covered, and decontaminated highway trucks. The trucks were lined with plastic before being filled with waste, inspected, and any material on the exterior surfaces was removed and the area decontaminated before leaving Camp Bonneville. Approximately 40,000 pounds (gross weight) of metal waste that was suitable for recycling was characterized and recycled by shipment to Metro Metals in Portland, Oregon (see Appendix B). No hazardous waste was generated during this action and, therefore, no hazardous waste shipments or disposals were required. All waste transportation and disposal documentation became part of the project file in accordance with the CAWP, and is included in Appendix B of this report.

2.4.3 Decontamination

The trucks transporting the excavated landfill material to the stockpile area did not enter the landfill excavation. Trucks were staged and loaded from the working area immediately adjacent to the landfill excavation area. Before leaving the landfill area, each truck was driven into the site decontamination area where the load of excavated landfill material was covered and all other landfill material (i.e., loose soil on the exterior surfaces of the truck) was removed from the exterior of the truck (e.g., tires, fenders, etc.). In addition, the road between the landfill and the stockpile area was routinely inspected to ensure that no landfill material had fallen off of the trucks during transport on site.

The same general procedures were used before the trucks returned from the stockpile area. At the conclusion of the project, the roads were sampled, tested, and compared to baseline (i.e., background results) at approximate 500-ft intervals to confirm that the decontamination procedures were effective and that no residual contamination remained along the haul routes. All post-excavation samples collected along the roadway were below the cleanup criteria (i.e., the only analyte detected above the detection limit was perchlorate at 0.033 µg/kg and 0.115 µg/kg) and demonstrated that residual contamination was controlled and confined to the work site areas.

All disposal trucks and equipment leaving the site were decontaminated before leaving. The decontamination pad in the equipment and materials lay-down area near the stockpile area was used for all decontamination activities. All trucks and equipment were cleaned and inspected before being released from Camp Bonneville.

3. SITE RESTORATION AND DEMOBILIZATION

Prior to initiation of the removal action, it was estimated that approximately 18,000 tons of material would be required to backfill the landfill excavation. Table 3-1 provides a summary of the actual quantities of suitable fill that was obtained from off site and backhauled to Camp Bonneville, as well as the crushed stone that was used for improvements of the road and construction of the magazine and staging areas.

Table 3-1 Quantities of Backfill Used

Month	Backfill Material Received On Site (tons)	Crushed Stone Received On Site (tons)
May		1367
June		1000
July		0
August		167
September		333
October		924
November	2429.27	
December	8603.96	
January	4711.11	
Totals	**15744.34**	**3791**

Backfill material was pre-selected and analyzed for a suite of chemicals to ensure this soil was suitable for use as backfill. Backfill material was then stockpiled at the lay-down yard and transported to the excavated areas with off-road trucks when needed. The majority of the backfill material selected for use at the site was a granular material (70 percent greater than one-fourth inch, 100 percent less than 6-inch quarry spoil). The granular material was the material of choice due to the significant amount of rain that had fallen on the open excavation. Use of the granular material allowed work to continue during periods of moderate to heavy rainfall and during times of saturated conditions in the excavation (i.e., it compacted well even when wet). Once the granular material was unloaded at the site, it was spread in horizontal layers using a small dozer and excavator. The material was then compacted using a pad-foot drum roller (10,000 to 14,000 pounds). Backfill and subsequent compaction continued until the compacted material extended up to approximately 3 ft below the anticipated finished grade. Backfilling stopped at this point to allow the placement of approximately 3 ft of an appropriate topsoil after the excavation had an opportunity to dry out since it was determined that the topsoil could not be sufficiently compacted when saturated.

The work force returned to the site in June 2005 and completed backfill operations by placing approximately 3 ft of topsoil on top of the granular material. The topsoil was placed in 9- to 12-inch lifts and compacted to a minimum of 90 percent relative compaction (the minimum compaction specified in the work plan was 85 percent of maximum dry density). This material was also tested for suitability as

backfill. The results of ten Proctor compaction tests performed on the topsoil indicated that the average compaction was 94.88 percent compaction at 19.3 percent optimal moisture and a laboratory determined maximum dry density of 105.6 pounds per cubic foot.

After the landfill was backfilled and compacted, it was graded to blend into the surrounding topography. In addition, after grading, the Site was stabilized with erosion mats and revegetated with native and grass-type species.

4. MODIFICATIONS TO THE INTERIM REMOVAL ACTION WORK PLAN

The CAWP indicated that this IRAR would include a groundwater monitoring plan. Since groundwater monitoring at CBL4 is being conducted by another subcontractor, utilizing an existing groundwater monitoring plan, this IRAR does not include a separate groundwater monitoring plan.

As described in Section 2.3.2, an FCR was filed during the course of the "mag and dig" operations. Approval of this request allowed UXO personnel to pursue and complete disposal/burn pits and trenches to depth in order to facilitate organized investigation and analysis of these areas. Removal of the MEC/MC from these pits/trenches in layers was inefficient and led to fragmented data and an incomplete understanding of the nature of these areas. The approved FCR also allowed UXO personnel to manually screen the soils removed from pits and trenches using a screen constructed from cyclone fencing.

As mentioned in section 2.3.7 of this IRAR, the final, approved CAWP required that all ordnance-related scrap leaving Camp Bonneville be jointly inspected by Army personnel in order to ensure proper segregation and disposal. At the end of the project, Tetra Tech was informed that the Army had not formalized the requirement for this joint inspection and would not be providing personnel for this activity for the CBL4 project. As a result, inspection of the scrap material was not performed by an Army representative.

During removal action, WDOE, Army, and Tetra Tech agreed that several exploratory trenches would be excavated at the site in order to ensure that no additional burial areas were missed. The trenches were excavated (trenches TR1 through TR22) and soil samples were collected on the walls and floors of the trenched area, and analyzed for the target analytes. These trench sample locations and results ultimately became the locations for the final confirmatory samples when the point of compliance was reached.

Lastly, although the CAWP indicated that 12 biased samples would be collected, after consultation with WDOE, confirmatory samples were only collected on the sampling grid, along the excavation walls, and around the perimeter of the landfill.

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5. SUMMARY AND VERIFICATION OF WORK PERFORMED

Prior to the mobilization for this action, Tetra Tech suggested that based on existing characterization data, a separate boundary investigation was not necessary prior to landfill excavation. The boundary borings which had been drilled on site previously were deemed sufficient to define the general boundaries of the landfill, and additional borings would not add significant value. The visual inspection and the confirmatory soil samples collected during the excavation of the landfill were therefore used to define landfill boundaries. During excavation of CBL4, visual inspections were used to ensure that all of the suspected landfill material and associated debris was removed. Once visual inspections indicated that the excavation had most probably extended to the anticipated limit of the contamination, confirmatory soil samples of the walls and the floor of the excavation were then collected to ensure that the soil contaminated above MTCA Method B cleanup levels has been excavated and removed.

As specified in the CAWP, Tetra Tech inspected the entire excavation and collected confirmatory soil samples from the bottom of each trench excavation. Samples were collected on a 10-ft grid spacing, rather than the 25-ft minimum grid spacing along the bottom of each trench specified in the CAWP (see Figure 5-1). Although the CAWP indicated that 12 biased samples would be collected from locations determined to indicate areas of possible soil contamination, after consultation with WDOE, confirmatory samples were only collected on the sampling grid, along the excavation walls, and around the perimeter of the landfill. The site conceptual model that provided the rationale for the grid size is discussed in the SAP.

Although the CAWP specified that confirmatory samples were to be collected every 40 ft along the walls of the excavation (i.e., at the midpoint on each the wall, and at one ft bgs), as the remediation progressed, the lateral expansion of the excavation resulted in parallel trenches being combined into one larger excavation (i.e., multiple excavated trenches became several much larger excavated areas). As this occurred, the need for confirmatory samples along the walls of the trenches became unnecessary because the walls between the trenches no longer existed (i.e., they were removed).

All confirmatory samples were analyzed for COPCs as specified in the SAP (and included in Table 1-1 of this document) to determine compliance with the cleanup criteria. All confirmatory sample results are included in Appendix C and discussed in subsequent sections.

5.1 CONFIRMATORY SAMPLING RESULTS

The results of the confirmatory sample are presented in Appendix C, where they are compared to the cleanup criteria, (i.e., the MTCA Method B criteria). Soil sampling results indicative of the final residual concentrations of the analytes in remaining soils at the conclusion of the excavation are included in Appendix C.

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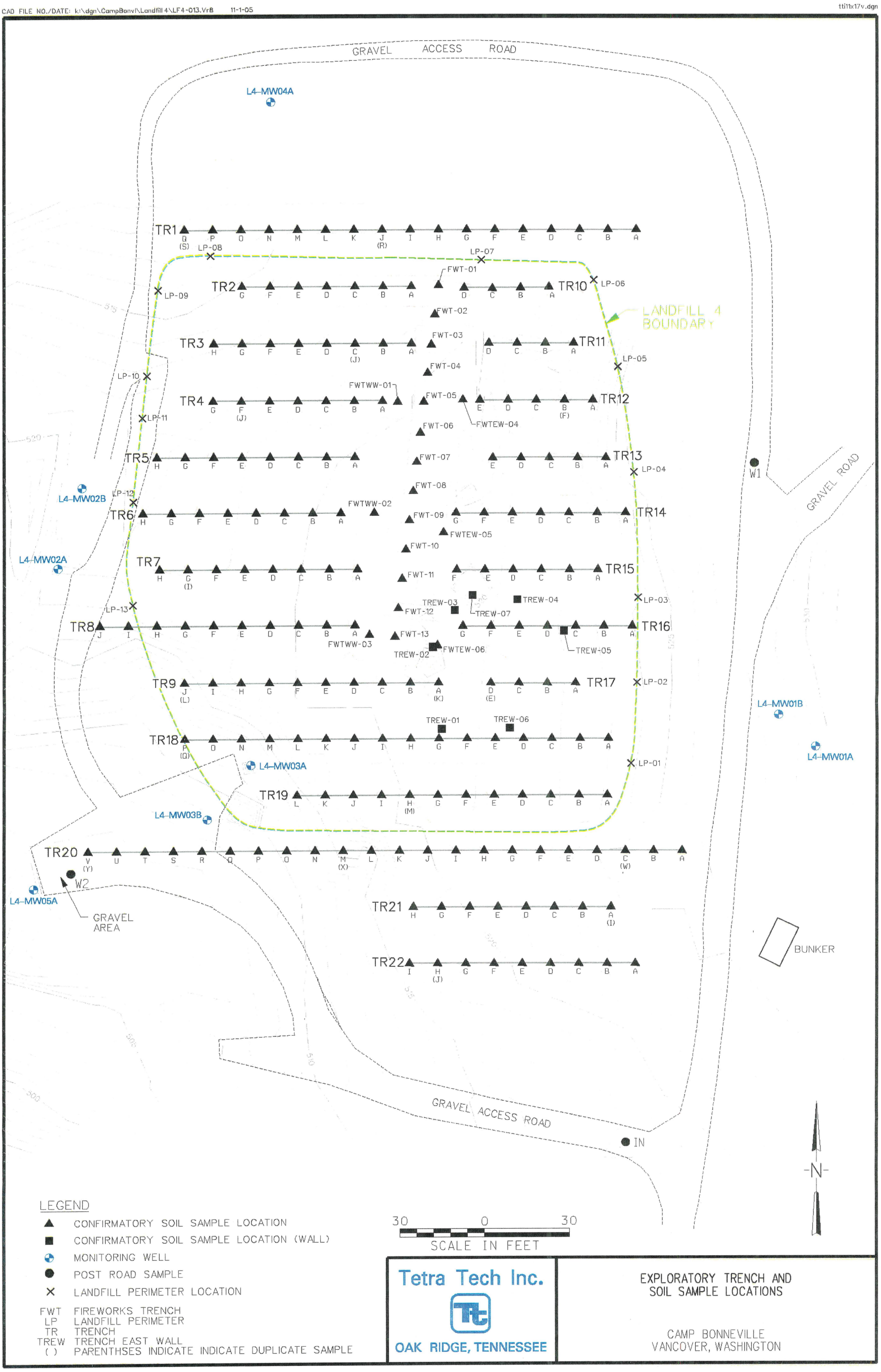

Figure 5-1 Exploratory Trench and Soil Sample Locations

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5.2 POST-INTERIM REMOVAL ACTION STATUS

Excavation continued at the landfill until the residual concentration for each of the cleanup criteria target analytes (i.e., the MTCA Method B soil cleanup levels) were reached, or where the excavation of the contaminant source encountered groundwater. Because the likely operational history of Camp Bonneville links contaminant sources with landfill disposal and ordnance demolition, it is suspected that during construction and operation of the landfill, wastes were not placed below the water table. As a result, contaminated soil below the water table was not considered to likely represent primary sources. The contaminants of concern in the groundwater at CBL4 are RDX and perchlorate. The contaminants exhibit relatively low sorption coefficients (i.e., they tend to remain in solution and are not typically sorbed to aquifer solids). The most efficient way to remediate the sorbed components on aquifer solids is to treat (e.g., in situ biodegradation) the dissolved phase components thereby promoting further desorption and treatment. Therefore, the excavations terminated, and authorization to backfill the excavated area was received from WDOE when: 1) confirmatory soil results indicated concentrations were below the selected cleanup criteria derived from MTCA Method B; or 2) when WDOE determined the hazardous substances were at concentrations that no longer posed an unacceptable risk to human health or the environment.

Excavation to remove the sources within the landfill was initially terminated once native soil was encountered in the floor of the excavation, as determined by visual inspection. Confirmatory samples were then taken at 10-ft intervals across the bottom of the excavation (Figure 5-1). Confirmatory samples were then analyzed for the selected substances identified as the cleanup criteria for soils, and results were provided to the WDOE site manager for concurrence. Upon review of the confirmatory sample results, the WDOE site manager determined which of the following two courses of action was appropriate:

1) When initial confirmatory results were below the site cleanup criteria, the WDOE site manager indicated the excavation could cease, and the area was approved for backfill; or

2) When initial confirmatory sample results indicated that the cleanup criteria had not been obtained, and groundwater had not yet been encountered, the WDOE site manager required additional excavation and subsequent sampling and analysis.

When the WDOE site manager indicated that excavation was complete in a particular sampling location, the sample result upon which this determination was reached became the final confirmatory sample result. The actual depths where the final confirmatory sample was collected (relative to ground surface at the perimeter of the excavated area) is included in Tables C-2 through C-5.

Because the contaminants of concern in groundwater at CBL4 are RDX and perchlorate, excavations were primarily driven by the residual soil concentration of these two analytes.

Soil cleanup levels for the selected substances were divided into three primary categories: 1) explosives and propellants; 2) VOCs; and 3) metals. The following sections describe the final confirmatory sample results for each of these categories.

5.2.1 Confirmatory Sample results for Explosives and Propellants

Final confirmatory samples were analyzed for 2,4-dinitrotoluene, perchlorate ion, HMX, and RDX. The cleanup criteria for 2,4-dinitrotoluene, derived from the MTCA Method B soil cleanup level was 0.5 mg/kg [0.5 parts per million (ppm)] (See Table 5-1). Results for the final confirmatory soil samples analyzed for 2,4-dinitrotoluene (which is a semi-volatile organic compound) were all below the detection limit which ranged from 10.4 to 57.6 µg/kg or [parts per billion (ppb)].

Table 5-1 Cleanup Criteria for Explosives and Propellants

Selected Indicator Hazardous Substances	Site Cleanup Criteria derived from MTCA Method B Soil Cleanup Level (mg/kg)	USEPA Region 9 PRG (mg/kg)
Explosives and Propellants		
2,4-dinitrotoluene	0.5	120
Perchlorate Ion	0.5	7.8
HMX	3.2	3,100
RDX	0.5	4.4

The cleanup level for perchlorate ion (perchlorate), also derived from the MTCA Method B cleanup level, was also 0.5 mg/kg (0.5 ppm), or 500 µg/kg (500 ppb). Concentrations of perchlorate detected in final confirmatory samples ranged from non-detectable (ND) to 15,200 ppb. Of the 273 final confirmatory samples analyzed for perchlorate, 14 samples (5.1 percent of the final confirmatory soil samples analyzed) exceeded the interim removal action cleanup criteria. These exceedences indicated that residual perchlorate concentrations above criteria were located in a few discrete areas: at a depth of 19.5 ft bgs at the eastern end of trench 5; at a depth of 27.5 ft bgs in the eastern portions of trenches 6, 7, and 8; and at one location on the eastern end of trench 18. In addition, samples collected in portions of the fireworks trench were also above criteria (see Figure 5-2). WDOE reviewed each perchlorate result and directed when and where additional excavation should occur, and ultimately when the excavation was complete based on the criteria and basis for action as described above Section 5.2. Confirmatory samples were also analyzed for the explosive compounds RDX and HMX, with cleanup criteria of 500 ppb and 3000 ppb respectively. With the exception of two sample locations, all final confirmatory samples were below the criteria for RDX and HMX. One of the exceptions was in a landfill perimeter sample (taken at location LP-05) with a final confirmation sample result of 33,000 ppb for RDX. The excavation was terminated at this location at 8.5 ft bgs. The other exception was a landfill perimeter sample (at location LP-13) with a final confirmation sample result of 580 ppb for HMX, where the excavation was terminated at 5.5 ft bgs. All confirmatory sample explosive and propellant results are included in Tables C-2 and C-3 in Appendix C.

Figure 5-2 Soil Sample Locations with Perchlorate Concentrations above Cleanup Criteria

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5.2.2 Confirmatory Sample results for Volatile Organic Compounds

Cleanup criteria for VOCs, based on MTCA Method B Soil Cleanup Levels, included criteria for benzene, dichlorodifuoromethane, 1,1-dichloroethene, 1,1,1-trichloroethane, tetrachloroethene at concentrations shown in Table 5-2.

Table 5-2 Cleanup Criteria for VOCs

Selected Indicator Hazardous Substances	Site Cleanup Criteria derived from MTCA Method B Soil Cleanup Level (mg/kg)	USEPA Region 9 PRG (mg/kg)
VOCs		
Benzene	0.05	0.6
Dichlorodifuoromethane	6.4	94
1,1-dichloroethene	0.003	120
1,1,1-trichloroethane	1.584	1,200
Tetrachloroethene	0.053	1.5

Dichlorodifuoromethane was not detected in any final confirmatory sample from CBL4. None of the other cleanup criteria VOCs detected in confirmatory samples exceeded the site cleanup criteria. All VOC sample results for the final confirmatory samples are in Appendix C, Table C-4.

5.2.3 Confirmatory Sample Results for Metals

The cleanup criteria for metals, as shown in Table 5-3 below, were based on the MTCA Method B Soil Cleanup Levels to protect groundwater.

Table 5-3 Cleanup Criteria for Metals

Selected Indicator Hazardous Substances	Site Cleanup Criteria derived from MTCA Method B Soil Cleanup Level (mg/kg)	USEPA Region 9 PRG (mg/kg)
Metals		
Arsenic	6.0	22
Barium	450	5,400
Chromium III	576	100,000
Chromium VI	27	30
Copper	267	3,100
Iron	36,100	23,000
Lead	17	400

Selected Indicator Hazardous Substances	Site Cleanup Criteria derived from MTCA Method B Soil Cleanup Level (mg/kg)	USEPA Region 9 PRG (mg/kg)
Zinc	96	23,000

Arsenic was detected above the cleanup criteria in 19 of the confirmatory samples (at concentrations ranging from 6.09 ppm to 107 ppm). However, arsenic was also identified and documented in Clark County background soil samples at comparable concentrations, and as a result was not considered by WDOE to be of concern at CBL4. Barium was detected above the cleanup criteria in 11 samples (ranging from 454 ppm to 656 ppm).

Chromium concentrations in the final confirmatory samples were below site criteria. Copper was detected above criteria in 13 final confirmatory soil samples at concentrations ranging from 268 ppm to 321 ppm. Iron was detected above the cleanup criteria in 246 final confirmatory soil samples at concentrations ranging from 44800 ppm to 128000 ppm (i.e., 1.2 to 3.5 times the criteria). Iron concentrations, although above criteria, were fairly uniform across the majority of the site, and are representative of the natural range of iron concentrations in similar soils. Lead concentrations only exceeded soil criteria in three final confirmatory samples at concentrations ranging from 17.7 ppm to 115 ppm. Zinc concentrations exceeded the soil criteria in 114 final confirmatory samples at concentrations from 98.8 ppm to 307 ppm. Indicator metal results for all final confirmatory samples, and comparison to the cleanup criteria are included in Table C-5.

5.3 CONCLUSION

Based on final confirmatory sample results, WDOE indicated, on December 20, 2004, that excavation was complete. After final status soil samples were collected from the bottom of the excavation (to determine and document the residual soil concentrations of perchlorate at the top of the groundwater table), WDOE indicated that the excavation could be backfilled. The IRA therefore achieved the remedial action goal of obtaining all necessary regulatory approvals.

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APPENDIX A - SITE PHOTOGRAPHS

Photograph 2-1

Looking southeast across CBL4. The UXO Observer's Station is located on the right side of the photograph and the Explosive Storage Magazine is just left of that location.

Photograph 2-2

UXO Observer in Observer's Station. The station consists of a Plexiglas shield supported by Ecology Blocks and sand bags that provide protection from accidental detonation of munitions.

Photograph 2-3

Explosive Storage Magazine inside Ecology Block containment area. The magazine was used to store explosives used in disposal of recovered MEC and in demilitarization of MC and MD.

Photograph 2-4

Containment area for MC and MD. Items in this area were inspected for potential explosive residue, heat treated (by detonation) if necessary, and demilitarized as needed before recycling with a local firm. MEC was destroyed on a daily basis.

Photograph 2-5

UXO Crew performing Mag and Dig Operations. The rope visible in this picture was used to demarcate work lanes on Landfill 4.

Photograph 2-6

UXO staff re-acquiring targets for investigation using a Differential Global Positioning System.

Photograph 2-7

UXO staff placing donor explosives for disposal of recovered MEC at CBL4.

Photograph 2-8

UXO staff connecting the remote firing device used in explosive disposal operations.

Photograph 2-9

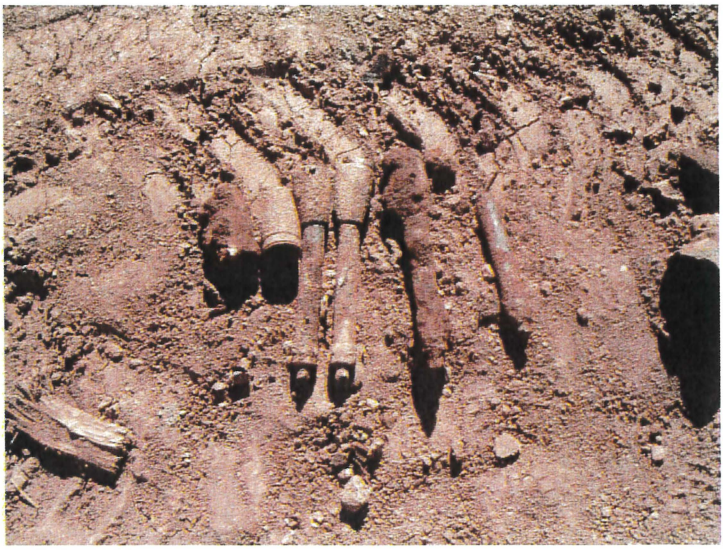
Explosive Ordnance Disposal personnel from Fort Lewis, Washington discuss a rocket motor originally suspected to be chemical ordnance with site staff.

Photograph 2-10

Munitions Debris taken from a large burial/burn pit on the west side of CBL4. The circular objects are practice anti-tank landmines. The debris also included practice anti-personnel mines, large caliber (105m or 106 mm) casings, spent marine markers and a Law Rocket tube.

Photograph 2-11

Remnants of Mark 6 Red Phosphorus Distress Flares found in an MC burial pit at CBL4. Each square wooden canister contained four flare candles. The canister was held upright by a heavy weight zinc base plate.



Photograph 2-12

Practice rockets unearthed near the south end of CBL4. This area proved to be an MC disposal pit containing over 275, 2.75-inch practice rockets.

Photograph 2-13

A 2.75-inch practice rocket embedded in a tire used as a target.

Photograph 2-14

Jet-Assisted Take-Off Bottle.

Photograph 2-15

Fireworks items and a civilian tear gas canister found at CBL4.

Photograph 2-16
Burn layer in a large pit on the west side of CBL4. The dark layers of burn debris exuded a petroleum/diesel odor indicating that an initiating fuel had been used to ignite the ordnance or fireworks items being disposed of at these sites.

Photograph 2-17

Metal debris collected at CBL4. This debris was stored in rollway boxes and was turned over to a local company for recycling.

Photograph 2-18

Soil discharging from the Kolberg screen plant to the Ecology Block shielded containment area.

Photograph 2-19

20mm Projectile (Solid),
CBL4,
June 4, 2004.

Photograph 2-20

7.62mm Rifle Cartridge (top),
7.62mm Blank Rifle Cartridge,
(bottom), CBL4, June 4, 2004

This MEC find included one full-up cartridge and 18 blank cartridges.

Photograph 2-21

20mm Projectile (solid),
CBL4,
June 4, 2004.

Photograph 2-22

60-mm Projectile (Mortar) Nose Fuse,
CBL4,
June 2, 2004.

Photograph 2-23

57-mm Projectile Base with Explosive Filler Visible,
CBL4,
June 2, 2004

Photograph 2-24

2.75-inch Rocket Warhead (HE),
CBL4,
June 7, 2004.

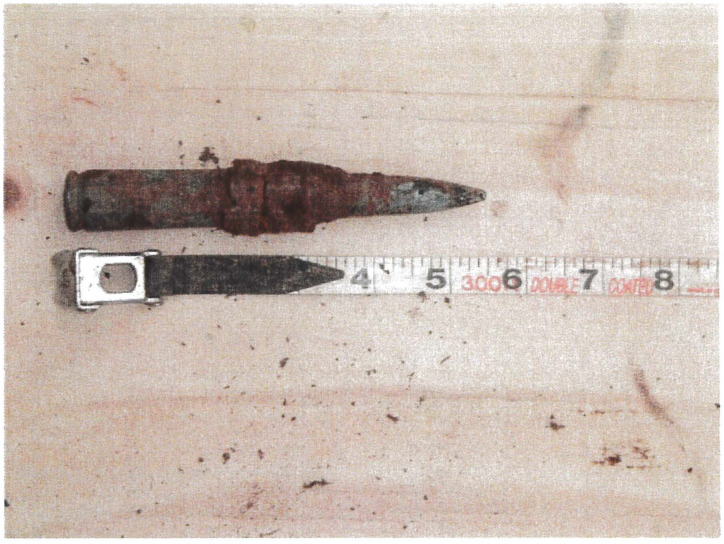
Photograph 2-25

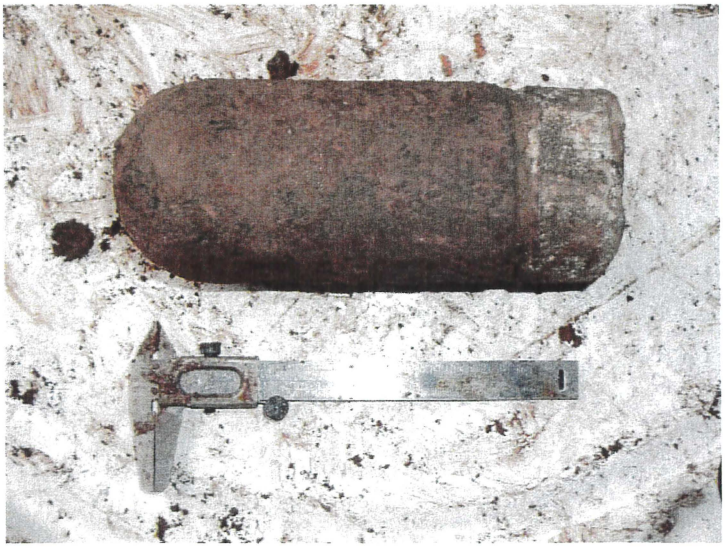
3-inch Stokes Mortar,
CBL4,
June 7, 2004.

MC

Photograph 2-26

.50-Caliber Cartridge,
CBL4,
June 7, 2004.





Photograph 2-27

Civil War Era Burton Projectile,
CBL4,
June 8, 2004.

This item was turned over to Fort Lewis EOD for preservation as an historic artifact.

Photograph 2-28

200-mm Projectile with Casing,
CBL4,
June 9, 2004

Photograph 2-29

57-mm Projectile (Partial),
CBL4,
June 14, 2004.

Photograph 2-30

37-mm Solid Shot Canister (Projectile),
CBL4,
June 14, 2004.

This item was classified as MC Photograph 2-13 shows the shot filler from the canister.

Photograph 2-31

Individual Shot – 37-mm Canister
(see Photograph 2-12).

Photograph 2-32

.50-Caliber Rifle Cartridge (HE),
CBL4,
June 14, 2004.

This find included seven cartridges

Photograph 2-33

5.56-mm Blank Rifle Cartridge,
CBL4,
June 14, 2004.

This MEC find included
106 cartridges.

Photograph 2-34

CAIS Shipping Container (PIG), CBL4,
June 17, 2004

This cylinder was used to ship/store chemical agent identification sets. During use, these sets would typically have contained tiny glass vials of chemical agents in a wooden box that were used for training. No box debris or glass vials were found

Photograph 2-35

Sub-caliber LAW Rocket (Practice), CBL4,
June 22, 2004.

Photograph 2-36

20-mm Projectile (Minus Fuse), CBL4,
June 22, 2004

Photograph 2-37

Unidentified Item Containing Mercury; (possible Mercury Trembler from SCAMP)
CBL4,
June 23, 2004.

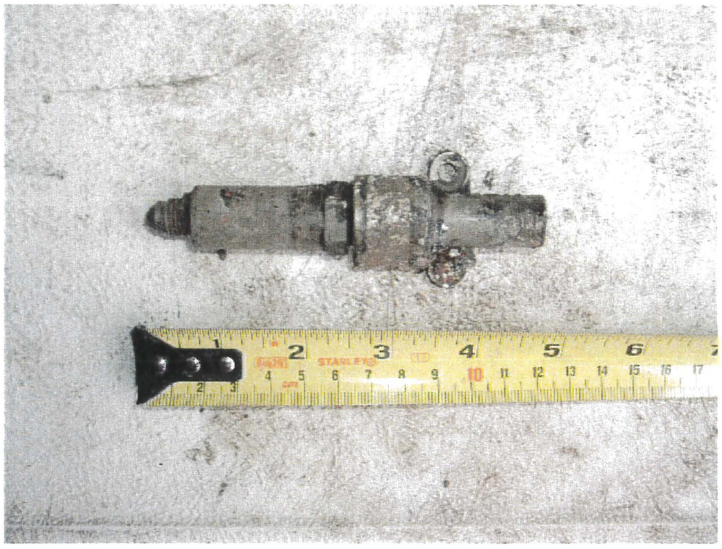
Photograph 2-38

Rocket Motor Originally Suspected to be Chemical Ordnance,
CBL4,
June 23, 2004.

This item was initially thought to be possible chemical ordnance due to the use of color coding similar to that used for chemical items. Fort Lewis EOD responded to the site and determined the item was not chemical ordnance.

Photograph 2-39

40 mm HE Projectile (Minus Fuse),
CBL4,
June 29, 2004



Photograph 2-40

Cartridge Actuated Device (CAD),
CBL4,
June 29, 2004.

Photograph 2-41

CAD,
CBL4,
June 29, 2004.

This MEC find included four CADs.

Photograph 2-42

Unidentified Flare (Partially Burned),
CBL4,
June 29, 2004.

This MEC find included four flares.

Photograph 2-43

AN-M103 Bomb Nose Fuse,
CBL4,
July 7, 2004.

Photograph 2-44

Unidentified Flare (Live),
CBL4,
July 7, 2004.

This MEC find included three flares.

Photograph 2-45

Unfired 20mm Projectile (With Casing),
CBL4,
July 7, 2004.

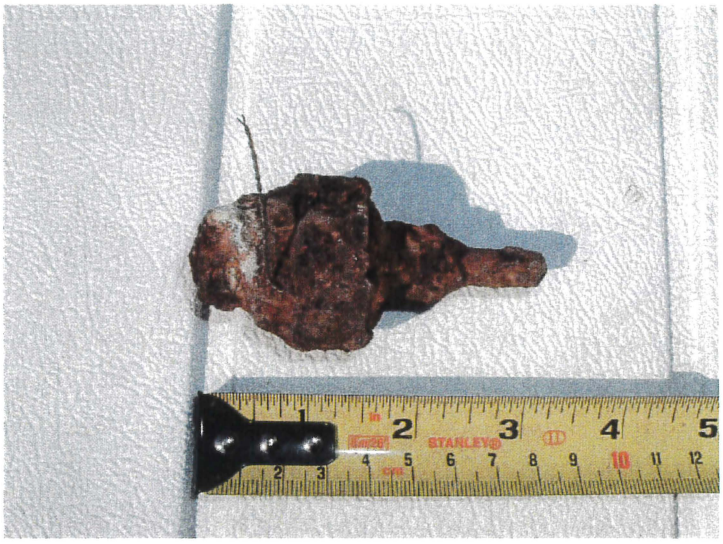
Photograph 2-46

Grenade Fuse,
CBL4,
July 8, 2004.

Photograph 2-47

CAD,
CBL4,
July 9, 2004.

This MEC find included two fuses.



Photograph 2-48

Projectile Base Fuse,
CBL4,
July 9, 2004.

Photograph 2-49

Mark 13 Flare (Partially Burned),
CBL4,
July 9, 2004.

This MEC find included three flares

Photograph 2-50

Flare Cartridge (Live),
CBL4,
July 9, 2004.

Photograph 2-51

Five-inch Spin Stabilized Rocket with Warhead, CBL4,
July 12, 2004.

This item was originally suspected to be chemical ordnance. It was found to be an inert item painted to look like a chemical rocket.

Photograph 2-52

5" Spin Stabilized Rocket with Warhead,
CBL4,
July 12, 2004.

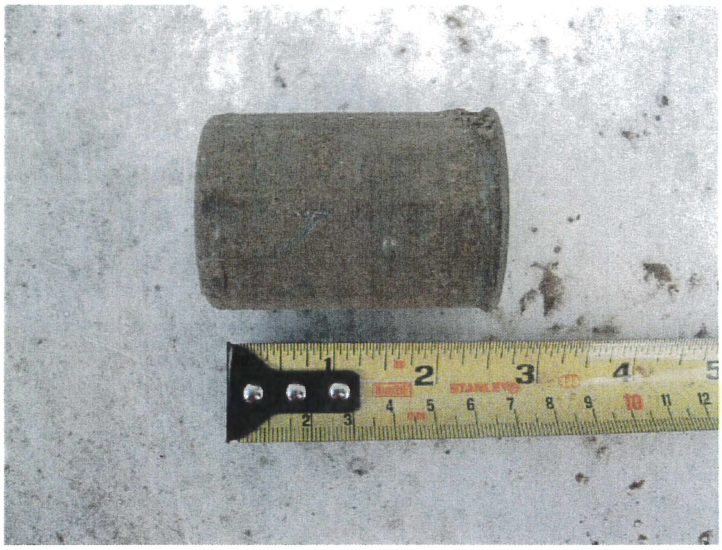
Rear view of suspected chemical rocket. (see Photograph 2-38).

Photograph 2-53

M5 Landmine fuse,
CBL4,
July 13, 2004.

Photograph 2-54

World War II Japanese Rifle Grenade, CBL4, July 13, 2004.



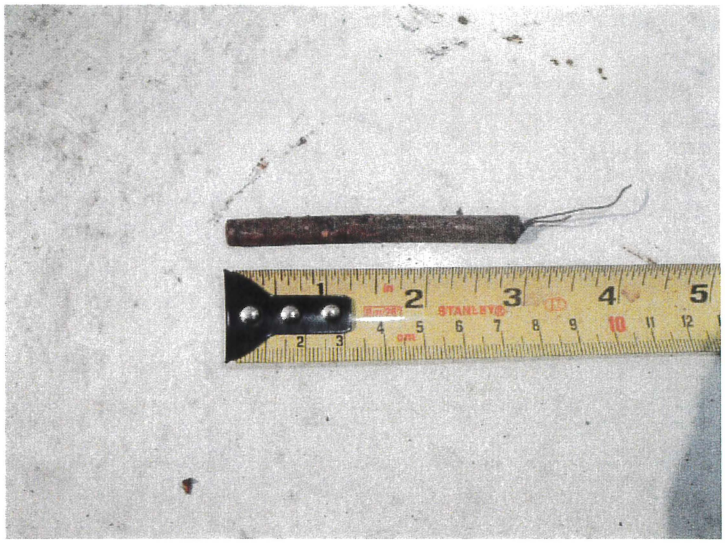
Photograph 2-55

40-mm Grenade Casing,
CBL4,
July 20, 2004.

Photograph 2-56

Electric Blasting Cap,
CBL4,
July 21, 2004.

This MEC find included eight blasting caps.



Photograph 2-57

Tear Gas Canister (Unfired),
CBL4,
August 16, 2004.

Photograph 2-58

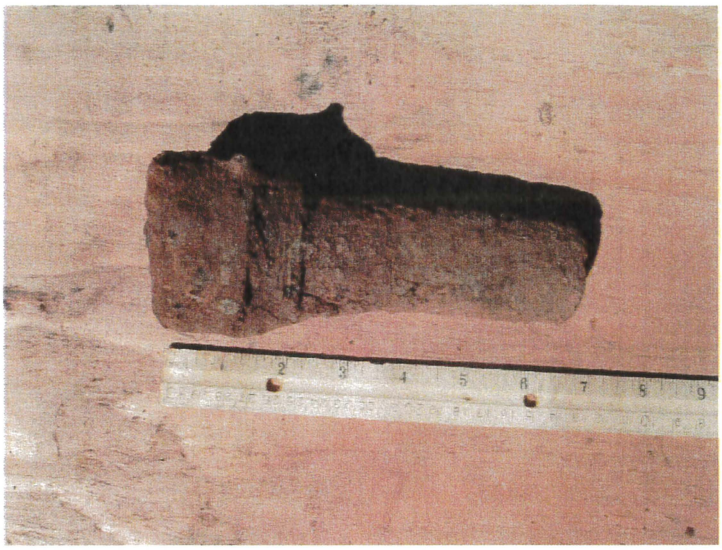
2.75-inch Solid Rocket Propellant (Ballistite) CBL4,
August 16, 2004.

Photograph 2-59

Rocket and Missile Solid Propellant, CBL4,
August 16, 2004.

Photograph 2-60

40-mm Projectile (Unfired),
CBL4,
August 18, 2004.



Photograph 2-61

AN-M103 Bomb Nose Fuse (With Booster),
CBL4,
August 18, 2004.

Photograph 2-62

Unidentified Flare (partially burned)
CBL4,
August 19, 2004.

Photograph 2-63

Aircraft Ejection Seat Secondary Device,
CBL4,
August 19, 2004.

Photograph 2-64

.50-caliber and solid 20-mm Projectiles
CBL4.

These items were found early in the Mag and Dig phase of work. They were clustered in the same general area and might have been indicative of a very small MC disposal pit.

Photograph 2-65

MEC Items Found During Soil Screening,
Screen Plant Laydown Area.

The pictured items include .50-caliber cartridges, CADS, a 40-mm practice rifle grenade, point detonating projectile fuses, 40-mm projectiles, bomb tail fuses, a practice anti-personnel mine (Bouncing Betty), a tear gas spray canister, a full-up 20-mm round, 20-mm HE projectiles (No casings), flares, an ejection seat secondary device, and 7.62-mm rifle cartridges.

Photograph 2-66

Pieces of a 5-inch practice projectile containing a purple-colored, waxy, inert filler. The filler was tested using an Expray Explosive Detection Kit to ensure that it was inert prior to disposal.

Photograph 2-67

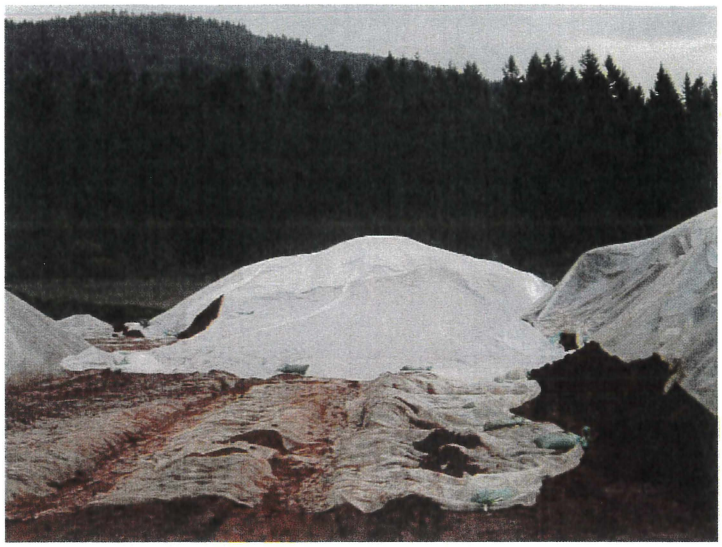
Trenching operations in preparation for sampling.

Photograph 2-68

Trenching operations in preparation for sampling.

Photograph 2-69

West side of the pit excavated for removal of perchlorate contaminated soils.



Photograph 2-70

Covered stockpile soils awaiting final disposition.

Photograph 2-71

Perchlorate pit excavation at intersection with groundwater table.

APPENDIX B – WASTE DISPOSAL DOCUMENTATION

B-1 WASTE PROFILE DATA FOR CLASSIFICATION (FOR TRANSPORT AND DISPOSAL);

WM
WASTE MANAGEMENT

Columbia Ridge, Hillsboro, Riverbend, Graham Road, Capitol, Wenatchee

Profile Number: _____
Expiration Date: _____

WASTE PROFILE SHEET
TERMS & CONDITIONS

Service Agreement on File? ☐ Yes ☐ No

This form is to be used to comply with the requirements of governmental waste screening criteria.

Profile Addendum Attached? ☒ Yes ☐ No

A. Waste Generator Information

1. Generator/Site Name: U.S. Army / Camp Bonneville
2. SIC Code: _____
3. Site Address: 23201 NE Plutt's Rd / Vancouver
4. Site City: Vancouver
5. Site State: WA
7. Zip Code: 98682
6. Site Country: USA
8. Generator USEPA/Federal ID#: _____
9. Site Phone: (360) 944-5500
10. Customer Name: Tetra Tech, Inc.
11. Customer Phone: Same as above
12. Customer Contact: Bernard Dobine
13. Customer FAX: (360) 944-5799

B. Waste Stream and Billing Information

1. Waste Description, Category: _____
2. State Waste Code: _____
3. Billing Address: 348 W. Hospitality Lane, Suite 100, San Bernardino, CA 92408
4. Process Generating Waste: Munitions demolition contaminated soil
5. Transporter/Transfer Station: Hillsboro
6. Shipping Method: Trucking
7. Estimated Quantity (Weight & Vol.): 20,000 yds / 41,000 Tons per ☒ Job ☐ Year ☐ Other _____
8. Delivery Date(s): _____
9. Personal Protective Equipment Requirements: Level D
10. Is this a US Dept. of Transportation (USDOT) Hazardous Material? ☐ Yes ☒ No (If no, skip 10, 11 and 12)
11. Reportable Quantity: _____
12. Hazard Class / I.D. #: _____
13. Shipping Name: _____

☒ Check if additional information is attached. Indicate the number of attached pages: _____

C. Generator's Certification (Please check appropriate responses, sign and date reverse side)

		Yes	No	
1.	Is the waste represented by this waste profile sheet a "Hazardous Waste" as defined by USEPA, Canadian, Mexican, State, or Provincial regulation?	☐	☒	
2.	Does the waste represented by this waste profile sheet contain regulated radioactive material or regulated concentrations of Polychlorinated Biphenyls (PCBs)?	☐	☒	
3.	Does this waste profile sheet and all attachments contain true and accurate descriptions of the waste material?	☒	☐	
4.	Has all relevant information within the possession of the Generator and Customer regarding known or suspected hazards pertaining to the waste been disclosed to the Contractor?	☒	☐	
5.	Is the analytical data attached hereto derived from testing a representative sample in accordance with 40 CFR 261.20(c) or equivalent rules?	☒	☐	☐ N/A
6.	Will all changes that occur in the character of the waste be identified by the Generator and disclosed to the Contractor prior to providing the waste to the Contractor?	☒	☐	

D. WM Management's Decision

1. Management Method: _____
2. Designated Facility: _____
3. Hours of acceptance: _____ ☐ N/A
4. Precautions, Special Handling Procedures, or Limitations on Approval: _____

Generic Approval: ☐ Yes ☐ No Special Waste Decision: ☐ Approved ☐ Disapproved

es Person: _____ Date: _____ Technical Manager: _____ Date: _____

GENERATOR AND CUSTOMER MUST READ AND SIGN REVERSE HEREOF INITIAL _____ INITIAL _____

TABLE X. SUMMARY OF THE RESULTS OF LANDFILL 4 STOCKPILE SOILS ANALYSES
JULY 2004 SITE INVESTIGATION
U.S. ARMY CAMP BONNEVILLE LANDFILL 4
VANCOUVER, WASHINGTON

Sample Identification	Explosives (µg/kg)						Organics, Pesticides, Petroleum Hydrocarbons (mg/kg)								
	Perchlorate	HMX	RDX	2,4,6-Tri-nitro-toluene	4-Amino-2,6-di-nitro-toluene	2-Amino-4,6-di-nitro-toluene	2,4,5-T	Alpha-BHC	Bata-BHC	Endrin	4,4'-DDT	Dieldrin	Aldrin	Gas	Diesel
SP-01	**74.5**	<11.3	**190**	<8.20	<8.53	<9.03	<5.41	**0.167**	**0.00914**	<0.00416	<0.00416	<0.00416	ND	**<4.17**	ND
SP-02	**34.0 B**	<11.3	**180**	**150**	<8.53	<9.03	<5.82	**0.108**	<0.00457	<0.00457	<0.00457	<0.00457	**0.00718**	ND	ND
SP-03	**79.5**	<11.3	**480**	<8.20	<8.53	<9.03	<5.96	**0.0971**	<0.00455	<0.00455	<0.00455	<0.00455	<0.00455	ND	ND
SP-04	**151**	<11.3	**250**	<8.20	<8.53	<9.03	<6.16	**0.133**	<0.00452	<0.00452	<0.00452	<0.00452	<0.00452	ND	ND
SP-05	**29.0 B**	<11.3	**150**	<8.20	<8.53	<9.03	<6.07	**0.094**	<0.00489	<0.00489	<0.00489	<0.00489	<0.00489	ND	ND
SP-06	**53.5**	**120**	**5200**	<8.20	<8.53	<9.03	<5.78	<0.00466	<0.00466	<0.00466	<0.00466	<0.00466	<0.00466	ND	ND
SP-07	**39.4 B**	<11.3	**2200**	<8.20	<8.53	<9.03	<6.55	**0.0971**	<0.00469	<0.00469	<0.00469	<0.00469	<0.00469	ND	ND
SP-08	**140**	<11.3	**190**	<8.20	<8.53	<9.03	<6.03	**0.181**	<0.00459	**0.012**	<0.00459	<0.00459	<0.00459	ND	ND
SP-09	**111**	**210**	**3000**	<8.20	<8.53	<9.03	<6.2	**0.225**	**0.0145**	<0.00462	**0.00287**	**0.00338**	<0.00462	ND	ND
SP-10	**108**	**150**	**650**	<8.20	<8.53	<9.03	<6.28	**0.219**	**0.0214**	<0.00482	**0.00481**	<0.00482	<0.00482	**3.11**	ND
SP-11	**169**	<11.3	**160**	<8.20	<8.53	<9.03	<6.32	**0.138**	<0.00495	<0.00495	<0.00495	<0.00495	<0.00495	ND	**44.6**
SP-12	**62.4**	<11.3	<8.07	<8.20	<8.53	<9.03	<6.37	**0.0684**	<0.00475	<0.00475	<0.00475	<0.00475	<0.00475	ND	ND
SP-13	**147**	<11.3	**870**	<8.20	<8.53	<9.03	<6.55	**0.0609**	<0.005	<0.005	<0.005	<0.005	<0.005	**2.63**	ND
SP-14	**77.9**	<11.3	**210**	<8.20	<8.53	<9.03	<6.14	**0.106**	<0.00497	<0.00497	<0.00497	<0.00497	<0.00497	ND	ND
SP-15[1]	<51.8	<11.3	**2700**	**160**	<8.53	**140**	<6.44	**0.0623**	<0.00497	<0.00497	<0.00497	<0.00497	<0.00497	ND	ND
SP-16[2]	<53.0	<11.3	**180**	**380**	**120**	**150**	**19.2**	**0.0591**	<0.00486	<0.00486	<0.00486	<0.00486	<0.00486	ND	ND
MTCA Method B	1,000	4,000,000	9,090	33,300	NC	NC	800	0.159	0.556	0.556	2.94	0.0625	0.0588	100	2000

NA - Not analyzed for the associated analyte.
NC - No MTCA Method B screening criteria exist for the associated analyte.
Shading indicates a concentration that exceeds the MTCA Method B screening level.

TABLE X. SUMMARY OF THE RESULTS OF LANDFILL 4 STOCKPILE SOILS TCLP ANALYSES
JULY 2004 SITE INVESTIGATION
U.S. ARMY CAMP BONNEVILLE LANDFILL 4
VANCOUVER, WASHINGTON

Sample Identification	TCLP Metals (mg/l)							Total Metals (mg/kg)
	Arsenic	Barium	Cadmium	Total Chromium	Lead	Selenium	Silver	Chromium VI
SP-01	0.0139	2.2	0.0122	0.0013	0.0389	0.00939	<0.05	1.4
SP-02	0.014	2.27	0.0103	0.00334	0.0338	0.00949	0.0592	0.84
SP-03	0.00841	2.57	0.00978	0.00287	0.0339	0.00556	0.0512	0.50
SP-04	0.00673	2.44	0.00974	0.0021	0.0375	0.00544	0.0428	<0.40
SP-05	<0.1	2.27	0.00666	0.00181	0.0141	0.00545	0.0344	0.66
SP-06	0.00722	2.29	0.00977	0.00422	0.031	<0.1	0.0312	0.51
SP-07	<0.1	2.55	0.0105	0.00177	0.0509	<0.1	0.0268	0.75
SP-08	<0.1	2.16	0.00799	0.00137	0.0394	<0.1	0.0217	0.53
SP-09	<0.1	2.26	0.00934	0.00181	0.0331	<0.1	0.0195	0.54
SP-10	<0.1	2.3	0.00932	0.00164	0.036	<0.1	0.0155	0.52
SP-11	<0.1	1.56	0.00818	0.00192	0.219	<0.1	0.0134	0.46
SP-12	0.00794	2.51	0.00953	0.00276	0.0412	0.0121	0.0114	0.40
SP-13	<0.1	2.32	0.00608	0.00211	0.0254	0.00687	0.00612	<0.40
SP-14	<0.1	2.5	0.00819	0.00205	0.0654	<0.1	0.00483	0.43
SP-15[1]	<0.1	2.22	0.00892	0.00171	0.0308	<0.1	0.00392	<0.40
SP-16[2]	<0.1	2.1	0.00841	0.00207	0.0278	<0.1	0.00324	<0.40
Maximum Concentration of Contaminants for Toxicity Characteristic (mg/kg)	5.0	100.0	1.0	5.0	5.0	1.0	5.0	240
MTCA Method B	0.667	5,600	80	120,000	250	400	400	400

NA – Not analyzed for the associated analyte.
N/A – Not applicable.
Shading indicates a concentration that exceeds the MTCA Method B screening level.

WASTE MANAGEMENT

Columbia Ridge, Hillsboro, Riverbend, Graham Road,Capitol, Wenatchee

PAYMENT INFORMATION

Please check one of the following:

☒ Landfill Account**

** Land fill account provide the following:

Account number or name: Tetra Tech, Inc

PO Number 13558-1603

☐ Cash

☐ Business Check

☐ Visa/Mastercard (Wenatchee does not accept Credit Cards)

Please return the payment information sheet with the Waste Profile, Laboratory results and chain of custody to Kristin Castner at Fax: (503) 493-7822 or Phone: (503) 493-7834.

ALLIED WASTE

GENERATOR WASTE PROFILE SHEET

Requested Disposal Facility: **COFFIN BUTTE LANDFILL**
an Allied Waste Company

Waste Profile #	
AWI Sales Rep:	114
Date:	9/16/04

I. Generator Information

Generator Name: U.S. Army			
Generator Site Address: 23201 NE Pluss Rd			
City: Vancouver	County: Clark	State: WA	Zip: 98682
State ID/Reg No:	State Approval/Waste Code: (if applicable)		SIC Code: -
Generator Mailing Address (if different): Attn: AFZH-PWE MS, 17 (E. Waehling) Box 339500			
City: Fort Lewis	County: Pierce	State: WA	Zip: 98433-9500
Generator Contact Name: Eric Waehling			
Phone Number: (253) 966-1732		Fax Number: (253) 966-4985	

IIa. Transporter Information

Transporter Name: To Be Supplied by Allied Waste		Contact Name:	
Transporter Address:			
City:	County:	State:	Zip:
Phone Number:	Fax Number:	State Transportation Number:	

IIb. Billing Information

Bill To: Tetra Tech, Inc.		Contact Name: Javier Weckmann	
Billing Address: 348 W. Hospitality lane, Suite 100			
City: San Bernardino	State: CA	Zip: 92408	Phone Number: 909-381-1674

III. Waste Stream Information

Name of Waste:	
Process Generating Waste:	Munitions demolition contaminated soil
Type of Waste	☐ INDUSTRIAL PROCESS WASTE or ☐ POLLUTION CONTROL WASTE ☒ Other
Physical State:	☐ SOLID ☐ SEMI-SOLID ☐ POWDER ☐ LIQUID ☒ OTHER: Soil
Method of Shipment:	☒ BULK ☐ DRUM ☐ BAGGED ☐ OTHER:
Estimated Annual Volume:	☐ CUBIC YARDS: ____ ☒ TONS: 5K ☐ GALLONS ____ ☐ OTHER:
Frequency:	☐ ONE TIME ☐ DAILY ☐ WEEKLY ☐ MONTHLY ☒ OTHER: until completed
Special Handling Instructions:	N/A

IV. Representative Sample Certification

☐ NO SAMPLE TAKEN

Is the representative sample collected to prepare this profile and laboratory analysis, collected in accordance with U.S. EPA 40 CFR 261.20(c) guidelines or equivalent rules?	☒ YES or ☐ NO
Sample Date: 7/20/04 - 9/11/04	Type of Sample: ☐ COMPOSITE SAMPLE ☒ GRAB SAMPLES
Laboratory: Severn Trent Laboratories, Inc	Sample ID Numbers: See Attached Tables
Sampler's Employer: Tetra Tech, Inc.	
Sampler's Name (printed): Carletta Cellucci	Signature:

V1

ALLIED WASTE

GENERATOR WASTE PROFILE SHEET (continued)

Waste Profile #

V. Physical Characteristics of Waste

Characteristic Components % by Weight (range)

1.

2.

3.

Color:	Odor (describe):	Free Liquids:	% Solids:	pH:	Flash Point:	Phenol
Red/Brown	N/A	☐ YES or ☒ NO Content ___ %			___ °F	___ ppm

Attach Laboratory Analytical Report (and/or Material Safety Data Sheet) Including Required Parameters Provided for this Profile

Does this waste or generating process contain regulated concentrations of the following Pesticides and/or Herbicides: Chlordane, Endrin, Heptachlor (and it epoxides), Lindane, Methoxychlor, Toxaphene, 2,4-D, or 2,4,5-TP Silvex as defined in 40 CFR 261.33?	☐ YES or ☒ NO
Does this waste or generating process cause it to exceed OSHA exposure limits from high levels of Hydrogen Sulfide or Hydrogen Cyanide as defined in 40 CFR 261.23?	☐ YES or ☒ NO
Does this waste contain regulated concentrations of Polychlorinated Biphenyls (PCBs) as defined in 40 CFR Part 761?	☐ YES or ☒ NO
Does this waste contain regulated concentrations of listed hazardous wastes defined in 40 CFR 261.31, 261.32, 261.33, including RCRA F-Listed Solvents?	☐ YES or ☒ NO
Does this waste contain regulated concentrations of 2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCCD), or any other dioxin as defined in 40 CFR 261.31?	☐ YES or ☒ NO
Is this a regulated Toxic Material as defined by Federal and/or State regulations?	☐ YES or ☒ NO
Is this a regulated Radioactive Waste as defined by Federal and/or State regulations?	☐ YES or ☒ NO
Is this a regulated Medical or Infectious Waste as defined by Federal and/or State regulations?	☐ YES or ☒ NO
Is this waste generated at a Federal Superfund Clean Up Site?	☐ YES or ☒ NO

VI. Generator Certification

I hereby certify that to the best of my knowledge and belief, the information contained herein is a true and accurate description of the waste material being offered for disposal. I further certify that by utilizing this profile, neither myself nor any other employee of the company will deliver for disposal or attempt to deliver for disposal any waste which is classified as toxic waste, hazardous waste or infectious waste, or any other waste material this facility is prohibited from accepting by law. Our company hereby agrees to fully indemnify this disposal facility against any damages resulting from this certification being inaccurate or untrue. I further certify that the company has not altered the form or content of this profile sheet as provided by Allied Waste Industries, Inc.

AUTHORIZED REPRESENTATIVE NAME AND TITLE (Printed) COMPANY NAME

AUTHORIZED REPRESENTATIVE SIGNATURE DATE

VII. Allied Waste Decision

☐ Approved ☐ Rejected Expiration: _____

Conditions:

Name, Title Signature Date

SUMMARY OF THE RESULTS OF LANDFILL 4 STOCKPILE SOILS ANALYSES
U.S. ARMY CAMP BONNEVILLE LANDFILL 4
VANCOUVER, WASHINGTON

Sample Identification	Explosives (µg/kg)						Organics, Pesticides, Petroleum Hydrocarbons (mg/kg)								
	Perchlorate	HMX	RDX	2,4,6-Tri-nitro-toluene	4-Amino-2,6-di-nitro-toluene	2-Amino-4,6-di-nitro-toluene	2,4,5-T	Alpha-BHC	Beta-BHC	Endrin	4,4'-DDT	Dieldrin	Aldrin	Gas	Diesel
SP-01	**74.5**	<11.3	**190**	<8.20	<8.53	<9.03	<5.41	**0.167 (C1)**	**0.00914 (C2)**	<0.00416	<0.00416	<0.00416	ND	<4.22	<26.1
SP-02	**34.0 (J)**	<11.3	**180**	**150**	<8.53	<9.03	<5.82	**0.108 (C1)**	<0.00457	<0.00457	<0.00457	<0.00457	**0.00718 (C1)**	<4.65	<26.8
SP-03	**79.5**	<11.3	**480**	<8.20	<8.53	<9.03	<5.96	**0.0971 (C1)**	<0.00455	<0.00455	<0.00455	<0.00455	<0.00455	<4.69	<29.4
SP-04	**151**	<11.3	**250**	<8.20	<8.53	<9.03	<6.16	**0.133 (C1)**	<0.00452	<0.00452	<0.00452	<0.00452	<0.00452	<4.78	<28.1
SP-05	**29.0 (J)**	<11.3	**150**	<8.20	<8.53	<9.03	<6.07	**0.094 (C1)**	<0.00489	<0.00489	<0.00489	<0.00489	<0.00489	<4.71	<31
SP-06	**53.5**	**120**	**5200**	<8.20	<8.53	<9.03	<5.78	**0.1 (C1, D5)**	<0.00466	<0.00466	<0.00466	<0.00466	<0.00466	<4.48	<28.4
SP-07	**39.4 (J)**	<11.3	**2200**	<8.20	<8.53	<9.03	<6.55	**0.0971 (C1, D5)**	<0.00469	<0.00469	<0.00469	<0.00469	<0.00469	<4.81	<28.3
SP-08	**140**	<11.3	**190**	<8.20	<8.53	<9.03	<6.03	**0.181 (C1, D10)**	<0.00459	**0.012 (C2)**	<0.00459	<0.00459	<0.00459	<4.73	<27.5
SP-09	**111**	**210**	**3000**	<8.20	<8.53	<9.03	<6.2	**0.225 (C1, D10)**	**0.0145 (C2)**	<0.00462	**0.00287 (C1, J)**	**0.00338 (C1, J)**	<0.00462	<4.93	<29.5
SP-10[1]	**108**	**150**	**650**	<8.20	<8.53	<9.03	<6.28	**0.219 (C1, D10)**	**0.0214 (C2)**	<0.00482	**0.00481 (C1, J)**	<0.00482	<0.00482	**3.11 (J)**	<30
SP-11	**169**	<11.3	**160**	<8.20	<8.53	<9.03	<6.32	**0.138 (C1, D5)**	<0.00495	<0.00495	**0.00302 (C1, J)**	<0.00495	<0.00495	<4.96	**44.6**
SP-12	**62.4**	<11.3	<8.07	<8.20	<8.53	<9.03	<6.37	**0.0684 (C1, D5)**	<0.00475	<0.00475	<0.00475	<0.00475	<0.00475	<5.05	<26.9
SP-13	**147**	<11.3	**870**	<8.20	<8.53	<9.03	<6.55	**0.0609 (C1)**	<0.005	<0.005	<0.005	<0.005	<0.005	**2.63 (J)**	<31.2
SP-14	**77.9**	<11.3	**210**	<8.20	<8.53	<9.03	<6.14	**0.106 (C1, D5)**	<0.00497	<0.00497	<0.00497	<0.00497	<0.00497	<4.9	<27.4
SP-15	<51.8	<11.3	**2700**	**160**	<8.53	**140**	<6.44	**0.0623 (C1)**	<0.00497	<0.00497	<0.00497	<0.00497	<0.00497	<5.01	<27.6
SP-16[2]	<53.0	<11.3	**180**	**380**	**120**	**150**	**19.2**	**0.0591 (C1)**	<0.00486	<0.00486	<0.00486	<0.00486	<0.00486	<4.71	<29.9

1 – Replicate of sample SP-09.
2 – Replicate of sample SP-15.
J – The analyte was positively identified, but the associated result is an estimated value, below laboratory reporting limit.
C1 – Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.
C2 – Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.
D5 - The reported result for this analyte was calculated based on a secondary dilution factor of 5.
D10 - The reported result for this analyte was calculated based on a secondary dilution factor of 10.

SUMMARY OF THE RESULTS OF LANDFILL 4 STOCKPILE SOILS TCLP ANALYSES
JULY 2004 SITE INVESTIGATION
U.S. ARMY CAMP BONNEVILLE LANDFILL 4
VANCOUVER, WASHINGTON

Sample Identification	TCLP Metals (mg/l)							Total Metals (mg/kg)
	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Chromium VI
SP-01	0.0139 (J)	2.2 (B2)	0.0122 (J)	0.0013 (J)	0.0389 (J)	0.00939 (J)	<0.05	1.4
SP-02	0.014 (J)	2.27 (B2)	0.0103 (J)	0.00334 (J)	0.0338 (J)	0.00949 (J)	0.0592 (J)	0.84
SP-03	0.00841 (J)	2.57 (B2)	0.00978 (J)	0.00287 (J)	0.0339 (J)	0.00556 (J)	0.0512 (J)	0.50
SP-04	0.00673 (J)	2.44 (B2)	0.00974 (J)	0.0021 (J)	0.0375 (J)	0.00544 (J)	0.0428 (J)	<0.40
SP-05	<0.1	2.27 (B2)	0.00666 (J)	0.00181 (J)	0.0141 (J)	0.00545 (J)	0.0344 (J)	0.66
SP-06	0.00722 (J)	2.29 (B2)	0.00977 (J)	0.00422 (J)	0.031 (J)	<0.1	0.0312 (J)	0.51
SP-07	<0.1	2.55 (B2)	0.0105 (J)	0.00177 (J)	0.0509 (J)	<0.1	0.0268 (J)	0.75
SP-08	<0.1	2.16 (B2)	0.00799 (J)	0.00137 (J)	0.0394 (J)	<0.1	0.0217 (J)	0.53
SP-09	<0.1	2.26 (B2)	0.00934 (J)	0.00181 (J)	0.0331 (J)	<0.1	0.0195 (J)	0.54
SP-10[1]	<0.1	2.3 (B2)	0.00932 (J)	0.00164 (J)	0.036 (J)	<0.1	0.0155 (J)	0.52
SP-11	<0.1	1.56 (B2)	0.00818 (J)	0.00192 (J)	0.219 (J)	<0.1	0.0134 (J)	0.46
SP-12	0.00794 (J)	2.51 (B2)	0.00953 (J)	0.00276 (J)	0.0412 (J)	0.0121 (J)	0.0114 (J)	0.40
SP-13	<0.1	2.32 (B2)	0.00608 (J)	0.00211 (J)	0.0254 (J)	0.00687 (J)	0.00612 (J)	<0.40
SP-14	<0.1	2.5 (B2)	0.00819 (J)	0.00205 (J)	0.0654 (J)	<0.1	0.00483 (J)	0.43
SP-15	<0.1	2.22 (B2)	0.00892 (J)	0.00171 (J)	0.0308 (J)	<0.1	0.00392 (J)	<0.40
SP-16[2]	<0.1	2.1 (B2)	0.00841 (J)	0.00207 (J)	0.0278 (J)	<0.1	0.00324 (J)	<0.40
Maximum Concentration of Contaminants for Toxicity Characteristic (mg/L)	5.0	100.0	1.0	5.0	5.0	1.0	5.0	240

1 – Replicate of sample SP-09.
2 – Replicate of sample SP-15.
J – The analyte was positively identified, but the associated result is an estimated value, below laboratory reporting limit.
B2 – This analyte was detected in the associated method blank. The analyte concentration was determined be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

APPENDIX C – ANALYTICAL RESULTS

SAMPLE CODES

BT = Baker Tank
CBL4 = Camp Bonneville Landfill 4
FD = Fill Dirt
FWT = Post Exploratory Fireworks Trench
FWTEW = Fireworks Trench East Wall
FWTWW = Fireworks Trench West Wall
LCS = Lab Control Sample
LCSD = Lab Control Sample Duplicate
LP = Landfill Perimeter
MD1 = Mag & Dig 1
MW2A = Monitoring Well
POSTR = Post Road
PRELD = Pre Lay Down Area
PRERD = Pre Road
SP = Stock Pile
SPRD = Stock Pile Road
SS = Soils Sample
TB = Trip Blank
TR = Trench (After 9/2004 Post Trench)
TRE = Post Exploratory 2 East Pit
TRE-1 thru 4=TR16-D, E, F, G
TRE-5= TR09-A and TR09-K (Dup of A)
TRE-5= TR17-D and TR17-E (Dup of D)
TREW = Trench East Wall
TREW 1-6=West Side of Pit between TR9 and TR18
TRSW = Trench South Wall
WP = West Pit

Table C-1. Intermediate Perchlorate Sample Results

Excavation Event Date (s)	Sample ID/Location	Excavation Guiding/Confirmation Sampling Date After Excavation	Perchlorate Results µg/kg
9/13/2004 - 09/17/04	TR01-D	16-Sep-04	114
	TR01-G	16-Sep-04	54.7
	TR01-H	16-Sep-04	59.1
	TR01-I	16-Sep-04	47.4
	TR01-J	16-Sep-04	191
	TR01-K	16-Sep-04	43.4
	TR01-L	16-Sep-04	39.4
	TR01-M	16-Sep-04	109
	TR01-N	20-Sep-04	251
	TR01-O	20-Sep-04	234
	TR01-P	20-Sep-04	328
	TR01-Q	20-Sep-04	128
	TR01-R	16-Sep-04	197
	TR01-S	20-Sep-04	122
	TR02-C	20-Sep-04	46.7
	TR02-F	20-Sep-04	177
	TR02-G	20-Sep-04	257
	TR03-B	20-Sep-04	48.3
	TR03-C	20-Sep-04	150
	TR03-F	20-Sep-04	50.5
	TR03-J	20-Sep-04	123
	TR04-A	20-Sep-04	166
	TR04-B	20-Sep-04	555
	TR04-C	20-Sep-04	467
	TR04-D	20-Sep-04	134
	TR04-F	20-Sep-04	94.3
	TR04-G	20-Sep-04	313
	TR04-H	21-Sep-04	46.5
	TR04-I	21-Sep-04	186
	TR04-J	20-Sep-04	253
	TR05-B	21-Sep-04	1220
	TR05-C	21-Sep-04	1140
	TR05-D	21-Sep-04	2760
	TR05-E	21-Sep-04	2350
	TR06-A	21-Sep-04	76.1
	TR06-B	21-Sep-04	914
	TR06-C	21-Sep-04	1270
	TR06-D	21-Sep-04	1830
	TR06-E	21-Sep-04	416
	TR06-F	21-Sep-04	1920
	TR07-A	21-Sep-04	33.7
	TR07-B	21-Sep-04	569
	TR07-C	21-Sep-04	3050
	TR07-D	21-Sep-04	1830

Table C-1. Intermediate Perchlorate Sample Results (continued)

Excavation Event Date (s)	Sample ID/Location	Excavation Guiding/Confirmation Sampling Date After Excavation	Perchlorate Results µg/kg
9/13/2004 - 09/17/04 (continued)	TR07-E	21-Sep-04	70.4
	TR07-F	21-Sep-04	258
	TR07-H	21-Sep-04	569
	TR08-B	21-Sep-04	37.6
	TR08-C	21-Sep-04	794
	TR08-D	21-Sep-04	133
	TR08-E	21-Sep-04	490
	TR08-H	22-Sep-04	63.3
	TR09-A	22-Sep-04	1010
	TR09-B	22-Sep-04	386
	TR09-C	22-Sep-04	107
	TR09-K	22-Sep-04	991
	TR10-C	22-Sep-04	46.2
	TR10-D	22-Sep-04	189
	TR11-B	22-Sep-04	51.2
	TR11-C	22-Sep-04	59.8
	TR11-D	22-Sep-04	135
	TR12-B	22-Sep-04	182
	TR12-C	22-Sep-04	55.4
	TR12-D	22-Sep-04	65.4
	TR12-E	22-Sep-04	102
	TR12-F	22-Sep-04	175
	TR13-A	22-Sep-04	112
	TR13-B	22-Sep-04	33.2
	TR13-C	22-Sep-04	97.7
	TR13-D	22-Sep-04	492
	TR13-D	22-Sep-04	749
	TR13-E	22-Sep-04	749
	TR14-B	22-Sep-04	49.9
	TR14-C	22-Sep-04	36.6
	TR14-D	22-Sep-04	125
	TR14-E	22-Sep-04	586
	TR14-F	22-Sep-04	229
	TR14-G	22-Sep-04	49.5
	TR15-E	22-Sep-04	46.9
	TR15-F	22-Sep-04	42.6
	TR15-G	22-Sep-04	80.3
	TR16-C	23-Sep-04	482
	TR16-D	23-Sep-04	2350
	TR16-E	23-Sep-04	11900
	TR16-F	23-Sep-04	7350
	TR16-G	23-Sep-04	1200
	TR17-C	23-Sep-04	43.0
	TR17-D	23-Sep-04	14300

Table C-1. Intermediate Perchlorate Sample Results (continued)

Excavation Event Date (s)	Sample ID/Location	Excavation Guiding/Confirmation Sampling Date After Excavation	Perchlorate Results µg/kg
9/13/2004 - 09/17/04 (continued)	TR17-E	23-Sep-04	15200
	TR18-D	23-Sep-04	192
	TR18-E	23-Sep-04	961
	TR18-F	23-Sep-04	1230
	TR18-N	23-Sep-04	33.0
	TR19-A	23-Sep-04	143
	TR19-G	23-Sep-04	64.2
	TR19-J	23-Sep-04	28.8
	TR20-A	23-Sep-04	33.2
10/11/04	101804-SS-FWT-01	18-Oct-2004	ND
	FWT-02	18-Oct-2004	ND
	FWT-03	18-Oct-2004	72.2
	FWT-04	18-Oct-2004	43.4 Jq
	FWT-05	18-Oct-2004	113
	FWT-06	18-Oct-2004	ND
	FWT-07	18-Oct-2004	63.9
	FWT-08	18-Oct-2004	41.5 Jq
	FWT-09	18-Oct-2004	60.6 Jq
	FWT-10	18-Oct-2004	43.8 Jq
	FWT-11	18-Oct-2004	93.0
	FWT-12	18-Oct-2004	39.0 Jq
	FWT-13	18-Oct-2004	49.2 Jq
	FWTEW-04	18-Oct-2004	61.6
	FWTEW-05	18-Oct-2004	308
	FWTEW-06	18-Oct-2004	62.3
	FWTWW-01	18-Oct-2004	41.9 Jq
	FWTWW-02	18-Oct-2004	422
	FWTWW-03	18-Oct-2004	4140
10/19/04	TRE-05	26-Oct-2004	2360
	TRE-06	26-Oct-2004	232
	TRE-07	26-Oct-2004	156
	TRE-08	26-Oct-2004	1280
	TREW-01	26-Oct-2004	519
	TREW-02	26-Oct-2004	78.7
	TREW-03	26-Oct-2004	1530
	TREW-05	26-Oct-2004	390
	TREW-06	26-Oct-2004	294
	TREW-07	26-Oct-2004	1730
10/27/04 – 10/28/04	LP-01	27-Oct-2004	ND
	LP-02	27-Oct-2004	899
	LP-03	27-Oct-2004	ND
	LP-04	27-Oct-2004	ND
	LP-05	27-Oct-2004	86.9
	LP-06	27-Oct-2004	690

Table C-1. Intermediate Perchlorate Sample Results (continued)

Excavation Event Date (s)	Sample ID/Location	Excavation Guiding/Confirmation Sampling Date After Excavation	Perchlorate Results µg/kg
10/27/04 – 10/28/04 (continued)	LP-07	27-Oct-2004	36.5 Jq
	LP-08	27-Oct-2004	85.0
	LP-09	28-Oct-2004	60.9
	LP-10	28-Oct-2004	38.6 Jq
	LP-11	28-Oct-2004	58.3 Jq
	LP-12	28-Oct-2004	45.0 Jq
	LP-13	28-Oct-2004	151
	LP-14	28-Oct-2004	30.3 Jq
	LP-07	27-Oct-2004	36.5 Jq
	LP-08	27-Oct-2004	85.0
	LP-09	28-Oct-2004	60.9
	LP-10	28-Oct-2004	38.6 Jq
	LP-11	28-Oct-2004	58.3 Jq
	LP-12	28-Oct-2004	45.0 Jq
	LP-13	28-Oct-2004	151
	LP-14	28-Oct-2004	30.3 Jq
	TRE-01	28-Oct-2004	414
	TRE-02	28-Oct-2004	449
	TRE-03	28-Oct-2004	355
	TRE-04	28-Oct-2004	2570
	TREW-04	28-Oct-2004	174
10/28/04	TR4-B	2-Nov-2004	382
	FWW03	3-Nov-2004	270
	TR13-E	3-Nov-2004	380
	TR14-E	3-Nov-2004	263
	TR5-B	3-Nov-2004	475
	TR5-C	3-Nov-2004	416
	TR5-D	3-Nov-2004	1020
	TR5-E	3-Nov-2004	2050
	TR5-F	3-Nov-2004	1040
	TR5-G	3-Nov-2004	568
	TR5-H	3-Nov-2004	42.5 Jq
	TR6-B	3-Nov-2004	1510
	TR6-C	3-Nov-2004	568
	TR6-D	3-Nov-2004	2730
	TR6-F	3-Nov-2004	734
	TR6-G	3-Nov-2004	214
	TR6-H	3-Nov-2004	102
	TR7-H	3-Nov-2004	184
10/30/04	TR7-B	4-Nov-2004	1040
	TR7-C	4-Nov-2004	473
	TR7-D	4-Nov-2004	1560
	TR8-C	4-Nov-2004	1110

Table C-1. Intermediate Perchlorate Sample Results (continued)

Excavation Event Date (s)	Sample ID/Location	Excavation Guiding/Confirmation Sampling Date After Excavation	Perchlorate Results µg/kg
11/04/04	LP-05	10-Nov-2004	ND
11/26/04 (continued)	LP-02	2-Dec-2004	101
	LP-06	2-Dec-2004	ND
	TR16-G	2-Dec-2004	117
	TR18-E	2-Dec-2004	244
	TR5-D	2-Dec-2004	1360
	TR5-E	2-Dec-2004	1270
	TR5-F	2-Dec-2004	2460
	TR5-G	2-Dec-2004	188
	TR6-B	2-Dec-2004	744
	TR6-C	2-Dec-2004	1320
	TR6-D	2-Dec-2004	2570
	TR6-F	2-Dec-2004	908
	TR7-B	2-Dec-2004	571
	TR7-D	2-Dec-2004	953
	TR8-C	2-Dec-2004	1360
	TR9-A	2-Dec-2004	103
	TREW-01	2-Dec-2004	134
	TREW-03-07	2-Dec-2004	343
12/17/04	TR5-D	22-Dec-2004	5310 Jt
	TR5-E	22-Dec-2004	5690 Jt
	TR5-F	22-Dec-2004	1700 Jt
	TR6-B	22-Dec-2004	2170 Jt
	TR6-C	22-Dec-2004	2470 Jt
	TR6-D	22-Dec-2004	1280 Jt
	TR6-F	22-Dec-2004	2890 Jt
	TR6-G	22-Dec-2004	1180 Jt
	TR7-B	22-Dec-2004	12900 Jt
	TR7-D	22-Dec-2004	1460 Jt
	TR8-C	22-Dec-2004	1880 Jt

Table C-2 Camp Bonneville Landfill 4 Confirmation Sample Results – Explosives

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX			
TR01-A	091604-TR01-A	ND	ND	15	15.5	09/16/04	TR02-E	092004-TR02-E	ND	ND	15	15.5	09/20/04
TR01-B	091604-TR01-B	ND	ND	15	15.5	09/16/04	TR02-F	092004-TR02-F	ND	ND	15	15.5	09/20/04
TR01-C	091604-TR01-C	ND	ND	15	15.5	09/16/04	TR02-G	092004-TR02-G	ND	ND	15	15.5	09/20/04
TR01-D	091604-TR01-D	ND	ND	15	15.5	09/16/04	TR03-A	092004-TR03-A	ND	ND	15	15.5	09/20/04
TR01-E	091604-TR01-E	ND	ND	15	15.5	09/16/04	TR03-B	092004-TR03-B	ND	ND	15	15.5	09/20/04
TR01-F	091604-TR01-F	ND	ND	15	15.5	09/16/04	TR03-C	092004-TR03-C (DUP is J)	ND	ND	15	15.5	09/20/04
TR01-G	091604-TR01-G	ND	ND	15	15.5	09/16/04	TR03-D	092004-TR03-D	ND	ND	15	15.5	09/20/04
TR01-H	091604-TR01-H	ND	ND	15	15.5	09/16/04	TR03-E	092004-TR03-E	ND	ND	15	15.5	09/20/04
TR01-I	091604-TR01-I	ND	ND	15	15.5	09/16/04	TR03-F	092004-TR03-F	ND	ND	15	15.5	09/20/04
TR01-J	091604-TR01-J	ND	ND	15	15.5	09/16/04	TR03-G	092004-TR03-G	ND	ND	15	15.5	09/20/04
TR01-K	091604-TR01-K	ND	ND	15	15.5	09/16/04	TR03-H	092004-TR03-H	ND	ND	15	15.5	09/20/04
TR01-L	091604-TR01-L	ND	ND	15	15.5	09/16/04	TR03-I	092004-TR03-I	ND	ND	15	15.5	09/20/04
TR01-M	091604-TR01-M	ND	ND	15	15.5	09/16/04	TR03-J	092004-TR03-J (DUP of C)	ND	ND	15	15.5	09/20/04
TR01-N	092004-TR01-N	ND	ND	15	15.5	09/20/04	TR04-A	092004-TR04-A	ND	ND	15	15.5	09/20/04
TR01-O	092004-TR01-O	ND	ND	15	15.5	09/20/04	TR04-B	110204-SS-TR4-B	ND	ND	19	19.5	11/02/04
TR01-P	092004-TR01-P	ND	ND	15	15.5	09/20/04	TR04-C	092004-TR04-C	ND	ND	15	15.5	09/20/04
TR01-Q	092004-TR01-Q	ND	ND	15	15.5	09/20/04	TR04-D	092004-TR04-D	ND	ND	15	15.5	09/20/04
TR01-R	092004-TR01-R (DUP of J)	ND	ND	15	15.5	09/20/04	TR04-E	092004-TR04-E	ND	ND	15	15.5	09/20/04
TR01-S	092004-TR01-S (DUP of Q)	ND	ND	15	15.5	09/20/04	TR04-F	092004-TR04-F	ND	ND	15	15.5	09/20/04
TR02-A	092004-TR02-A	ND	ND	15	15.5	09/20/04	TR04-G	092004-TR04-G	ND	ND	15	15.5	09/20/04
TR02-B	092004-TR02-B	ND	ND	15	15.5	09/20/04	TR04-H	092104-TR04-H	ND	ND	15	15.5	09/21/04
TR02-C	092004-TR02-C	ND	ND	15	15.5	09/20/04	TR04-I	092104-TR04-I	ND	ND	15	15.5	09/21/04
TR02-D	092004-TR02-D	ND	ND	15	15.5	09/20/04	TR04-J	092004-TR04-J (DUP OF G)	ND	ND	15	15.5	09/20/04

Table C-2 Camp Bonneville Landfill 4 Confirmation Sample Results – Explosives (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX			
TR5-A	092105-SS-TR5-A	ND	ND	15	15.5	09/21/05	TR07-I	092104-TR07-I (DUP of G)	ND	ND	15	15.5	09/21/04
TR5-B	110304-SS-TR5-B	ND	ND	19	19.5	11/03/04	TR08-A	092104-TR08-A	ND	ND	15	15.5	09/21/04
TR5-C	110304-SS-TR5-C	ND	ND	19	19.5	11/03/04	TR08-B	092104-TR08-B	ND	ND	15	15.5	09/21/04
TR5-D	110304-SS-TR5-D	ND	ND	27	27.5	11/03/04	TR8-C	110404-CBL4-SS-TR8-C	ND	ND	27	27.5	11/04/04
TR5-E	110304-SS-TR5-E	ND	ND	27	27.5	11/03/04	TR08-D	092104-TR08-D	ND	ND	15	15.5	09/21/04
TR5-F	110304-SS-TR5-F	ND	ND	27	27.5	11/03/04	TR08-E	092104-TR08-E	ND	ND	15	15.5	09/21/04
TR5-G	110304-SS-TR5-G	ND	ND	23	23.5	11/03/04	TR08-F	092204-TR08-F	ND	ND	15	15.5	09/22/04
TR5-H	110304-SS-TR5-H	ND	ND	19	19.5	11/03/04	TR08-G	092204-TR08-G	ND	ND	15	15.5	09/22/04
TR06-A	092104-TR06-A	ND	ND	15	15.5	09/21/04	TR08-H	092204-TR08-H	ND	ND	15	15.5	09/22/04
TR6-B	110304-SS-TR6-B	ND	ND	27	27.5	11/03/04	TR08-J	092204-TR08-J	ND	ND	15	15.5	09/22/04
TR6-C	110304-SS-TR6-C	ND	ND	27	27.5	11/03/04	TR08-SW1	092204-TR08-SW1	ND	ND	9	9.5	09/22/04
TR6-D	110304-SS-TR6-D	ND	ND	27	27.5	11/03/04	TR08-SW2	092204-TR08-SW2	ND	ND	9	9.5	09/22/04
TR06-E	092104-TR06-E	ND	ND	15	15.5	09/21/04	TR09-A	102604-SS-TRE-05 (TR09-A)	ND	ND	19	19.5	10/26/04
TR6-F	110304-SS-TR6-F	ND	ND	27	27.5	11/03/04	TR09-B	092204-TR09-B	ND	ND	15	15.5	09/22/04
TR6-G	110304-SS-TR6-G	ND	ND	27	27.5	11/03/04	TR09-C	092204-TR09-C	ND	ND	15	15.5	09/22/04
TR6-H	110304-SS-TR6-H	ND	ND	19	19.5	11/03/04	TR09-D	092204-TR09-D	ND	ND	15	15.5	09/22/04
TR07-A	092104-TR07-A	ND	ND	15	15.5	09/21/04	TR09-E	092204-TR09-E	ND	ND	15	15.5	09/22/04
TR07-B	110404-CB4-SS-TR07-B	ND	ND	19	19.5	11/04/04	TR09-F	092204-TR09-F	ND	ND	15	15.5	09/22/04
TR07-C	110404-CB4-SS-TR07-C	ND	ND	19	19.5	11/04/04	TR09-G	092204-TR09-G	ND	ND	15	15.5	09/22/04
TR07-D	110404-CB4-SS-TR07-D	ND	ND	19	19.5	11/04/04	TR09-H	092204-TR09-H	ND	ND	15	15.5	09/22/04
TR07-E	092104-TR07-E	ND	ND	15	15.5	09/21/04	TR09-I	092204-TR09-I	ND	ND	15	15.5	09/22/04
TR07-F	092104-TR07-F	ND	ND	15	15.5	09/21/04	TR09-J	092204-TR09-J (DUP of L)	ND	ND	15	15.5	09/22/04
TR07-G	092104-TR07-G	ND	ND	15	15.5	09/21/04	TR09-K	102604-SS-TRE-05 (TR09-K, DUP of A)	ND	ND	19	19.5	10/26/04
TR7-H	110304-SS-TR7-H	ND	ND	19	19.5	11/03/04	TR09-L	092204-TR09-L	ND	ND	15	15.5	09/22/04

Table C-2 Camp Bonneville Landfill 4 Confirmation Sample Results – Explosives (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX			
TR10-A	092204-TR10-A	ND	ND	15	15.5	09/22/04	TR14-F	092204-TR14-F	ND	ND	15	15.5	09/22/04
TR10-B	092204-TR10-B	ND	ND	15	15.5	09/22/04	TR14-G	092204-TR14-G	ND	ND	15	15.5	09/22/04
TR10-C	092204-TR10-C	ND	ND	15	15.5	09/22/04	TR15-A	092204-TR15-A	ND	ND	15	15.5	09/22/04
TR10-D	092204-TR10-D	ND	ND	15	15.5	09/22/04	TR15-B	092204-TR15-B	ND	ND	15	15.5	09/22/04
TR11-A	092204-TR11-A	ND	ND	15	15.5	09/22/04	TR15-C	092204-TR15-C	ND	ND	15	15.5	09/22/04
TR11-B	092204-TR11-B	ND	ND	15	15.5	09/22/04	TR15-D	092204-TR15-D	ND	ND	15	15.5	09/22/04
TR11-C	092204-TR11-C	ND	ND	15	15.5	09/22/04	TR15-E	092204-TR15-E	ND	ND	15	15.5	09/22/04
TR11-D	092204-TR11-D	ND	ND	15	15.5	09/22/04	TR15-F	092204-TR15-F	ND	ND	15	15.5	09/22/04
TR12-A	092204-TR12-A	ND	ND	15	15.5	09/22/04	TR15-G	092204-TR15-G (DUP of F)	ND	ND	15	15.5	09/22/04
TR12-B	092204-TR12-B	ND	ND	15	15.5	09/22/04	TR16-A	092304-TR16-A	ND	ND	15	15.5	09/23/04
TR12-C	092204-TR12-C	ND	ND	15	15.5	09/22/04	TR16-B	092304-TR16-B	ND	ND	15	15.5	09/23/04
TR12-D	092204-TR12-D	ND	ND	15	15.5	09/22/04	TR16-C	092304-TR16-C	ND	ND	15	15.5	09/23/04
TR12-E	092204-TR12-E	ND	ND	15	15.5	09/22/04	TR16-D	102804-SS-TRE-01 (TR16-D)	ND	ND	19	19.5	10/28/04
TR12-F	092204-TR12-F (DUP of B)	ND	ND	15	15.5	09/22/04	TR16-E	102804-SS-TRE-02 (TR16-E)	ND	ND	19	19.5	10/28/04
TR13-A	092204-TR13-A	ND	ND	15	15.5	09/22/04	TR17-E	102604-SS-TRE-06 (TR17-E, DUP of D)	ND	ND	19	19.5	10/26/04
TR13-B	092204-TR13-B	ND	ND	15	15.5	09/22/04	TR18-A	092304-TR18-A	ND	ND	15	15.5	09/23/04
TR13-C	092204-TR13-C	ND	ND	15	15.5	09/22/04	TR18-B	092304-TR18-B	ND	ND	15	15.5	09/23/04
TR13-D	092204-TR13-D	ND	ND	15	15.5	09/22/04	TR18-C	092304-TR18-C	ND	ND	15	15.5	09/23/04
TR13-E	110304-SS-TR13-E	ND	ND	19	19.5	11/03/04	TR18-D	092304-TR18-D	ND	ND	15	15.5	09/23/04
TR14-A	092204-TR14-A	ND	ND	15	15.5	09/22/04	TR18-E	092304-TR18-E	ND	ND	15	15.5	09/23/04
TR14-B	092204-TR14-B	ND	ND	15	15.5	09/22/04	TR18-F	092304-TR18-F	ND	ND	15	15.5	09/23/04
TR14-C	092204-TR14-C	ND	ND	15	15.5	09/22/04	TR18-G	092304-TR18-G	ND	ND	15	15.5	09/23/04
TR14-D	092204-TR14-D	ND	ND	15	15.5	09/22/04	TR18-H	092304-TR18-H	ND	ND	15	15.5	09/23/04
TR14-E	110304-SS-TR14-E	ND	ND	19	19.5	11/03/04	TR18-I	092304-TR18-I	ND	ND	15	15.5	09/23/04

Table C-2 Camp Bonneville Landfill 4 Confirmation Sample Results – Explosives (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX			
TR18-J	092304-TR18-J	ND	ND	15	15.5	09/23/04	TR20-I	092304-TR20-I	ND	ND	15	15.5	09/23/04
TR18-K	092304-TR18-K	ND	ND	15	15.5	09/23/04	TR20-J	092304-TR20-J	ND	ND	15	15.5	09/23/04
TR18-L	092304-TR18-L	ND	ND	15	15.5	09/23/04	TR20-K	092304-TR20-K	ND	ND	15	15.5	09/23/04
TR18-M	092304-TR18-M	ND	ND	15	15.5	09/23/04	TR20-L	092304-TR20-L	ND	ND	15	15.5	09/23/04
TR18-N	092304-TR18-N	ND	ND	15	15.5	09/23/04	TR20-M	092304-TR20-M	ND	ND	15	15.5	09/23/04
TR18-O	092304-TR18-O	ND	ND	15	15.5	09/23/04	TR20-N	092304-TR20-N	ND	ND	15	15.5	09/23/04
TR18-P	092304-TR18-P	ND	ND	15	15.5	09/23/04	TR20-O	092304-TR20-O	ND	ND	15	15.5	09/23/04
TR18-Q	092304-TR18-Q	ND	ND	15	15.5	09/23/04	TR20-P	092304-TR20-P	ND	ND	15	15.5	09/23/04
TR19-A	092304-TR19-A	ND	ND	15	15.5	09/23/04	TR20-Q	092304-TR20-Q	ND	ND	15	15.5	09/23/04
TR19-B	092304-TR19-B	ND	ND	15	15.5	09/23/04	TR20-R	092304-TR20-R	ND	ND	15	15.5	09/23/04
TR19-C	092304-TR19-C	ND	ND	15	15.5	09/23/04	TR20-S	092304-TR20-S	ND	ND	15	15.5	09/23/04
TR19-D	092304-TR19-D	ND	ND	15	15.5	09/23/04	TR20-T	092304-TR20-T	ND	ND	15	15.5	09/23/04
TR19-E	092304-TR19-E	ND	ND	15	15.5	09/23/04	TR20-U	092304-TR20-U	ND	ND	15	15.5	09/23/04
TR19-F	092304-TR19-F	ND	ND	15	15.5	09/23/04	TR20-V	092304-TR20-V	ND	ND	15	15.5	09/23/04
TR19-G	092304-TR19-G	ND	ND	15	15.5	09/23/04	TR20-W	092304-TR20-W (DUP of C)	ND	ND	15	15.5	09/23/04
TR19-H	092304-TR19-H	ND	ND	15	15.5	09/23/04	TR20-X	092304-TR20-X (DUP of M)	ND	ND	15	15.5	09/23/04
TR19-I	092304-TR19-I	ND	ND	15	15.5	09/23/04	TR20-Y	092304-TR20-Y (DUP of V)	ND	ND	15	15.5	09/23/04
TR20-A	092304-TR20-A	ND	ND	15	15.5	09/23/04	TR21-A	092304-TR21-A	ND	ND	15	15.5	09/23/04
TR20-B	092304-TR20-B	ND	ND	15	15.5	09/23/04	TR21-B	092304-TR21-B	ND	ND	15	15.5	09/23/04
TR20-C	092304-TR20-C	ND	ND	15	15.5	09/23/04	TR21-C	092304-TR21-C	ND	ND	15	15.5	09/23/04
TR20-D	092304-TR20-D	ND	ND	15	15.5	09/23/04	TR21-D	092304-TR21-D	ND	ND	15	15.5	09/23/04
TR20-E	092304-TR20-E	ND	ND	15	15.5	09/23/04	TR22-A	092304-TR22-A	ND	ND	15	15.5	09/23/04
TR20-F	092304-TR20-F	ND	ND	15	15.5	09/23/04	TR22-B	092304-TR22-B	ND	ND	15	15.5	09/23/04
TR20-G	092304-TR20-G	ND	ND	15	15.5	09/23/04	TR22-C	092304-TR22-C	ND	ND	15	15.5	09/23/04
TR20-H	092304-TR20-H	ND	ND	15	15.5	09/23/04	TR22-D	092304-TR22-D	ND	ND	15	15.5	09/23/04

Table C-2 Camp Bonneville Landfill 4 Confirmation Sample Results – Explosives (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)		Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	3.20E+03 HMX	5.00E+02 RDX			
TR22-E	092304-TR22-E	ND	ND	15	15.5	09/23/04	TRE-07	102604-SS-TRE-07	ND	ND	19	19.5	10/26/04
TR22-F	092304-TR22-F	ND	ND	15	15.5	09/23/04	TRE-08	102604-22-TRE-08	ND	ND	19	19.5	10/26/04
TR22-G	092304-TR22-G	ND	ND	15	15.5	09/23/04	TREW-01	102604-SS-TREW-01	ND	ND	18	18	10/26/04
TR22-H	092304-TR22-H	ND	ND	15	15.5	09/23/04	TREW-02	102604-SS-TREW-02	ND	ND	18	18	10/26/04
TR22-I	092304-TR22-I	ND	ND	15	15.5	09/23/04	TREW-03	102604-SS-TREW-03	ND	220	18	18	10/26/04
TR22-J	092304-TR22-J (DUP of H)	ND	ND	15	15.5	09/23/04	TREW-04	102804-SS-TREW-04	ND	ND	18	18	10/28/04
FWT-01	101804-SS-FWT-01	ND	ND	10	10.5	10/18/04	TREW-05	102604-SS-TREW-05	ND	ND	18	18	10/26/04
FWT-02	101804-SS-FWT-02	ND	ND	10	10.5	10/18/04	TREW-06	102604-SS-TREW-06	ND	ND	18	18	10/26/04
FWT-03	101804-SS-FWT-03	ND	ND	10	10.5	10/18/04	TREW-07	102604-SS-TREW-07	ND	190	18	18	10//26/04
FWT-04	101804-SS-FWT-04	ND	ND	10	10.5	10/18/04	LP-01	102704-SS-LP-01	ND	ND	6	6.5	10/27/04
FWT-05	101804-SS-FWT-05	ND	ND	10	10.5	10/18/04	LP-02	102704-SS-LP-02	ND	ND	6	6.5	10/27/04
FWT-06	101804-SS-FWT-06	ND	ND	10	10.5	10/18/04	LP-03	102704-SS-LP-03	ND	ND	6	6.5	10/27/04
FWT-07	101804-SS-FWT-07	ND	ND	10	10.5	10/18/04	LP-04	102704-SS-LP-04	ND	ND	6	6.5	10/27/04
FWT-08	101804-SS-FWT-08	ND	ND	10	10.5	10/18/04	LP-05	111004-SS-LP-05	ND	ND	6	8.5	11/10/04
FWT-09	101804-SS-FWT-09	ND	ND	10	10.5	10/18/04	LP-06	102704-SS-LP-06	ND	ND	6	8.5	10/27/04
FWT-10	101804-SS-FWT-10	ND	ND	10	10.5	10/18/04	LP-07	102704-SS-LP-07	ND	ND	7	7.5	10/27/04
FWT-11	101804-SS-FWT-11	ND	ND	10	10.5	10/18/04	LP-08	102704-SS-LP-08	ND	ND	7	4.5	10/27/04
FWT-12	101804-SS-FWT-12	ND	ND	10	10.5	10/18/04	LP-09	102804-SS-LP-09	ND	ND	5	5.5	10/28/04
FWT-13	101804-SS-FWT-13	ND	ND	10	10.5	10/18/04	LP-10	102804-SS-LP-10	ND	ND	5	5.5	10/28/04
FWTEW-04	101804-SS-FWTEW-04	ND	ND	9	9	10/18/04	LP-11	102804-SS-LP-11	ND	ND	5	5.5	10/28/04
FWTEW-05	101804-SS-FWTEW-05	ND	ND	9	9	10/18/04	LP-12	102804-SS-LP-12	ND	180	5	5.5	10/28/04
FWTEW-06	101804-SS-FWTEW-06	ND	ND	9	9	10/18/04	LP-13	102804-SS-LP-13	ND	580	5	5.5	10/28/04
FWTWW-01	101804-SS-FWTWW-01	ND	ND	9	9	10/18/04	LP-14	102804-SS-LP-14	ND	ND	5	5.5	10/28/04
FWTWW-02	101804-SS-FWTWW-02	ND	ND	9	9	10/18/04							

Table C-3 Camp Bonneville Landfill 4 Confirmation Samples Results – Explosives (Perchlorate)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500			
TR01-A	091604-TR01-A	ND	15	15.5	09/16/04	TR02-E	092004-TR02-E	ND	15	15.5	09/20/04
TR01-B	091604-TR01-B	ND	15	15.5	09/16/04	TR02-F	092004-TR02-F	177	15	15.5	09/20/04
TR01-C	091604-TR01-C	ND	15	15.5	09/16/04	TR02-G	092004-TR02-G	257	15	15.5	09/20/04
TR01-D	091604-TR01-D	114	15	15.5	09/16/04	TR03-A	092004-TR03-A	ND	15	15.5	09/20/04
TR01-E	091604-TR01-E	ND	15	15.5	09/16/04	TR03-B	092004-TR03-B	48.3	15	15.5	09/20/04
TR01-F	091604-TR01-F	ND	15	15.5	09/16/04	TR03-C	092004-TR03-C (DUP is J)	150	15	15.5	09/20/04
TR01-G	091604-TR01-G	54.7	15	15.5	09/16/04	TR03-D	092004-TR03-D	ND	15	15.5	09/20/04
TR01-H	091604-TR01-H	59.1	15	15.5	09/16/04	TR03-E	092004-TR03-E	ND	15	15.5	09/20/04
TR01-I	091604-TR01-I	47.4	15	15.5	09/16/04	TR03-F	092004-TR03-F	50.5	15	15.5	09/20/04
TR01-J	091604-TR01-J	191	15	15.5	09/16/04	TR03-G	092004-TR03-G	ND	15	15.5	09/20/04
TR01-K	091604-TR01-K	43.4	15	15.5	09/16/04	TR03-H	092004-TR03-H	ND	15	15.5	09/20/04
TR01-L	091604-TR01-L	39.4	15	15.5	09/16/04	TR03-I	092004-TR03-I	ND	15	15.5	09/20/04
TR01-M	091604-TR01-M	109	15	15.5	09/16/04	TR03-J	092004-TR03-J (DUP of C)	123	15	15.5	09/20/04
TR01-N	092004-TR01-N	251	15	15.5	09/20/04	TR04-A	092004-TR04-A	166	15	15.5	09/20/04
TR01-O	092004-TR01-O	234	15	15.5	09/20/04	TR04-B	110204-SS-TR04-B	382	19	19.5	11/02/04
TR01-P	092004-TR01-P	328	15	15.5	09/20/04	TR04-C	092004-TR04-C	467	15	15.5	09/20/04
TR01-Q	092004-TR01-Q	128	15	15.5	09/20/04	TR04-D	092004-TR04-D	134	15	15.5	09/20/04
TR01-R	092004-TR01-R (DUP of J)	197	15	15.5	09/20/04	TR04-E	092004-TR04-E	ND	15	15.5	09/20/04
TR01-S	092004-TR01-S (DUP of Q)	122	15	15.5	09/20/04	TR04-F	092004-TR04-F	94.3	15	15.5	09/20/04
TR02-A	092004-TR02-A	ND	15	15.5	09/20/04	TR04-G	092004-TR04-G	313	15	15.5	09/20/04
TR02-B	092004-TR02-B	ND	15	15.5	09/20/04	TR04-H	092104-TR04-H	46.5	15	15.5	09/21/04
TR02-C	092004-TR02-C	46.7	15	15.5	09/20/04	TR04-I	092104-TR04-I	186	15	15.5	09/21/04
TR02-D	092004-TR02-D	ND	15	15.5	09/20/04	TR04-J	092104-TR04-J (DUP OF G)	253	15	15.5	09/21/04

Table C-3 Camp Bonneville Landfill 4 Confirmation Samples Results – Explosives (Perchlorate) (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500			
TR05-A	092104-TR05-A	ND	15	15.5	09/21/04	TR07-I	092104-TR07-I (DUP of G)	ND	15	15.5	09/21/04
TR05-B	110304-SS-TR05-B	475	19	19.5	11/03/04	TR08-A	092104-TR08-A	ND	15	15.5	09/21/04
TR05-C	110304-SS-TR05-C	414	19	19.5	11/03/04	TR08-B	092104-TR08-B	37.6	15	15.5	09/21/04
TR5-D	122204-CBL4-TR5-D	5310[(1)]	27	27.5	12/22/04	TR8-C	122204-CBL4-TR8-C	1880[(1)]	27	27.5	12/22/04
TR5-E	122204-CBL4-TR5-E	5690[(1)]	27	27.5	12/22/04	TR08-D	092104-TR08-D	133	15	15.5	09/21/04
TR5-F	122204-CBL4-TR5-F	1700[(1)]	27	27.5	12/22/04	TR08-E	092104-TR08-E	490	15	15.5	09/21/04
TR5-G	122204-CBL4-TR5-G	188	23	23.5	12/02/04	TR08-F	092204-TR08-F	ND	15	15.5	09/22/04
TR5-H	110304-SS-TR5-H	42.5	19	19.5	11/03/04	TR08-G	092204-TR08-G	ND	15	15.5	09/22/04
TR06-A	092104-TR06-A	76.1	15	15.5	09/21/04	TR08-H	092204-TR08-H	63.3	15	15.5	09/22/04
TR6-B	122204-CBL4-TR6-B	2170[(1)]	27	27.5	12/22/04	TR08-J	092204-TR08-J	ND	15	15.5	09/22/04
TR6-C	122204-CBL4-TR6-C	2470[(1)]	27	27.5	12/22/04	TR09-A	120204-CBL4-SS-TR09-A	103	23	23.5	12/02/04
TR6-D	122204-CBL4-TR6-D	1280[(1)]	27	27.5	12/22/04	TR09-B	092204-TR09-B	386	15	15.5	09/22/04
TR06-E	092104-TR06-E	416	15	15.5	09/21/04	TR09-C	092204-TR09-C	107	15	15.5	09/22/04
TR6-F	122204-CBL4-TR6-F	2890[(1)]	27	27.5	12/22/04	TR09-D	092204-TR09-D	ND	15	15.5	09/22/04
TR6-G	122204-CBL4-TR6-G	1180[(1)]	27	27.5	12/22/04	TR09-E	092204-TR09-E	ND	15	15.5	09/22/04
TR6-H	110304-SS-TR6-H	102	19	19.5	11/03/04	TR09-F	092204-TR09-F	ND	15	15.5	09/22/04
TR07-A	092104-TR07-A	33.7	15	15.5	09/21/04	TR09-G	092204-TR09-G	ND	15	15.5	09/22/04
TR7-B	122204-CBL4-TR7-B	12900[(1)]	27	27.5	12/22/04	TR09-H	092204-TR09-H	ND	15	15.5	09/22/04
TR07-C	110404-CBL4-SS-TR07-C	473	19	19.5	11/04/04	TR09-I	092204-TR09-I	ND	15	15.5	09/22/04
TR7-D	122204-CBL4-TR7-D	1460[(1)]	27	27.5	12/22/04	TR09-J	092204-TR09-J (DUP of L)	ND	15	15.5	09/22/04
TR07-E	092104-TR07-E	70.4	15	15.5	09/21/04	TR09-L	092204-TR09-L	ND	15	15.5	09/22/04
TR07-F	092104-TR07-F	258	15	15.5	09/21/04	TR10-A	092204-TR10-A	ND	15	15.5	09/22/04
TR07-G	092104-TR07-G	ND	15	15.5	09/21/04	TR10-B	092204-TR10-B	ND	15	15.5	09/22/04
TR07-H	110304-SS-TR07-H	184	19	19.5	11/03/04	TR10-C	092204-TR10-C	46.2	15	15.5	09/22/04

Table C-3 Camp Bonneville Landfill 4 Confirmation Samples Results – Explosives (Perchlorate) (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500			
TR10-D	092204-TR10-D	189	15	15.5	09/22/04						
TR11-A	092204-TR11-A	ND	15	15.5	09/22/04	TR15-A	092204-TR15-A	ND	15	15.5	09/22/04
TR11-B	092204-TR11-B	51.2	15	15.5	09/22/04	TR15-B	092204-TR15-B	ND	15	15.5	09/22/04
TR11-C	092204-TR11-C	59.8	15	15.5	09/22/04	TR15-C	092204-TR15-C	ND	15	15.5	09/22/04
TR11-D	092204-TR11-D	135	15	15.5	09/22/04	TR15-D	092204-TR15-D	ND	15	15.5	09/22/04
TR12-A	092204-TR12-A	ND	15	15.5	09/22/04	TR15-E	092204-TR15-E	46.9	15	15.5	09/22/04
TR12-B	092204-TR12-B	182	15	15.5	09/22/04	TR15-F	092204-TR15-F	42.6	15	15.5	09/22/04
TR12-C	092204-TR12-C	55.4	15	15.5	09/22/04	TR15-G	092204-TR15-G (DUP of F)	80.3	15	15.5	09/22/04
TR12-D	092204-TR12-D	85.4	15	15.5	09/22/04	TR16-A	092304-TR16-A	ND	15	15.5	09/23/04
TR12-E	092204-TR12-E	102	15	15.5	09/22/04	TR16-B	092304-TR16-B	ND	15	15.5	09/23/04
TR12-F	092204-TR12-F (DUP of B)	175	15	15.5	09/22/04	TR16-C	092304-TR16-C	482	15	15.5	09/23/04
TR13-A	092204-TR13-A	112	15	15.5	09/22/04	TR16-D	102804-SS-TRE-01 (TR16-D)	414	19	19.5	10/28/04
TR13-B	092204-TR13-B	33.2	15	15.5	09/22/04	TR16-E	102804-SS-TRE-02 (TR16-E)	449	19	19.5	10/28/04
TR13-C	092204-TR13-C	97.7	15	15.5	09/22/04	TR16-F	102804-SS-TRE-03 (TR16-F)	355	19	19.5	10/28/04
TR13-D	092204-TR13-D	492	15	15.5	09/22/04	TR16-G	120204-CBL4-SS-TR16-G	117	23	23.5	12/02/04
TR13-E	110304-SS-TR13-E	380	19	19.5	11/03/04	TR17-A	092304-TR17-A	ND	15	15.5	09/23/04
TR14-A	092204-TR14-A	ND	15	15.5	09/22/04	TR17-B	092304-TR17-B	ND	15	15.5	09/23/04
TR14-B	092204-TR14-B	49.9	15	15.5	09/22/04	TR17-C	092304-TR17-C	43.0	15	15.5	09/23/04
TR14-C	092204-TR14-C	36.6	15	15.5	09/22/04	TR17-D	102604-SS-TRE-06 (TR17-D)	232	19	19.5	10/26/04
TR14-D	092204-TR14-D	125	15	15.5	09/22/04	TR17-E	102604-SS-TRE-06 (TR17-E, DUP of D)	232	19	19.5	10/26/04
TR14-E	110304-SS-TR14-E	263	19	19.5	11/03/04	TR18-A	092304-TR18-A	ND	15	15.5	09/23/04
TR14-F	092204-TR14-F	229	15	15.5	09/22/04	TR18-B	092304-TR18-B	ND	15	15.5	09/23/04
TR14-G	092204-TR14-G	49.5	15	15.5	09/22/04	TR18-C	092304-TR18-C	ND	15	15.5	09/23/04

Table C-3 Camp Bonneville Landfill 4 Confirmation Samples Results – Explosives (Perchlorate) (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500			
TR18-D	092304-TR18-D	192	15	15.5	09/23/04	TR19-I	092304-TR19-I	ND	15	15.5	09/23/04
TR18-E	120204-CBL4-TR18-E	244	23	23.5	12/02/04	TR19-J	092304-TR19-J	28.8	15	15.5	09/23/04
TR18-F	102604-TRE-08(TR18-F)	156	15	15.5	10/26/04	TR19-K	092304-TR19-K	ND	15	15.5	09/23/04
TR18-G	092304-TR18-G	ND	15	15.5	09/23/04	TR19-L	092304-TR19-L	ND	15	15.5	09/23/04
TR18-H	092304-TR18-H	ND	15	15.5	09/23/04	TR19-M	092304-TR19-M (DUP of H)	ND	15	15.5	09/23/04
TR18-I	092304-TR18-I	ND	15	15.5	09/23/04	TR20-A	092304-TR20-A	33.2	15	15.5	09/23/04
TR18-J	092304-TR18-J	ND	15	15.5	09/23/04	TR20-B	092304-TR20-B	ND	15	15.5	09/23/04
TR18-K	092304-TR18-K	ND	15	15.5	09/23/04	TR20-C	092304-TR20-C	ND	15	15.5	09/23/04
TR18-L	092304-TR18-L	ND	15	15.5	09/23/04	TR20-D	092304-TR20-D	ND	15	15.5	09/23/04
TR18-M	092304-TR18-M	ND	15	15.5	09/23/04	TR20-E	092304-TR20-E	ND	15	15.5	09/23/04
TR18-N	092304-TR18-N	33.0	15	15.5	09/23/04	TR20-F	092304-TR20-F	ND	15	15.5	09/23/04
TR18-O	092304-TR18-O	ND	15	15.5	09/23/04	TR20-G	092304-TR20-G	ND	15	15.5	09/23/04
TR18-P	092304-TR18-P	ND	15	15.5	09/23/04	TR20-H	092304-TR20-H	ND	15	15.5	09/23/04
TR18-Q	092304-TR18-Q (DUP of P)	ND	15	15.5	09/23/04	TR20-I	092304-TR20-I	ND	15	15.5	09/23/04
TR19-A	092304-TR19-A	143	15	15.5	09/23/04	TR20-J	092304-TR20-J	ND	15	15.5	09/23/04
TR19-B	092304-TR19-B	ND	15	15.5	09/23/04	TR20-K	092304-TR20-K	ND	15	15.5	09/23/04
TR19-C	092304-TR19-C	ND	15	15.5	09/23/04	TR20-L	092304-TR20-L	ND	15	15.5	09/23/04
TR19-D	092304-TR19-D	ND	15	15.5	09/23/04	TR20-M	092304-TR20-M	ND	15	15.5	09/23/04
TR19-E	092304-TR19-E	ND	15	15.5	09/23/04	TR20-N	092304-TR20-N	ND	15	15.5	09/23/04
TR19-F	092304-TR19-F	ND	15	15.5	09/23/04	TR20-O	092304-TR20-O	ND	15	15.5	09/23/04
TR19-G	092304-TR19-G	64.2	15	15.5	09/23/04	TR20-P	092304-TR20-P	ND	15	15.5	09/23/04
TR19-H	092304-TR19-H	ND	15	15.5	09/23/04	TR20-Q	092304-TR20-Q	ND	15	15.5	09/23/04

Table C-3 Camp Bonneville Landfill 4 Confirmation Samples Results – Explosives (Perchlorate) (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500			
TR20-R	092304-TR20-R	ND	15	15.5	09/23/04	TR22-G	092304-TR22-G	ND	15	15.5	09/23/04
TR20-S	092304-TR20-S	ND	15	15.5	09/23/04	TR22-H	092304-TR22-H	ND	15	15.5	09/23/04
TR20-T	092304-TR20-T	ND	15	15.5	09/23/04	TR22-I	092304-TR22-I	ND	15	15.5	09/23/04
TR20-U	092304-TR20-U	ND	15	15.5	09/23/04	TR22-J	092304-TR22-J (DUP of H)	ND	15	15.5	09/23/04
TR20-V	092304-TR20-V	ND	15	15.5	09/23/04	TRE-08	102604-SS-TRE-08	1280[(2)]	19	19.5	10/26/04
TR20-W	092304-TR20-W (DUP of C)	ND	15	15.5	09/23/04	FWT-01	101804-SS-FWT-01	ND	10	10.5	10/18/04
TR20-X	092304-TR20-X (DUP of M)	ND	15	15.5	09/23/04	FWT-02	101804-SS-FWT-02	ND	10	10.5	10/18/04
TR20-Y	092304-TR20-Y (DUP of V)	ND	15	15.5	09/23/04	FWT-03	101804-SS-FWT-03	72.2	10	10.5	10/18/04
TR21-A	092304-TR21-A	ND	15	15.5	09/23/04	FWT-04	101804-SS-FWT-04	43.4	10	10.5	10/18/04
TR21-B	092304-TR21-B	ND	15	15.5	09/23/04	FWT-05	101804-SS-FWT-05	113	10	10.5	10/18/04
TR21-C	092304-TR21-C	ND	15	15.5	09/23/04	FWT-06	101804-SS-FWT-06	ND	10	10.5	10/18/04
TR21-D	092304-TR21-D	ND	15	15.5	09/23/04	FWT-07	101804-SS-FWT-07	63.9	10	10.5	10/18/04
TR21-E	092304-TR21-E	ND	15	15.5	09/23/04	FWT-08	101804-SS-FWT-08	41.5	10	10.5	10/18/04
TR21-F	092304-TR21-F	ND	15	15.5	09/23/04	FWT-09	101804-SS-FWT-09	60.6	10	10.5	10/18/04
TR21-G	092304-TR21-G	ND	15	15.5	09/23/04	FWT-10	101804-SS-FWT-10	43.8	10	10.5	10/18/04
TR21-H	092304-TR21-H	ND	15	15.5	09/23/04	FWT-11	101804-SS-FWT-11	93.0	10	10.5	10/18/04
TR21-I	092304-TR21-I (DUP of A)	ND	15	15.5	09/23/04	FWT-12	101804-SS-FWT-12	39.0	10	10.5	10/18/04
TR22-A	092304-TR22-A	ND	15	15.5	09/23/04	FWT-13	101804-SS-FWT-13	49.2	10	10.5	10/18/04
TR22-B	092304-TR22-B	ND	15	15.5	09/23/04	FWTEW-04	101804-SS-FWTEW-04	61.6	9	9	10/18/04
TR22-C	092304-TR22-C	ND	15	15.5	09/23/04	FWTEW-05	101804-SS-FWTEW-05	308	9	9	10/18/04
TR22-D	092304-TR22-D	ND	15	15.5	09/23/04	FWTEW-06	101804-SS-FWTEW-06	62.3	9	9	10/18/04
TR22-E	092304-TR22-E	ND	15	15.5	09/23/04	FWTWW-01	101804-SS-FWTWW-01	41.9	9	9	10/18/04
TR22-F	092304-TR22-F	ND	15	15.5	09/23/04	FWTWW-02	101804-SS-FWTWW-02	422	9	9	10/18/04

Table C-3 Camp Bonneville Landfill 4 Confirmation Samples Results – Explosives (Perchlorate) (continued)

SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	ANALYTICAL RESULTS (µg/kg)	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500					MTCA Method A Cleanup Level for Unrestricted Land Uses (mg/kg)	500			
FWTWW-03	101804-SS-FWTWW-03	4140(2)	9	9	10/18/04	LP-04	102704-SS-LP-04	ND	6	6.5	10/27/04
TREW-01	120204-CBL4-SS-TREW-01	134	23	23	12/02/04	LP-05	111004-SS-LP-05	ND	6	8.5	11/10/04
TREW-02	102604-SS-TREW-02	78.7	18	18	10/26/04	LP-06	120204-CBL4-SS-LP-06	ND	6	8.5	12/02/04
TREW-03	102604-SS-TREW-03	1530(2)	18	18	10/26/04	LP-07	102704-SS-LP-07	36.5	7	7.5	10/27/04
TREW-04	102604-SS-TREW-04	174	18	18	10/26/04	LP-08	102704-SS-LP-08	85.0	7	7.5	10/27/04
TREW-05	102604-SS-TREW-05	390	18	18	10/26/04	LP-09	102804-SS-LP-09	60.9	5	5.5	10/28/04
TREW-06	102604-SS-TREW-06	294	18	18	10/26/04	LP-10	102804-SS-LP-10	38.6	5	5.5	10/28/04
TREW-07	102604-SS-TREW-07	1730(2)	18	18	10/26/04	LP-11	102804-SS-LP-11	58.3	5	5.5	10/28/04
TREW-03-07	120204-CBL4-SS-TREW-03-07	343	23	23	12/02/04	LP-12	102804-SS-LP-12	45.0	5	5.5	10/28/04
LP-01	102704-SS-LP-01	ND	6	6.5	10/27/04	LP-13	102804-SS-LP-13	151	5	5.5	10/28/04
LP-02	120204-CBL4-SS-LP-02	101	6	6.5	12/02/04	LP-14	102804-SS-LP-14	30.3	5	5.5	10/28/04
LP-03	102704-SS-LP-03	ND	6	6.5	10/27/04	FWW03	110304-SS-FWW03	270	13	13	11/03/04

(1) The perchlorate concentration at this location remains above the Method A Cleanup Level for unrestricted use due to the excavation being halted when groundwater was encountered.

(2) Perchlorate result is representative of a pit wall sampling location that was removed by subsequent excavations.

Table C-4 Camp Bonneville Landfill 4 Confirmation Sample Results – Volatile Organic Compounds

SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01					MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01			
TR01-A	091604-TR01-A	ND	ND	ND	15	15.5	09/16/04	TR02-A	092004-TR02-A	ND	ND	ND	15	15.5	09/20/04
TR01-B	091604-TR01-B	ND	ND	ND	15	15.5	09/16/04	TR02-B	092004-TR02-B	ND	ND	ND	15	15.5	09/20/04
TR01-C	091604-TR01-C	ND	ND	ND	15	15.5	09/16/04	TR02-C	092004-TR02-C	ND	ND	ND	15	15.5	09/20/04
TR01-D	091604-TR01-D	ND	0.236	ND	15	15.5	09/16/04	TR02-D	092004-TR02-D	ND	ND	ND	15	15.5	09/20/04
TR01-E	091604-TR01-E	ND	ND	ND	15	15.5	09/16/04	TR02-E	092004-TR02-E	ND	ND	ND	15	15.5	09/20/04
TR01-F	091604-TR01-F	ND	ND	ND	15	15.5	09/16/04	TR02-F	092004-TR02-F	ND	ND	ND	15	15.5	09/20/04
TR01-G	091604-TR01-G	ND	ND	ND	15	15.5	09/16/04	TR02-G	092004-TR02-G	ND	ND	ND	15	15.5	09/20/04
TR01-H	091604-TR01-H	ND	ND	ND	15	15.5	09/16/04	TR03-A	092004-TR03-A	ND	ND	ND	15	15.5	09/20/04
TR01-I	091604-TR01-I	ND	ND	ND	15	15.5	09/16/04	TR03-B	092004-TR03-B	ND	ND	ND	15	15.5	09/20/04
TR01-J	091604-TR01-J	ND	ND	ND	15	15.5	09/16/04	TR03-C	092004-TR03-C (DUP is J)	4.21	ND	ND	15	15.5	09/20/04
TR01-K	091604-TR01-K	ND	ND	ND	15	15.5	09/16/04	TR03-D	092004-TR03-D	1.68	ND	ND	15	15.5	09/20/04
TR01-L	091604-TR01-L	ND	ND	ND	15	15.5	09/16/04	TR03-E	092004-TR03-E	ND	ND	ND	15	15.5	09/20/04
TR01-M	091604-TR01-M	ND	ND	ND	15	15.5	09/16/04	TR03-F	092004-TR03-F	ND	ND	ND	15	15.5	09/20/04
TR01-N	092004-TR01-N	ND	ND	ND	15	15.5	09/20/04	TR03-G	092004-TR03-G	ND	ND	ND	15	15.5	09/20/04
TR01-O	092004-TR01-O	ND	ND	ND	15	15.5	09/20/04	TR03-H	092004-TR03-H	ND	ND	ND	15	15.5	09/20/04
TR01-P	092004-TR01-P	ND	ND	ND	15	15.5	09/20/04	TR03-I	092004-TR03-I	ND	ND	ND	15	15.5	09/20/04
TR01-Q	092004-TR01-Q	ND	ND	ND	15	15.5	09/20/04	TR03-J	092004-TR03-J (DUP of C)	2.5	ND	ND	15	15.5	09/20/04
TR01-R	092004-TR01-R (DUP of J)	ND	ND	ND	15	15.5	09/20/04	TR04-A	092004-TR04-A	ND	ND	ND	15	15.5	09/20/04
TR01-S	092004-TR01-S (DUP of Q)	ND	ND	ND	15	15.5	09/20/04	TR04-B	092004-TR04-B	2.77	ND	ND	15	15.5	09/20/04

Table C-4 Camp Bonneville Landfill 4 Confirmation Sample Results – Volatile Organic Compounds (continued)

SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01					MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01			
TR04-C	092004-TR04-C	0.829	ND	ND	15	15.5	09/20/04	TR6-G	110304-SS-TR6-G	ND	ND	ND	19	19.5	11/03/04
TR04-D	092004-TR04-D	ND	ND	ND	15	15.5	09/20/04	TR6-H	110304-SS-TR6-H	ND	ND	ND	19	19.5	11/03/04
TR04-E	092004-TR04-E	ND	ND	ND	15	15.5	09/20/04	TR07-A	092104-TR07-A	ND	ND	ND	15	15.5	09/21/04
TR04-F	092004-TR04-F	ND	ND	ND	15	15.5	09/20/04	TR07-B	092104-TR07-B	ND	ND	ND	15	15.5	09/21/04
TR04-G	092004-TR04-G	ND	ND	ND	15	15.5	09/20/04	TR07-C	092104-TR07-C	ND	ND	ND	15	15.5	09/21/04
TR04-H	092104-TR04-H	ND	ND	ND	15	15.5	09/21/04	TR07-D	092104-TR07-D	ND	ND	ND	15	15.5	09/21/04
TR04-I	092104-TR04-I	ND	ND	ND	15	15.5	09/21/04	TR07-E	092104-TR07-E	ND	ND	ND	15	15.5	09/21/04
TR04-J	092004-TR04-J (DUP OF G)	ND	ND	ND	15	15.5	09/20/04	TR07-F	092104-TR07-F	ND	ND	0.167	15	15.5	09/21/04
TR05-A	092104-TR05-A	3.96	0.211	ND	15	15.5	09/21/04	TR07-G	092104-TR07-G	ND	ND	ND	15	15.5	09/21/04
TR05-B	092104-TR05-B	0.912	ND	ND	15	15.5	09/21/04	TR07-H	092104-TR07-H	ND	ND	ND	15	15.5	09/21/04
TR05-C	092104-TR05-C	0.472	ND	ND	15	15.5	09/21/04	TR-07-I	092104-TR07-I (DUP of G)	ND	ND	ND	15	15.5	09/21/04
TR05-D	092104-TR05-D	ND	ND	ND	15	15.5	09/21/04	TR08-A	092104-TR08-A	ND	ND	ND	15	15.5	09/21/04
TR05-E	092104-TR05-E	ND	ND	ND	15	15.5	09/21/04	TR08-B	092104-TR08-B	ND	ND	ND	15	15.5	09/21/04
TR5-F	110304-SS-TR5-F	ND	ND	ND	19	19.5	11/03/04	TR08-C	092104-TR08-C	ND	ND	ND	15	15.5	09/21/04
TR5-G	110304-SS-TR5-G	ND	ND	ND	19	19.5	11/03/04	TR08-D	092104-TR08-D	ND	ND	ND	15	15.5	09/21/04
TR5-H	110304-SS-TR5-H	ND	ND	ND	19	19.5	11/03/04	TR08-E	092104-TR08-E	ND	ND	ND	15	15.5	09/21/04
TR06-A	092104-TR06-A	ND	ND	ND	15	15.5	09/21/04	TR08-F	092204-TR08-F	ND	ND	ND	15	15.5	09/22/04
TR06-B	092104-TR06-B	ND	ND	ND	15	15.5	09/21/04	TR08-G	092204-TR08-G	ND	ND	ND	15	15.5	09/22/04
TR06-C	092104-TR06-C	0.462	ND	ND	15	15.5	09/21/04	TR08-H	092204-TR08-H	ND	ND	ND	15	15.5	09/22/04
TR06-D	092104-TR06-D	ND	ND	ND	15	15.5	09/21/04	TR08-J	092204-TR08-J	ND	ND	ND	15	15.5	09/22/04
TR06-E	092104-TR06-E	ND	ND	ND	15	15.5	09/21/04	TR08-SW1	092204-TR08-SW1	NR	NR	NR	9	9.5	09/22/04
TR6-F	110304-SS-TR6-F	ND	ND	ND	19	19.5	11/03//04	TR08-SW2	092204-TR08-SW2	NR	NR	NR	15	15.5	09/22/04

Table C-4 Camp Bonneville Landfill 4 Confirmation Sample Results – Volatile Organic Compounds (continued)

SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01					MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01			
TR09-A	092204-TR09-A	ND	ND	ND	15	15.5	09/22/04	TR12-B	092204-TR12-B	ND	ND	ND	15	15.5	09/22/04
TR09-B	092204-TR09-B	ND	ND	ND	15	15.5	09/22/04	TR12-C	092204-TR12-C	ND	ND	ND	15	15.5	09/22/04
TR09-C	092204-TR09-C	ND	ND	ND	15	15.5	09/22/04	TR12-D	092204-TR12-D	ND	ND	ND	15	15.5	09/22/04
TR09-D	092204-TR09-D	ND	ND	ND	15	15.5	09/22/04	TR12-E	092204-TR12-E	ND	ND	ND	15	15.5	09/22/04
TR09-E	092204-TR09-E	ND	0.218	0.145	15	15.5	09/22/04	TR12-F	092204-TR12-F (DUP of B)	ND	ND	ND	15	15.5	09/22/04
TR09-F	092204-TR09-F	ND	ND	ND	15	15.5	09/22/04	TR13-A	092204-TR13-A	ND	ND	ND	15	15.5	09/22/04
TR09-G	092204-TR09-G	ND	ND	ND	15	15.5	09/22/04	TR13-B	092204-TR13-B	ND	ND	ND	15	15.5	09/22/04
TR09-H	092204-TR09-H	ND	ND	ND	15	15.5	09/22/04	TR13-C	092204-TR13-C	ND	ND	ND	15	15.5	09/22/04
TR09-I	092204-TR09-I	ND	ND	ND	15	15.5	09/22/04	TR13-D	092204-TR13-D	ND	ND	ND	15	15.5	09/22/04
TR09-J	092204-TR09-J (DUP of L)	ND	ND	ND	15	15.5	09/22/04	TR13-E	110304-SS-TR13-E	ND	ND	ND	19	19.5	11/03/04
TR09-K	092204-TR09-K (DUP of A)	ND	ND	ND	15	15.5	09/22/04	TR14-A	092204-TR14-A	ND	ND	ND	15	15.5	09/22/04
TR09-L	092204-TR09-L	ND	ND	ND	15	15.5	09/22/04	TR14-B	092204-TR14-B	ND	ND	ND	15	15.5	09/22/04
TR10-A	092204-TR10-A	ND	ND	ND	15	15.5	09/22/04	TR14-C	092204-TR14-C	ND	ND	ND	15	15.5	09/22/04
TR10-B	092204-TR10-B	ND	ND	ND	15	15.5	09/22/04	TR14-D	092204-TR14-D	ND	ND	ND	15	15.5	09/22/04
TR10-C	092204-TR10-C	ND	ND	ND	15	15.5	09/22/04	TR14-E	092204-TR14-E	ND	ND	ND	15	15.5	09/22/04
TR10-D	092204-TR10-D	ND	ND	ND	15	15.5	09/22/04	TR14-F	092204-TR14-F	ND	ND	ND	15	15.5	09/22/04
TR11-A	092204-TR11-A	ND	ND	ND	15	15.5	09/22/04	TR14-G	092204-TR14-G	ND	ND	ND	15	15.5	09/22/04
TR11-B	092204-TR11-B	ND	ND	ND	15	15.5	09/22/04	TR15-A	092204-TR15-A	ND	0.104	ND	15	15.5	09/22/04
TR11-C	092204-TR11-C	ND	ND	ND	15	15.5	09/22/04	TR15-B	092204-TR15-B	ND	0.082	ND	15	15.5	09/22/04
TR11-D	092204-TR11-D	ND	ND	ND	15	15.5	09/22/04	TR15-C	092204-TR15-C	ND	0.0869	ND	15	15.5	09/22/04
TR12-A	092204-TR12-A	ND	ND	ND	15	15.5	09/22/04	TR15-D	092204-TR15-D	ND	0.103	ND	15	15.5	09/22/04

Table C-4 Camp Bonneville Landfill 4 Confirmation Sample Results – Volatile Organic Compounds (continued)

SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01					MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01			
TR15-E	092204-TR15-E	ND	ND	ND	15	15.5	09/22/04	TR18-H	092304-TR18-H	ND	0.135	ND	15	15.5	09/23/04
TR15-F	092204-TR15-F	ND	ND	ND	15	15.5	09/22/04	TR18-I	092304-TR18-I	ND	0.253	0.183	15	15.5	09/23/04
TR15-G	092204-TR15-G (DUP of F)	ND	ND	ND	15	15.5	09/22/04	TR18-J	092304-TR18-J	ND	ND	ND	15	15.5	09/23/04
TR16-A	092304-TR16-A	ND	0.132	ND	15	15.5	09/23/04	TR18-K	092304-TR18-K	ND	0.207	3.43	15	15.5	09/23/04
TR16-B	092304-TR16-B	ND	0.116	ND	15	15.5	09/23/04	TR18-L	092304-TR18-L	ND	0.135	0.155	15	15.5	09/23/04
TR16-C	092304-TR16-C	ND	0.117	ND	15	15.5	09/23/04	TR18-M	092304-TR18-M	ND	0.136	ND	15	15.5	09/23/04
TR16-D	092304-TR16-D	ND	0.186	ND	15	15.5	09/23/04	TR18-N	092304-TR18-N	ND	0.148	ND	15	15.5	09/23/04
TR16-E	092304-TR16-E	ND	0.108	3.18	15	15.5	09/23/04	TR18-O	092304-TR18-O	ND	0.118	ND	15	15.5	09/23/04
TR16-F	092304-TR16-F	ND	0.119	ND	15	15.5	09/23/04	TR18-P	092304-TR18-P	ND	0.236	ND	15	15.5	09/23/04
TR16-G	092304-TR16-G	ND	ND	ND	15	15.5	09/23/04	TR18-Q	092304-TR18-Q	ND	0.145	ND	15	15.5	09/23/04
TR17-A	092304-TR17-A	ND	0.105	ND	15	15.5	09/23/04	TR19-A	092304-TR19-A	ND	ND	ND	15	15.5	09/23/04
TR17-B	092304-TR17-B	ND	ND	ND	15	15.5	09/23/04	TR19-B	092304-TR19-B	ND	0.121	ND	15	15.5	09/23/04
TR17-C	092304-TR17-C	ND	0.125	ND	15	15.5	09/23/04	TR19-C	092304-TR19-C	ND	0.26	ND	15	15.5	09/23/04
TR17-D	092304-TR17-D	ND	ND	ND	15	15.5	09/23/04	TR19-D	092304-TR19-D	ND	ND	ND	15	15.5	09/23/04
TR17-E	092304-TR17-E (DUP of D)	ND	ND	ND	15	15.5	09/23/04	TR19-E	092304-TR19-E	ND	ND	ND	15	15.5	09/23/04
TR18-A	092304-TR18-A	ND	ND	ND	15	15.5	09/23/04	TR19-F	092304-TR19-F	ND	ND	ND	15	15.5	09/23/04
TR18-B	092304-TR18-B	ND	ND	ND	15	15.5	09/23/04	TR19-G	092304-TR19-G	ND	ND	ND	15	15.5	09/23/04
TR18-C	092304-TR18-C	ND	0.114	ND	15	15.5	09/23/04	TR19-H	092304-TR19-H	ND	ND	ND	15	15.5	09/23/04
TR18-D	092304-TR18-D	ND	ND	ND	15	15.5	09/23/04	TR19-I	092304-TR19-I	ND	ND	ND	15	15.5	09/23/04
TR18-E	092304-TR18-E	ND	ND	ND	15	15.5	09/23/04	TR19-J	092304-TR19-J	ND	ND	ND	15	15.5	09/23/04
TR18-F	092304-TR18-F	ND	ND	ND	15	15.5	09/23/04	TR19-K	092304-TR19-K	ND	ND	ND	15	15.5	09/23/04
TR18-G	092304-TR18-G	ND	0.191	ND	15	15.5	09/23/04	TR19-L	092304-TR19-L	ND	ND	ND	15	15.5	09/23/04

Table C-4 Camp Bonneville Landfill 4 Confirmation Sample Results – Volatile Organic Compounds (continued)

SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01					MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01			
TR19-M	092304-TR19-M (DUP of H)	ND	ND	ND	15	15.5	09/23/04	TR20-V	092304-TR20-V	ND	ND	ND	15	15.5	09/23/04
TR20-A	092304-TR20-A	ND	ND	ND	15	15.5	09/23/04	TR20-W	092304-TR20-W (DUP of C)	ND	ND	ND	15	15.5	09/23/04
TR20-B	092304-TR20-B	ND	ND	ND	15	15.5	09/23/04	TR20-X	092304-TR20-X (DUP of M)	ND	ND	ND	15	15.5	09/23/04
TR20-C	092304-TR20-C	ND	ND	ND	15	15.5	09/23/04	TR20-Y	092304-TR20-Y (DUP of V)	ND	ND	ND	15	15.5	09/23/04
TR20-D	092304-TR20-D	ND	ND	ND	15	15.5	09/23/04	TR21-A	092304-TR21-A	ND	ND	ND	15	15.5	09/23/04
TR20-E	092304-TR20-E	ND	ND	ND	15	15.5	09/23/04	TR21-B	092304-TR21-B	ND	ND	ND	15	15.5	09/23/04
TR20-F	092304-TR20-F	ND	ND	ND	15	15.5	09/23/04	TR21-C	092304-TR21-C	ND	ND	ND	15	15.5	09/23/04
TR20-G	092304-TR20-G	ND	ND	ND	15	15.5	09/23/04	TR21-D	092304-TR21-D	ND	ND	ND	15	15.5	09/23/04
TR20-H	092304-TR20-H	ND	ND	ND	15	15.5	09/23/04	TR22-A	092304-TR22-A	ND	0.0984	ND	15	15.5	09/23/04
TR20-I	092304-TR20-I	ND	ND	ND	15	15.5	09/23/04	TR22-B	092304-TR22-B	ND	0.111	ND	15	15.5	09/23/04
TR20-J	092304-TR20-J	ND	ND	ND	15	15.5	09/23/04	TR22-C	092304-TR22-C	ND	0.14	ND	15	15.5	09/23/04
TR20-K	092304-TR20-K	ND	ND	ND	15	15.5	09/23/04	TR22-D	092304-TR22-D	ND	ND	ND	15	15.5	09/23/04
TR20-L	092304-TR20-L	ND	ND	ND	15	15.5	09/23/04	TR22-E	092304-TR22-E	ND	0.118	ND	15	15.5	09/23/04
TR20-M	092304-TR20-M	ND	ND	ND	15	15.5	09/23/04	TR22-F	092304-TR22-F	ND	0.0903	ND	15	15.5	09/23/04
TR20-N	092304-TR20-N	ND	ND	ND	15	15.5	09/23/04	TR22-G	092304-TR22-G	ND	ND	ND	15	15.5	09/23/04
TR20-O	092304-TR20-O	ND	ND	ND	15	15.5	09/23/04	TR22-H	092304-TR22-H	ND	0.0911	ND	15	15.5	09/23/04
TR20-P	092304-TR20-P	ND	ND	ND	15	15.5	09/23/04	TR22-I	092304-TR22-I	ND	0.0788	ND	15	15.5	09/23/04
TR20-Q	092304-TR20-Q	ND	ND	ND	15	15.5	09/23/04	TR22-J	092304-TR22-J (DUP of H)	ND	0.0798	ND	15	15.5	09/23/04
TR20-R	092304-TR20-R	ND	ND	ND	15	15.5	09/23/04	FWT-01	101804-SS-FWT-01	ND	0.291	ND	10	10.5	10/18/04
TR20-S	092304-TR20-S	ND	ND	ND	15	15.5	09/23/04	FWT-02	101804-SS-FWT-02	ND	ND	ND	10	10.5	10/18/04
TR20-T	092304-TR20-T	ND	ND	ND	15	15.5	09/23/04	FWT-03	101804-SS-FWT-03	ND	ND	ND	10	10.5	10/18/04
TR20-U	092304-TR20-U	ND	ND	ND	15	15.5	09/23/04	FWT-04	101804-SS-FWT-04	ND	ND	ND	10	10.5	10/18/04

Table C-4 Camp Bonneville Landfill 4 Confirmation Sample Results – Volatile Organic Compounds (continued)

SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected	SAMPLE LOCATION	SAMPLE ID	1,1,1-Trichloroethane	Benzene	Tetrachloroethene	Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01					MTCA Method B Cleanup Level for Unrestricted Land Uses (µg/kg)	1.58E+03	5.00E+01	5.30E+01			
FWT-05	101804-SS-FWT-05	ND	ND	ND	10	10.5	10/18/04	LP-01	102704-SS-LP-01	ND	ND	ND	6	6.5	10/27/04
FWT-06	101804-SS-FWT-06	ND	ND	ND	10	10.5	10/18/04	LP-02	102704-SS-LP-02	ND	ND	ND	6	6.5	10/27/04
FWT-07	101804-SS-FWT-07	ND	ND	ND	10	10.5	10/18/04	LP-03	102704-SS-LP-03	ND	0.1	ND	6	6.5	10/27/04
FWT-08	101804-SS-FWT-08	ND	ND	ND	10	10.5	10/18/04	LP-04	102704-SS-LP-04	ND	ND	ND	6	6.5	10/27/04
FWT-09	101804-SS-FWT-09	ND	ND	ND	10	10.5	10/18/04	LP-05	102704-SS-LP-05	ND	ND	ND	6	8.5	10/27/04
FWT-10	101804-SS-FWT-10	ND	ND	ND	10	10.5	10/18/04	LP-06	102704-SS-LP-06	ND	ND	ND	6	8.5	10/27/04
FWT-11	101804-SS-FWT-11	ND	4.8	ND	10	10.5	10/18/04	LP-07	102704-SS-LP-07	ND	0.0815	ND	7	7.5	10/27/04
FWT-12	101804-SS-FWT-12	ND	ND	ND	10	10.5	10/18/04	LP-08	102704-SS-LP-08	ND	ND	ND	7	7.5	10/27/04
FWT-13	101804-SS-FWT-13	ND	ND	ND	10	10.5	10/18/04	LP-09	102804-SS-LP-09	ND	ND	ND	5	5.5	10/28/04
FWTEW-04	101804-SS-FWTEW-04	ND	ND	ND	9	9	10/18/04	LP-10	102804-SS-LP-10	ND	0.11	ND	5	5.5	10/28/04
FWTEW-05	101804-SS-FWTEW-05	ND	ND	ND	9	9	10/18/04	LP-11	102804-SS-LP-11	ND	ND	ND	5	5.5	10/28/04
FWTEW-06	101804-SS-FWTEW-06	ND	ND	ND	9	9	10/18/04	LP-12	102804-SS-LP-12	ND	0.187	ND	5	5.5	10/28/04
FWTWW-01	101804-SS-FWTWW-01	ND	ND	ND	9	9	10/18/04	LP-13	102804-SS-LP-13	ND	1.32	ND	5	5.5	10/28/04
FWTWW-02	101804-SS-FWTWW-02	ND	ND	ND	9	9	10/18/04	LP-14	102804-SS-LP-14	ND	0.109	ND	5	5.5	10/28/04
FWTWW-03	101804-SS-FWTWW-03	ND	ND	ND	9	9	10/18/04								

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR01-A	091604-TR01-A	2.2	484	23.8	237	71400	2.4	123	15	15.5	09/16/04
TR01-B	091604-TR01-B	3.34	296	183	309	126000	3.37	131	15	15.5	09/16/04
TR01-C	091604-TR01-C	1.88	339	57.4	207	94900	2.36	119	15	15.5	09/16/04
TR01-D	091604-TR01-D	2.68	581	37.3	198	69000	3.98	91.3	15	15.5	09/16/04
TR01-E	091604-TR01-E	8.53	555	39.7	160	69900	2.77	73.4	15	15.5	09/16/04
TR01-F	091604-TR01-F	2.03	380	42.7	210	77300	1.02	67.1	15	15.5	09/16/04
TR01-G	091604-TR01-G	2.65	455	45	192	82400	5.98	74.1	15	15.5	09/16/04
TR01-H	091604-TR01-H	2.87	656	38.6	212	76300	5.17	106	15	15.5	09/16/04
TR01-I	091604-TR01-I	6.41	68.9	49	117	83400	10.6	39.6	15	15.5	09/16/04
TR01-J	091604-TR01-J	5.26	63.3	39.7	114	81200	11.1	36.3	15	15.5	09/16/04
TR01-K	091604-TR01-K	5.82	50.6	36.7	111	78100	11.5	34.9	15	15.5	09/16/04
TR01-L	091604-TR01-L	5.58	142	60.1	179	88000	17.7	63.8	15	15.5	09/16/04
TR01-M	091604-TR01-M	5.64	64	44.8	130	89600	12.4	37.6	15	15.5	09/16/04
TR01-N	092004-TR01-N	5.16	80	45.8	126	83500	7.29	31.6	15	15.5	09/20/04
TR01-O	092004-TR01-O	5.1	61.4	48	128	86700	8.82	38.7	15	15.5	09/20/04
TR01-P	092004-TR01-P	4.95	63.7	57.1	128	86200	9.38	35.4	15	15.5	09/20/04
TR01-Q	092004-TR01-Q	5.73	67.8	45.5	121	86200	11.1	37.7	15	15.5	09/20/04
TR01-R	092004-TR01-R (DUP of J)	6.13	68.2	40.9	122	84000	14.3	45.9	15	15.5	09/20/04
TR01-S	092004-TR01-S (DUP of Q)	4.74	71.8	46.6	130	82700	9.99	41.1	15	15.5	09/20/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR02-A	092004-TR02-A	ND	208	153	266	115000	2.16	115	15	15.5	09/20/04
TR02-B	092004-TR02-B	1.88	347	33.6	239	72900	0.825	186	15	15.5	09/20/04
TR02-C	092004-TR02-C	1.78	137	31.9	119	65600	ND	183	15	15.5	09/20/04
TR02-D	092004-TR02-D	3.58	151	28.7	120	59600	ND	130	15	15.5	09/20/04
TR02-E	092004-TR02-E	4.03	221	39	160	70200	ND	102	15	15.5	09/20/04
TR02-F	092004-TR02-F	5.29	82	49.9	140	82500	5.53	37.5	15	15.5	09/20/04
TR02-G	092004-TR02-G	5.05	82.2	47.7	147	84500	6.6	39.1	15	15.5	09/20/04
TR03-A	092004-TR03-A	ND	441	28.2	157	64200	1.15	147	15	15.5	09/20/04
TR03-B	092004-TR03-B	ND	258	81.9	224	99300	ND	135	15	15.5	09/20/04
TR03-C	092004-TR03-C (DUP is J)	ND	211	63.1	160	90800	1.22	113	15	15.5	09/20/04
TR03-D	092004-TR03-D	ND	261	26.4	295	65800	ND	153	15	15.5	09/20/04
TR03-E	092004-TR03-E	3.62	149	34.8	201	73500	3.82	54.8	15	15.5	09/20/04
TR03-F	092004-TR03-F	1.68	173	21.6	219	68500	5.28	81.9	15	15.5	09/20/04
TR03-G	092004-TR03-G	6.24	108	62.9	199	77000	2.94	87.7	15	15.5	09/20/04
TR03-H	092004-TR03-H	10.7	173	70.5	248	103000	3.83	96.7	15	15.5	09/20/04
TR03-I	092004-TR03-I	2.94	339	18.3	175	51500	ND	83.2	15	15.5	09/20/04
TR03-J	092004-TR03-J (DUP of C)	ND	193	46.6	146	76800	3.03	105	15	15.5	09/20/04
TR04-A	092004-TR04-A	1.92	296	26.3	271	65000	5.32	154	15	15.5	09/20/04
TR04-B	092004-TR04-B	ND	268	29.3	293	64000	4.9	111	19	19.5	09/20/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR04-C	092004-TR04-C	ND	223	35.9	188	61200	4.37	98.3	15	15.5	09/20/04
TR04-D	092004-TR04-D	ND	323	32.8	252	70500	4.1	114	15	15.5	09/20/04
TR04-E	092004-TR04-E	1.64	248	50.9	242	81500	2.88	60.7	15	15.5	09/20/04
TR04-F	092004-TR04-F	5.53	186	29.3	177	67100	4.12	81.5	15	15.5	09/20/04
TR04-G	092004-TR04-G	6.38	128	41	236	85700	1.47	114	15	15.5	09/20/04
TR04-H	092104-TR04-H	1.5	436	37.7	205	66200	1.41	81.5	15	15.5	09/21/04
TR04-I	092104-TR04-I	ND	225	34	180	79100	1.92	93.7	15	15.5	09/21/04
TR04-J	092004-TR04-J (DUP OF G)	4.93	143	34.3	223	75900	1.49	104	15	15.5	09/21/04
TR05-A	092104-TR05-A	1.93	313	55.5	262	84500	19.3	223	15	15.5	09/21/04
TR05-B	092104-TR05-B	ND	456	32.9	282	77600	2.73	162	15	15.5	09/21/04
TR05-C	092104-TR05-C	2.29	279	32.9	301	84900	3.26	128	15	15.5	09/21/04
TR05-D	092104-TR05-D	ND	186	36.1	272	82500	2.96	119	15	15.5	09/21/04
TR05-E	092104-TR05-E	1.41	199	49.4	242	84400	2.54	135	15	15.5	09/21/04
TR5-F	110304-SS-TR5-F	3.33	262	22.1	161	57100	1.19	115	19	19.5	11/03/04
TR5-G	110304-SS-TR5-G	3.77	249	54	175	102000	4.58	117	19	19.5	11/03/04
TR5-H	110304-SS-TR5-H	4.55	246	45.5	132	77300	7.49	57.7	19	19.5	11/03/04
TR06-A	092104-TR06-A	ND	222	21	267	65600	1.29	219	15	15.5	09/21/04
TR06-B	092104-TR06-B	ND	190	64.1	277	93300	2.01	147	15	15.5	09/21/04
TR06-C	092104-TR06-C	1.54	185	37.7	255	88300	ND	113	15	15.5	09/21/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR06-D	092104-TR06-D	ND	195	44	212	78600	ND	140	15	15.5	09/21/04
TR06-E	092104-TR06-E	ND	109	81.7	209	87400	ND	135	15	15.5	09/21/04
TR6-F	110304-SS-TR6-F	3.56	120	31.9	135	95300	2.95	71.8	19	19.5	11/03/04
TR6-G	110304-SS-TR6-G	2.62	155	40.7	106	66300	3.88	74.7	19	19.5	11/03/04
TR6-H	110304-SS-TR6-H	3.31	216	47.4	115	72900	4.5	77.4	19	19.5	11/03/04
TR07-A	092104-TR07-A	1.72	159	35.5	321	79200	0.743	155	15	15.5	09/21/04
TR07-B	092104-TR07-B	1.35	136	39.1	203	90100	0.817	149	15	15.5	09/21/04
TR07-C	092104-TR07-C	2.54	201	13.4	267	48600	1.59	115	15	15.5	09/21/04
TR07-D	092104-TR07-D	2.05	226	22.2	221	65800	3.01	202	15	15.5	09/21/04
TR07-E	092104-TR07-E	3.14	164	40.6	198	85800	5.26	142	15	15.5	09/21/04
TR07-F	092104-TR07-F	ND	189	47.4	218	96800	3.63	169	15	15.5	09/21/04
TR07-G	092104-TR07-G	3.16	313	47.4	235	90000	2.35	112	15	15.5	09/21/04
TR07-H	092104-TR07-H	ND	174	34.4	215	77700	2.26	144	15	15.5	09/21/04
TR07-I	092104-TR07-I (DUP of G)	4.63	254	68.7	223	101000	2.93	111	15	15.5	09/21/04
TR08-A	092104-TR08-A	1.37	116	82.7	171	89800	2.69	146	15	15.5	09/21/04
TR08-B	092104-TR08-B	2.49	302	28.5	226	69200	4.72	191	15	15.5	09/21/04
TR08-C	092104-TR08-C	ND	165	42.9	223	90900	2.58	153	15	15.5	09/21/04
TR08-D	092104-TR08-D	2.04	239	29.5	156	63100	6.34	86.9	15	15.5	09/21/04
TR08-E	092104-TR08-E	2.74	230	32.5	172	71300	5.33	87.6	15	15.5	09/21/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR08-F	092204-TR08-F	2.87	265	38.5	166	84900	2.66	144	15	15.5	09/22/04
TR08-G	092204-TR08-G	1.81	299	41.3	196	87800	4.03	100	15	15.5	09/22/04
TR08-H	092204-TR08-H	1.89	183	35.8	154	86300	3.3	129	15	15.5	09/22/04
TR08-J	092204-TR08-J	2.95	251	30.3	125	62500	3.12	79.6	15	15.5	09/22/04
TR08-SW1	092204-TR08-SW1	2.19	169	24.7	251	67300	5.32	215	9	9.5	09/22/04
TR08-SW2	092204-TR08-SW2	1.74	246	22.6	227	65900	3.97	178	9	9.5	09/22/04
TR09-A	092204-TR09-A	2.64	189	35.6	111	84100	9.39	48.2	15	15.5	09/22/04
TR09-B	092204-TR09-B	4.26	134	29.8	95.8	75500	7.64	44.2	15	15.5	09/22/04
TR09-C	092204-TR09-C	3.93	173	39.8	162	80400	6.67	55.9	15	15.5	09/22/04
TR09-D	092204-TR09-D	3.78	96.1	23.9	72.7	57900	7.94	37.1	15	15.5	09/22/04
TR09-E	092204-TR09-E	5.37	90.4	25.9	71.3	54300	10.1	39.8	15	15.5	09/22/04
TR09-F	092204-TR09-F	5.51	106	30.4	107	58300	9.63	48.8	15	15.5	09/22/04
TR09-G	092204-TR09-G	4.83	104	28.7	86.4	60800	6.7	46.4	15	15.5	09/22/04
TR09-H	092204-TR09-H	4.41	90.8	24.9	71.5	53300	8.22	36.2	15	15.5	09/22/04
TR09-I	092204-TR09-I	4.27	95.8	23.9	75.1	55800	7.83	33.4	15	15.5	09/22/04
TR09-J	092204-TR09-J (DUP of L)	2.86	277	32.2	150	66900	5.15	54	15	15.5	09/22/04
TR09-K	092204-TR09-K (DUP of A)	2.78	196	36.7	108	81800	8.18	34.8	15	15.5	09/22/04
TR09-L	092204-TR09-L	3.27	288	41	153	73300	4.63	50.3	15	15.5	09/22/04
TR10-A	092204-TR10-A	3.31	518	34.3	159	69100	3.95	114	15	15.5	09/22/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR10-B	092204-TR10-B	4.28	388	41.6	163	71600	2.87	101	15	15.5	09/22/04
TR10-C	092204-TR10-C	ND	143	84.7	162	105000	6.83	120	15	15.5	09/22/04
TR10-D	092204-TR10-D	2.61	280	72.1	222	92400	5.48	122	15	15.5	09/22/04
TR11-A	092204-TR11-A	3.99	254	42.7	204	86700	3.34	126	15	15.5	09/22/04
TR11-B	092204-TR11-B	4.28	289	86.5	246	111000	2	146	15	15.5	09/22/04
TR11-C	092204-TR11-C	3.24	249	42.1	183	83300	2.9	152	15	15.5	09/22/04
TR11-D	092204-TR11-D	2.54	147	68.9	276	104000	1.64	147	15	15.5	09/22/04
TR12-A	092204-TR12-A	4.63	139	24.1	112	47300	3.38	209	15	15.5	09/22/04
TR12-B	092204-TR12-B	4.53	133	76.1	252	110000	3.47	160	15	15.5	09/22/04
TR12-C	092204-TR12-C	5.34	142	49.7	196	83300	3.5	167	15	15.5	09/22/04
TR12-D	092204-TR12-D	5.36	143	80.9	229	99800	2.3	129	15	15.5	09/22/04
TR12-E	092204-TR12-E	3.29	255	60.9	220	94200	2.83	160	15	15.5	09/22/04
TR12-F	092204-TR12-F (DUP of B)	2.8	242	34.3	155	66800	4.24	104	15	15.5	09/22/04
TR13-A	092204-TR13-A	4.4	192	62.3	233	107000	4.46	137	15	15.5	09/22/04
TR13-B	092204-TR13-B	4.34	182	42.5	184	76600	2.55	140	15	15.5	09/22/04
TR13-C	092204-TR13-C	6.56	186	32.8	176	65800	2.4	125	15	15.5	09/22/04
TR13-D	092204-TR13-D	5.62	175	79.5	197	102000	2.29	103	15	15.5	09/22/04
TR13-E	092204-TR13-E	6.37	153	99.8	309	128000	3.62	135	15	15.5	09/22/04
TR14-A	092204-TR14-A	4.9	306	33.5	170	59700	2.15	70.6	15	15.5	09/22/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR14-B	092204-TR14-B	8.8	331	65.6	279	87100	5.11	122	15	15.5	09/22/04
TR14-C	092204-TR14-C	6.72	359	29.3	166	57800	1.18	247	15	15.5	09/22/04
TR14-D	092204-TR14-D	3.76	180	21.6	126	61300	4.15	167	15	15.5	09/22/04
TR14-E	092204-TR14-E	3.54	201	26.5	122	54700	2.54	217	15	15.5	09/22/04
TR14-F	092204-TR14-F	3.42	205	27.3	115	60700	1.29	209	15	15.5	09/22/04
TR14-G	092204-TR14-G	8.13	411	35.2	238	70700	2.23	110	15	15.5	09/22/04
TR15-A	092204-TR15-A	4.59	43.3	22.3	53.4	44800	9.71	35.5	15	15.5	09/22/04
TR15-B	092204-TR15-B	5.08	44.8	25	56.4	48500	9.49	33.6	15	15.5	09/22/04
TR15-C	092204-TR15-C	6.44	48.3	35.8	63.7	56800	10	31.8	15	15.5	09/22/04
TR15-D	092204-TR15-D	3.47	182	12.8	102	51800	5.45	34.6	15	15.5	09/22/04
TR15-E	092204-TR15-E	3.15	355	29.4	175	53300	3.18	204	15	15.5	09/22/04
TR15-F	092204-TR15-F	2.19	247	29.4	147	57200	4.65	223	15	15.5	09/22/04
TR15-G	092204-TR15-G (DUP of F)	2.95	219	24	146	49000	2.66	218	15	15.5	09/22/04
TR16-A	092304-TR16-A	3.77	100	27.5	78	50000	9.81	52.4	15	15.5	09/23/04
TR16-B	092304-TR16-B	5.72	119	30.9	92	55300	11.1	53.9	15	15.5	09/23/04
TR16-C	092304-TR16-C	4	96.7	26.8	84.3	52100	9.33	52.6	15	15.5	09/23/04
TR16-D	092304-TR16-D	6.09	135	39.6	119	75200	13.4	74.9	15	15.5	09/23/04
TR16-E	092304-TR16-E	4.5	97.7	31.7	90.8	57800	9.91	47.2	15	15.5	09/23/04
TR16-F	092304-TR16-F	3.32	189	32.4	169	73500	5.58	53.6	15	15.5	09/23/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR16-G	092304-TR16-G	3.67	213	43.4	183	81700	8.98	57.2	15	15.5	09/23/04
TR17-A	092304-TR17-A	3.91	118	31.3	81	50500	7.88	46	15	15.5	09/23/04
TR17-B	092304-TR17-B	4.55	147	31.8	96.6	58900	8.91	48.8	15	15.5	09/23/04
TR17-C	092304-TR17-C	3.9	227	47.5	163	78100	7.9	58.4	15	15.5	09/23/04
TR17-D	092304-TR17-D	2.22	236	52.2	187	92700	6.87	56.7	15	15.5	09/23/04
TR17-E	092304-TR17-E (DUP of D)	1.78	206	54.5	185	98600	5.29	55.4	15	15.5	09/23/04
TR18-A	092304-TR18-A	2.93	168	28.2	124	82900	7.05	36.5	15	15.5	09/23/04
TR18-B	092304-TR18-B	2.66	156	21.7	109	57400	5.14	26.3	15	15.5	09/23/04
TR18-C	092304-TR18-C	1.54	160	28.1	130	75500	4.87	34	15	15.5	09/23/04
TR18-D	092304-TR18-D	1.54	343	20.5	262	58900	3.85	30.5	15	15.5	09/23/04
TR18-E	092304-TR18-E	2.18	341	37.3	238	60400	3.4	33.7	15	15.5	09/23/04
TR18-F	092304-TR18-F	2.75	521	45.7	212	85600	4.09	85.4	15	15.5	09/23/04
TR18-G	092304-TR18-G	2.57	222	57.2	246	92300	9.96	57.1	15	15.5	09/23/04
TR18-H	092304-TR18-H	2.64	151	29.2	208	86000	8.44	55.7	15	15.5	09/23/04
TR18-I	092304-TR18-I	1.84	182	30.9	196	91500	7.35	49.3	15	15.5	09/23/04
TR18-J	092304-TR18-J	2.91	120	28.6	130	72100	6.26	43.3	15	15.5	09/23/04
TR18-K	092304-TR18-K	3.9	124	30.1	115	62400	9.41	53.6	15	15.5	09/23/04
TR18-L	092304-TR18-L	4.46	96.3	31.3	103	58900	7.53	49.5	15	15.5	09/23/04
TR18-M	092304-TR18-M	4.64	115	34.4	110	60900	8.54	56.5	15	15.5	09/23/04
TR18-N	092304-TR18-N	3.81	139	31.4	113	58000	9.95	59.1	15	15.5	09/23/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR18-O	092304-TR18-O	4.12	118	29.9	112	55200	9.24	53.9	15	15.5	09/23/04
TR18-P	092304-TR18-P	3.45	134	32.7	117	60500	9.35	58.7	15	15.5	09/23/04
TR18-Q	092304-TR18-Q	2.65	121	29.3	93	57800	8.36	52.3	15	15.5	09/23/04
TR19-A	092304-TR19-A	2.59	208	34.6	166	61600	1.17	230	15	15.5	09/23/04
TR19-B	092304-TR19-B	2.24	179	39.3	260	76800	1.2	247	15	15.5	09/23/04
TR19-C	092304-TR19-C	2.58	226	32.4	248	74900	2.64	159	15	15.5	09/23/04
TR19-D	092304-TR19-D	5.49	146	20.2	133	56000	2.96	72	15	15.5	09/23/04
TR19-E	092304-TR19-E	3.52	303	45.2	262	89300	2.21	110	15	15.5	09/23/04
TR19-F	092304-TR19-F	1.7	330	40.4	176	77200	76.5	114	15	15.5	09/23/04
TR19-G	092304-TR19-G	4.73	233	48.2	159	80400	5.21	50.9	15	15.5	09/23/04
TR19-H	092304-TR19-H	3.63	333	60.2	137	77300	3.53	37.1	15	15.5	09/23/04
TR19-I	092304-TR19-I	3.29	82.3	30.7	94	57900	7.73	41.8	15	15.5	09/23/04
TR19-J	092304-TR19-J	3.93	103	29.7	93.8	56300	9.47	53.7	15	15.5	09/23/04
TR19-K	092304-TR19-K	3.88	76.8	28.9	95	54800	7.86	51.1	15	15.5	09/23/04
TR19-L	092304-TR19-L	3.49	121	31.5	92.7	57400	9.07	64.1	15	15.5	09/23/04
TR19-M	092304-TR19-M (DUP of H)	3	334	53.2	126	75200	3.02	37.5	15	15.5	09/23/04
TR20-A	092304-TR20-A	3.32	178	27	175	65600	3.91	88.7	15	15.5	09/23/04
TR20-B	092304-TR20-B	2.64	118	21.2	221	62500	3.41	122	15	15.5	09/23/04
TR20-C	092304-TR20-C	2.15	146	41.3	160	70400	0.994	164	15	15.5	09/23/04
TR20-D	092304-TR20-D	2.12	145	28.5	174	66500	3.06	202	15	15.5	09/23/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR20-E	092304-TR20-E	3.03	189	22.6	227	66200	3.54	267	15	15.5	09/23/04
TR20-F	092304-TR20-F	2.05	169	44	169	73100	2.09	169	15	15.5	09/23/04
TR20-G	092304-TR20-G	2.24	137	31.4	205	71700	2.32	128	15	15.5	09/23/04
TR20-H	092304-TR20-H	1.89	197	30.4	167	65300	ND	307	15	15.5	09/23/04
TR20-I	092304-TR20-I	1.3	163	37.5	165	72100	1.51	217	15	15.5	09/23/04
TR20-J	092304-TR20-J	4.23	250	32.4	150	60500	7.88	59.6	15	15.5	09/23/04
TR20-K	092304-TR20-K	3.19	100	25.5	91.7	52000	8.5	45.9	15	15.5	09/23/04
TR20-L	092304-TR20-L	3.95	73.8	27.4	84.5	52300	8.74	42	15	15.5	09/23/04
TR20-M	092304-TR20-M	3.8	92.2	26.2	87.8	52100	8.26	49.5	15	15.5	09/23/04
TR20-N	092304-TR20-N	4.31	85.7	28.5	88.9	52600	7.71	47.3	15	15.5	09/23/04
TR20-O	092304-TR20-O	4.41	87.8	27.2	85.9	53200	8.6	49.3	15	15.5	09/23/04
TR20-P	092304-TR20-P	3.99	98.2	28.7	89.2	52500	8.25	50.6	15	15.5	09/23/04
TR20-Q	092304-TR20-Q	4.3	92.3	29.3	90.2	55500	9.35	49.6	15	15.5	09/23/04
TR20-R	092304-TR20-R	4.67	109	28.6	91.9	55000	8.7	54.6	15	15.5	09/23/04
TR20-S	092304-TR20-S	3.12	152	27.7	89.5	50300	10.1	65.3	15	15.5	09/23/04
TR20-T	092304-TR20-T	4.75	110	27.2	90.2	54100	8.51	49	15	15.5	09/23/04
TR20-U	092304-TR20-U	3.72	122	28.4	93.6	53100	7.64	49	15	15.5	09/23/04
TR20-V	092304-TR20-V	2.99	131	28.3	90.4	54200	8.19	55.1	15	15.5	09/23/04
TR20-W	092304-TR20-W (DUP of C)	2.02	150	42.8	167	74400	2.02	176	15	15.5	09/23/04
TR20-X	092304-TR20-X (DUP of M)	3.83	82	27	87	53000	9.06	50.9	15	15.5	09/23/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	450	576	267	36,100	17	96			
TR20-Y	092304-TR20-Y (DUP of V)	3.32	147	29.9	87.2	57300	10.7	67.3	15	15.5	09/23/04
TR21-A	092304-TR21-A	3.97	259	60.5	170	67100	6.4	98.7	15	15.5	09/23/04
TR21-B	092304-TR21-B	2.78	135	46.3	206	72900	5.14	127	15	15.5	09/23/04
TR21-C	092304-TR21-C	1.99	128	93.1	178	80200	5.27	143	15	15.5	09/23/04
TR21-D	092304-TR21-D	2.4	150	65.5	203	76800	5.09	140	15	15.5	09/23/04
TR21-E	092304-TR21-E	2.33	173	58.4	201	77100	4.19	126	15	15.5	09/23/04
TR21-F	092304-TR21-F	1.7	459	65.2	178	67300	5.68	98.5	15	15.5	09/23/04
TR21-G	092304-TR21-G	2.3	120	30.3	114	60200	9.14	54.2	15	15.5	09/23/04
TR21-H	092304-TR21-H	3.05	115	32	114	61600	10.2	61.9	15	15.5	09/23/04
TR21-I	092304-TR21-I (DUP of A)	3.95	166	30.9	134	61300	16.3	72.3	15	15.5	09/23/04
TR22-A	092304-TR22-A	4.08	117	28.6	104	57900	8.13	55.6	15	15.5	09/23/04
TR22-B	092304-TR22-B	3.58	111	28.4	99.1	57000	7.13	55	15	15.5	09/23/04
TR22-C	092304-TR22-C	3.42	115	29.7	102	57000	8.71	57.4	15	15.5	09/23/04
TR22-D	092304-TR22-D	2.46	106	27	106	56500	8.29	54.2	15	15.5	09/23/04
TR22-E	092304-TR22-E	3.49	98.4	28.8	104	56300	7.33	51.7	15	15.5	09/23/04
TR22-F	092304-TR22-F	3.15	88	28.5	106	57200	8.59	48.1	15	15.5	09/23/04
TR22-G	092304-TR22-G	3.96	97.3	29.2	95.2	57300	9.82	45.4	15	15.5	09/23/04
TR22-H	092304-TR22-H	4.21	103	28.1	88.2	53400	9.83	45.2	15	15.5	09/23/04
TR22-I	092304-TR22-I	4.21	110	25.6	85	52700	8.69	47.6	15	15.5	09/23/04
TR22-J	092304-TR22-J (DUP of H)	3.1	145	25.3	106	54000	15	48.3	15	15.5	09/23/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	**450**	**576**	**267**	**36,100**	**17**	**96**			
FWT-01	101804-SS-FWT-01	7.18	114	143	90.8	679	115	121	10	10.5	10/18/04
FWT-02	101804-SS-FWT-02	5.92	454	27.5	190	66500	4.98	59.9	10	10.5	10/18/04
FWT-03	101804-SS-FWT-03	6.74	331	45.1	192	80600	1.92	51.8	10	10.5	10/18/04
FWT-04	101804-SS-FWT-04	6.34	288	31.4	218	70200	2.34	98.8	10	10.5	10/18/04
FWT-05	101804-SS-FWT-05	5.96	369	31.3	195	75000	3.28	115	10	10.5	10/18/04
FWT-06	101804-SS-FWT-06	6.47	238	45.4	194	82900	6.73	117	10	10.5	10/18/04
FWT-07	101804-SS-FWT-07	4.76	514	21.5	268	68400	3.3	186	10	10.5	10/18/04
FWT-08	101804-SS-FWT-08	4.75	349	21.7	230	74500	2.31	123	10	10.5	10/18/04
FWT-09	101804-SS-FWT-09	3.29	189	16.4	222	52400	1.76	145	10	10.5	10/18/04
FWT-10	101804-SS-FWT-10	3.92	260	24.1	162	62300	2.58	164	10	10.5	10/18/04
FWT-11	101804-SS-FWT-11	6.48	289	27.1	209	68600	5.34	156	10	10.5	10/18/04
FWT-12	101804-SS-FWT-12	3.27	278	22.7	167	56500	7.09	89	10	10.5	10/18/04
FWT-13	101804-SS-FWT-13	3.48	203	27.9	160	63000	4.65	129	10	10.5	10/18/04
FWTEW-04	101804-SS-FWTEW-04	4.89	258	59.7	235	87300	2.79	71.8	9	9	10/18/04
FWTEW-05	101804-SS-FWTEW-05	5.15	283	26.8	179	72900	2.7	102	9	9	10/18/04
FWTEW-06	101804-SS-FWTEW-06	2.6	206	29.2	175	74000	2.91	83.4	9	9	10/18/04
FWTWW-01	101804-SS-FWTWW-01	4.59	378	25.2	218	72600	2.17	78	9	9	10/18/04
FWTWW-02	101804-SS-FWTWW-02	5.81	438	25.1	205	64400	3.51	121	9	9	10/18/04
FWTWW-03	101804-SS-FWTWW-03	3.68	182	27.4	214	76100	2.87	104	9	9	10/18/04

Table C-5 Camp Bonneville Landfill 4 Confirmation Sample Results – Metals (continued)

Sample Location	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)							Beginning Depth (ft bgs)	Ending Depth (ft bgs)	Date Collected
	MTCA Method B Cleanup Level for Unrestricted Land Uses (mg/kg)	Arsenic	Barium	Chromium	Copper	Iron	Lead	Zinc			
		6	**450**	**576**	**267**	**36,100**	**17**	**96**			
LP-01	102704-SS-LP-01					74000	10.2	29.2	6	6.5	10/27/04
LP-02	102704-SS-LP-02	ND	251	37.9	189	72200	12.2	67.2	6	6.5	10/27/04
LP-03	102704-SS-LP-03	ND	384	36.1	174	70200	5.72	62.1	6	6.5	10/27/04
LP-04	102704-SS-LP-04	ND	220	36	131	68600	3.49	130	6	6.5	10/27/04
LP-05	102704-SS-LP-05	ND	423	29.1	201	63700	7.74	43.4	6	8.5	10/27/04
LP-06	102704-SS-LP-06	ND	99.8	28.2	65.5	54300	9.68	29.3	6	8.5	10/27/04
LP-07	102704-SS-LP-07	ND	165	31.6	91	59200	7.33	34.2	7	7.5	10/27/04
LP-08	102704-SS-LP-08	ND	127	41.2	74.2	56800	7.4	26.9	7	7.5	10/27/04
LP-09	102804-SS-LP-09	4.44		41.3	150	78700	8.53	37.4	5	5.5	10/28/04
LP-10	102804-SS-LP-10	4.72		36.2	89.4	73600	8.5	31.4	5	5.5	10/28/04
LP-11	102804-SS-LP-11	ND		49.7	163	79500	2.39	59.5	5	5.5	10/28/04
LP-12	102804-SS-LP-12	2.51		26.2	115	52700	12.8	45	5	5.5	10/28/04
LP-13	102804-SS-LP-13	ND		28.1	137	58200	13.1	39.2	5	5.5	10/28/04
LP-14	102804-SS-LP-14	3.82		38.1	97.7	74700	9.02	38.1	5	5.5	10/28/04

APPENDIX D – QUALITY CONTROL INSPECTION REPORTS

ALLIED WASTE INDUSTRIES, INC.

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of 1

GENERATOR

3. Generator's Name and Mailing Address: U.S. Army, Attn: AFZH-PWE MS, 17 (E. Waehling) Box 339500, Fort Lewis, WA 98433-9500

4. Generator's Phone (253) 966-1732

TRANSPORTER

5. Transporter 1 Company Name: to be supplied by Allied Waste | 6. US EPA ID Number | A. Transporter's Phone

7. Transporter 2 Company Name | US EPA ID Number | B. Transporter's Phone

FACILITY

9. Designated Facility Name and Site Address: COFFIN BUTTE LANDFILL, 29175 COFFIN BUTTE ROAD, CORVALLIS OR 97330 | 10. US EPA ID Number: DEQ/EPA ID ORDS90751350 | C. Facility's Phone: 541-745-7111

11. Waste Shipping Name and Description	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol
a. Munitions Remediation Contaminated Soil			5K tons	5K tons
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above: N/A

E. Handling Codes for Wastes Listed Above: N/A

15. Special Handling Instructions and Additional Information: N/A

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed / Typed Name | Signature | Month | Day | Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed / Typed Name | Signature | Month | Day | Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed / Typed Name | Signature | Month | Day | Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed / Typed Name | Signature | Month | Day | Year

WASTE MANAGEMENT, INC ....NON HAZARDOUS WASTE DISPOSAL SOLUTIONS FOR THE PACIFIC NORTHWEST

Hillsboro Landfill, Inc.

3205 SE MINTER BRIDGE ROAD HILLSBORO, OR 97123

PERMIT # 8011

PERMIT TO DISPOSE OF NON-HAZARDOUS MATERIALS

This permit authorizes disposal of Customer's waste materials in accordance with the Industrial Waste & Disposal Services Agreement dated *11/03*.

EXPIRES: 11/19/04

GENERATOR: U.S. ARMY/ CAMP BONNEVILLE	
DESCRIPTION: *CONTAMINTED SOIL*	**TONS:** *41,000*
☐ SPECIAL WASTE ☒ CS ☐ CLEAN-UP MATERIAL	
LOCATION: *VANCOUVER, WASHINGTON 23201 NE PLUSS ROAD*	**COUNTY:** *Clark not in metro*
CONTACT: *BERNARD DEBINE*	**PHONE:** *360-944-5500*
	FAX: *360-944-5799*

BILLING: *Landfill account TETRA TECH, INC.*	**PO#:** *13558-1603*	**JOB#:** *N/A*

We accept business checks, cash, VISA / Mastercard or charge(with prior approval)

SPECIAL HANDLING : ***NONE:***

HAULER: ?

MK **TyT**

APPROVED: KC *KRISTIN CASTNER* DATE: *08/19/04 3:21:51 PM*

A COPY OF THIS PERMIT MUST BE SHOWN BY EACH DRIVER

THERE IS A MINIMUM CHARGE OF $50-$60 FOR EACH LOAD OF SPECIAL WASTE

WASTE MANAGEMENT

HAZARDOUS WASTE IS STRICTLY PROHIBITED

Hillsboro Landfill, Inc.

3205 SE MINTER BRIDGE ROAD HILLSBORO, OR 97123

PERMIT # 8473

PERMIT TO DISPOSE OF NON-HAZARDOUS MATERIALS

This permit authorizes disposal of Customer's waste materials in accordance with the Industrial Waste & Disposal Services Agreement dated *10/03*.

EXPIRES: 4/13/05

GENERATOR: US ARMY/CAMP BONNEVILLE

DESCRIPTION: *CLEAN-UP WASTE*	**TONS:** *2*
☐ **SPECIAL WASTE** ☐ **CS** ☒ **CLEAN-UP MATERIAL**	
LOCATION: *VANCOUVER, WASHINGTON 23201 NE PLUSS ROAD*	**COUNTY:** *Clark not in metro*
CONTACT: *STEVE PEARSON*	**PHONE:** *503-582-1951*
	FAX: *503-582-9662*

BILLING: *Landfill account TETRA TECH*	**PO#:** *N/A*	**JOB#:** *N/A*

We accept business checks, cash, VISA / Mastercard or charge(with prior approval)

SPECIAL HANDLING : *NONE:*
HAULER: CLEARWATER

MK **TT** **TyT**

APPROVED: JB *Joan Bartz* DATE: *01/13/05 12:52:14 PM*

A COPY OF THIS PERMIT MUST BE SHOWN BY EACH DRIVER

THERE IS A MINIMUM CHARGE OF $50-$60 FOR EACH LOAD OF SPECIAL WASTE

WASTE MANAGEMENT

HAZARDOUS WASTE IS STRICTLY PROHIBITED

CLEARWATER ENVIRONMENTAL SERVICES INC.

--SERVICES--

Container Services & Generator Waste Management
Hazardous and Industrial Waste Site Remediation
Tank Services
Microelectronic Industrial Services
24-Hour Emergency Response Services
Industrial & Specialty (Decontamination & Demolition)

--LICENSES--

Oregon General Contractor
Washington General Contractor
California General Engineering Contractor
Montana Contractor Registration
Oregon UST Decommissioning License
Oregon Soil Matrix License

FAX COVER SHEET

Name:	Bernard	Pages Including Cover Sheet	2
Company:	Tetra Tech	Hard Copy to Follow	
Fax Number:	360-944-5799	Copy To:	
Phone Number:		Copy To:	
Date and Time Sent:	1/13/05	Copy To:	
Sender:	Lisa	Copy To:	

Waste Management has approved the permit for Hillsboro. Steve will need this when he gets to your site. If you have any questions, please call me at (503) 582-1951.

Thanks,
Lisa

If you encounter problems with receiving this fax, please call 503/582-1951

30240 SW Parkway Ave. Suite 3
Wilsonville, Oregon 97070
Phone (503) 582-1951
Fax (503) 582-9662
Website www.clearwaterenv.com

ATTENTION SHIPPERS! FREIGHT CHARGES ARE PREPAID ON THIS BILL OF LADING UNLESS MARKED COLLECT.

STRAIGHT BILL OF LADING

ORIGINAL–NOT NEGOTIABLE

Shipper No. _____

Carrier No. _____

Page 1 of 1

Clearwater Environmental Services, Inc. (Name of carrier) (SCAC)

Date 1/13/05

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 498, Sec. 1.

TO:
Consignee: Waste Management - Hillsboro Landfill
Street: 3205 S.E. Minter Bridge Road
City: Hillsboro State: Oregon Zip Code: 97123

FROM:
Shipper: U.S. Army / Camp Bonneville
Street: 23201 N.E. Pluss Road
City: Vancouver State: WA Zip Code: 98682
24 hr. Emergency Contact Tel. No.: _____

Route: _____ Vehicle Number: _____

No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)	WEIGHT (Subject to Correction)	RATE	CHARGES (For Carrier Use Only)
1 CF		(PERMIT #) Non-Regulated waste (Misc. Cleanup Waste)	*			
		*Estimated		-		

PLACARDS TENDERED: YES ☐ NO ☒

Note – (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property, as follows: "The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____."
(2) Where the applicable tariff provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier's liability shall be limited to the extent provided by such provisions. See NMFC Item 172.
(3)Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation. See section 2(e) of Item 360, Bills of Lading, Freight Bills and Statements of Charges and Section 1(a) of the Contract Terms and Conditions for a list of such articles.

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packed, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Signature: _____

REMIT C.O.D. TO:
ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES: $

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

FREIGHT CHARGES
FREIGHT PREPAID except when box at right is checked ☐ Check box if charges are to be collected

RECEIVED, subject to classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER: US ARMY / CAMP BONNEVILLE
PER: _____
DATE: _____

CARRIER: CLEARWATER ENVIRONMENTAL SERVICES, INC.
PER: _____
DATE: _____

1

Permanent post-office address of shipper

TERMS AND CONDITIONS

1. **ACCEPTABLE WASTE.** Customer shall deliver and Company shall accept for disposal or other management purpose only Acceptable Waste. As used herein, "Customer" shall mean both Customer and Generator listed on the reverse hereof. Customer shall deliver the full quantity of Acceptable Waste generated and/or handled by Customer as estimated on the reverse hereof. Acceptable Waste means and includes only such waste as is described on the reverse and which is approved and permitted for management at the Designated Facility listed on the reverse, and shall not include any Nonconforming Waste. As used herein, Nonconforming Waste means waste that: (a) is not in conformance with the description and/or estimated quantity of the waste set forth on the reverse; (b) is or contains any infectious waste, or radioactive, volatile, corrosive, highly flammable, explosive, biomedical, biohazardous material or hazardous, dangerous, or toxic substances, as defined pursuant to or listed or regulated under applicable federal, state or local law, except as stated on the reverse; or (c) is prohibited from being received, managed or disposed of at the Designated Facility by federal, state or local law, regulation, rule, code, ordinance, order, permit or permit condition;

2. **REPRESENTATIONS & WARRANTIES.** Customer represents and warrants that: (a) the description of the waste set forth on the reverse hereof is true and correct in all material respects; (b) all waste delivered to the Designated Facility by Customer shall be Acceptable Waste as defined above and shall not be or contain Nonconforming Waste; (c) Customer shall, and shall cause any carrier with which it contracts to, handle and transport the waste in a safe and workmanlike manner in full compliance with all applicable federal, state and local laws, ordinances, decisions, orders, rules or regulations; and (d) Customer has advised its drivers of Company's prohibition on delivery of Nonconforming Waste, of the definitions and listing of hazardous waste and hazardous substances under applicable federal and state law and regulations and of the definition of Acceptable Waste herein. Company represents and warrants that it shall manage the Acceptable Waste in a safe and workmanlike manner in full compliance with all applicable federal, state and local laws, ordinances, decisions, orders, rules or regulations.

3. **WASTE REJECTION.** Company may inspect, analyze or test any waste delivered by Customer and/or may reject, refuse or revoke acceptance of any waste if, in the opinion of Company, the waste or tender of delivery fails to conform to or Customer fails to comply with the terms of this Agreement, including by delivery of Nonconforming Waste. Company may also reject any waste which (a) Company reasonably believes would, as a result of or upon disposal or other management, be a violation of local, state or federal law, regulation, ordinance or permits, including land use restrictions or conditions applicable to the Designated Facility; or (b) in Company's opinion would present a significant risk to human health or the environment, cause a nuisance or otherwise create or expose Company or Customer to potential liability. Company also shall have the right to refuse to accept or to reject any Acceptable Waste in the event of Customer's failure to pay fees owed by Customer hereunder. In the event Company rejects or revokes acceptance of waste hereunder, Customer shall, at its sole cost, immediately remove or arrange to have the rejected waste removed from Company's control or property. Customer shall pay and/or reimburse Company for any and all costs, damages and/or fines incurred as a result of or relating to Customer's tender or delivery of Nonconforming Waste or other failure to comply or conform to this Agreement, including costs of inspection, testing and analysis.

4. **SPECIAL HANDLING; TITLE.** If Company elects, in its sole discretion, to handle, rather than reject, Nonconforming Waste, Company shall have the right to manage such Nonconforming Waste in the manner deemed most appropriate by Company given the characteristics of the Nonconforming Waste. Company may assess and Customer shall pay additional fees associated with delivery of Nonconforming Waste, including, but not limited to, special handling or disposal charges, and costs associated with different quantities of waste, different delivery dates, modifications in operations, specialized equipment, and other operational, environmental, health, safety or regulatory requirements. Title to and ownership of Acceptable Waste shall transfer to Company upon its final acceptance of Acceptable Waste. Title to, ownership of and liability for Nonconforming Waste shall at all times remain with Customer. Revocation of acceptance by Company shall operate to re-vest all incidents of ownership in Customer.

5. **INDEMNITY.** Each party hereto (the "Indemnitor") hereby agrees to indemnify, hold harmless and defend the other party, and its owners, officers, directors, employees and agents (collectively, the "Indemnitees"), from and against any and all liabilities, penalties, fines, forfeitures, fees, demands, claims, causes of action, suits, judgments and costs and expenses incidental thereto, including attorneys' fees (collectively, "Damages"), which any or all of the Indemnitees may hereafter suffer, incur, be responsible for or pay out, including for personal injuries, property damage, or contamination of or adverse effects on the environment, to the extent caused by, or arising from or in connection with the breach of any representations or warranties of the Indemnitor set forth in this Agreement, or any negligent actions or omissions or willful misconduct of the Indemnitor, its employees, officers, owners, directors or agents, or the violation of any law, ordinance or regulation, including, without limitation, the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601 et seq., as amended. Such indemnity shall exclude Damages to the extent they arise as a result of any negligent actions or omissions or willful misconduct of the Indemnitees or their employees, officers, owners, directors or agents. The indemnification obligation hereunder shall arise only in excess of any available and collectible insurance proceeds and the Indemnitor shall be liable hereunder to pay only its share of the amount of Damages, if any, that exceeds the total amount that all insurance has paid for the Damages, plus the total of all deductible and self-insured expenses paid under all insurance policies. The obligations in this Section 5 shall survive the performance and termination of this Agreement.

6. **UNCONTROLLABLE CIRCUMSTANCES; TERMINATION.** Except for the obligation to pay fees hereunder, the performance of this Agreement may be discontinued or temporarily suspended by either party, and neither party shall be deemed to be in breach of this Agreement, in the event performance is prevented by a cause or causes beyond the reasonable control of the affected party. Such causes shall include, but not be limited to, acts of God, acts of war, riot, fire, explosion, accident, flood or sabotage, governmental laws (including nuisance), permit conditions, regulations, restrictions (including land use), condition of the waste, injunction or actions or omissions of third party transporters or other contractors, suppliers or vendors. Company may immediately terminate management services hereunder upon written notice to Customer in the event Customer breaches any term, provision or obligation under this Agreement, in which case, Customer shall be liable for and shall pay to Company all costs and losses incurred by Company as a result of or relating to any such termination.

7. **MISCELLANEOUS.** This Agreement shall be governed by the laws of the state in which the Designated Facility is located. Every provision of this Agreement shall be severable. This Agreement represents the entire understanding and Agreement between the parties relating to the management of waste, except that, if the parties, or their parent companies, are parties to a national service agreement, the terms of such national service agreement shall govern over any inconsistent terms in this Agreement. No representations, statements or Agreements, unless agreed to by the parties in writing, shall modify, change, amend or otherwise affect the obligations undertaken in this Agreement. No waiver by either party of any one or more defaults or breaches by the other in the performance of this Agreement shall operate or be construed as a waiver of any future defaults or breaches. Customer may not assign this Agreement without the prior written consent of Company. This Agreement shall be binding upon and shall inure to the benefit of the parties' successors and assigns.

THIS IS A LEGALLY BINDING CONTRACT. EACH UNDERSIGNED INDIVIDUAL ACKNOWLEDGES THAT HE/SHE HAS READ AND UNDERSTANDS THE TERMS AND CONDITIONS OF THIS AGREEMENT SET FORTH ABOVE AND ON THE REVERSE HEREOF AND THAT HE/SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF CUSTOMER/GENERATOR AND COMPANY. BY SIGNING BELOW, CUSTOMER AND GENERATOR INDICATE A FIRST HAND KNOWLEDGE OF THE WASTE'S CHARACTERISTICS AND CERTIFY THE TRUTH OF THE INFORMATION ON THE REVERSE HEREOF. AGREED TO AS OF THE DATES BELOW.

CUSTOMER:	GENERATOR:	COMPANY:
(AUTHORIZED SIGNATURE) Lisa Bloomer	(AUTHORIZED SIGNATURE)	(AUTHORIZED SIGNATURE)
(NAME, TITLE) LISA BLOOMER	(NAME, TITLE)	(NAME, TITLE)
DATE: 1/13/05	DATE:	DATE:

WASTE MANAGEMENT

Columbia Ridge, Hillsboro, Riverbend, Graham Road, Capitol, Wenatchee

Profile Number: _____

Expiration Date: _____

WASTE PROFILE SHEET
TERMS & CONDITIONS

Service Agreement on File? ☒ Yes ☐ No

This form is to be used to comply with the requirements of governmental waste screening criteria.

Profile Addendum Attached? ☐ Yes ☒ No

A. Generator Information

1. Generator/Site Name: US Army/Camp Bonneville
2. SIC Code: _____
3. Site Address: 23201 NE Pluss Road
4. Site City: Vancouver
5. Site State: WA
7. Zip Code: 98682
6. Site County: US
8. Generator USEPA/Federal ID#: _____
9. Site Phone: Bernard Debine
10. Customer Name: Clearwater Environmental Services
11. Customer Phone: (503)582-1951
12. Customer Contact: Steve Pearson
13. Customer FAX: (503)582-9662

B. Waste Stream and Billing Information

1. Waste Description, Category: Misc. Cleanup Waste
2. State Waste Code: _____
3. Billing Address: 30240 SW Parkway Avenue, Suite 3, Wilsonville, OR 97070
4. Process Generating Waste: Roofing tar, soil, and non-hazardous debris including crushed drums, glass jars, PPE from miscellaneous site cleanup.
5. Transporter/Transfer Station: Clearwater Env. Services
6. Shipping Method: truck
7. Estimated Quantity (Weight & Vol): 1 - 85 gal per ☒ Job ☐ Year ☐ Other _____
8. Delivery Date(s): 1/13/05
9. Personal Protective Equipment Requirements: _____
10. Is this a US Dept. of Transportation (USDOT) Hazardous Material? ☐ Yes ☒ No (If no, skip 10, 11 and 12)
11. Reportable Quantity: _____
12. Hazard Class / I.D. #: _____
13. Shipping Name: _____

☐ Check if additional information is attached. Indicate the number of attached pages: _____

C. Generator's Certification

	Yes	No	
1. Is the waste represented by this waste profile sheet a "Hazardous Waste" as defined by USEPA, Canadian, Mexican, State, or Provincial regulation?	☐	☒	
2. Does the waste represented by this waste profile sheet contain regulated radioactive material or regulated concentrations of Polychlorinated Biphenyls (PCBs)?	☐	☒	
3. Does this waste profile sheet and all attachments contain true and accurate descriptions of the waste material?	☒	☐	
4. Has all relevant information within the possession of the Generator and Customer regarding known or suspected hazards pertaining to the waste been disclosed to the Contractor?	☒	☐	
5. Is the analytical data attached hereto derived from testing a representative sample in accordance with 40 CFR 261.20(c) or equivalent rules?	☐	☐	☒ N/A
6. Will all changes that occur in the character of the waste be identified by the Generator and disclosed to the Contractor prior to providing the waste to the Contractor?	☒	☐	

D. WM Management's Decision

1. Management Method: _____
2. Designated Facility: _____
3. Hours of acceptance: _____ ☐ N/A
4. Precautions, Special Handling Procedures, or Limitations on Approval: _____

Generic Approval: ☐ Yes ☐ No Special Waste Decision: ☐ Approved ☐ Disapproved

Sales Person: _____ Date: _____ Technical Manager: _____ Date: _____

GENERATOR AND CUSTOMER MUST READ AND SIGN REVERSE HEREOF INITIAL _____ INITIAL _____

CLEARWATER ENVIRONMENTAL SERVICES INC.

--SERVICES--

Container Services & Generator Waste Management
Hazardous and Industrial Waste Site Remediation
Tank Services
Microelectronic Industrial Services
24-Hour Emergency Response Services
Industrial & Specialty (Decontamination & Demolition)

--LICENSES--

Oregon General Contractor
Washington General Contractor
California General Engineering Contractor
Montana Contractor Registration
Oregon UST Decommissioning License
Oregon Soil Matrix License

FAX COVER SHEET

Name:	Bernard Dobine	Pages Including Cover Sheet	4
Company:	Tetra Tech	Hard Copy to Follow	
Fax Number:	360-944-5799	Copy To:	
Phone Number:		Copy To:	
Date and Time Sent:	1/13/05	Copy To:	
Sender:	Steve Pearson	Copy To:	

Bernard-

Copy of straight bill of lading and permit for Hillsboro for your review and signature. Please sign the Generator authorized signature on page 2 and forward to Kristin Castner at Waste Management at (503)493-7822. Call me with any questions on my cell at (503) 969-5234.

I will see you soon.

Steve

If you encounter problems with receiving this fax, please call 503/582-1951

30240 SW Parkway Ave. Suite 3
Wilsonville, Oregon 97070
Phone (503) 582-1951
Fax (503) 582-9662
Website www.clearwaterenv.com

Non-Hazardous MEC Waste Inert/Demilitarization Certification/Verification Manifest

General

1. Generator's Name and Mailing Address: USARMY CAMP BONNEVILLE, WA 23201 NE PLUSS Rd VANCOUVER, WA	1.a Generator's Phone #: (360) 694-0532
2. Project Location: CAMP BONNEVILLE, WA LANDFILL 4 / DEMO AREA 1	2.a Project Phone #: (360) 944-5500
3. MEC Contractor Name and Mailing Address: TETRA TECH, 800 OAKRIDGE TRUNK, SUITE A600, OAKRIDGE, TN 37830	3.a MEC Contractor Phone #: (865) 220-4761
4. Government Assigned Verification Name and Mailing Address	4.a Certifier Phone #: ( )
5. Transporter 1 Name and Mailing Address: METRO METALS NW 5611 COLUMBIA BLVD PORTLAND OR 97218	5.a Transporter 1 Phone #: (503) 287 8861
6. Transporter 2 Name and Mailing Address	6.a Transporter 2 Phone #: ( )
7. Recycler Name and Mailing Address: METRO METALS, NW 5611 COLUMBIA BLVD, PORTLAND, OR 97218	7.a Recycler Phone #: (503) 287 8861

MEC Contractors and Government Certifier

8. Security Seal #	9. Gross Wt. (Lbs)	10. Tare Wt (Lbs)	11. Net Wt. (Lbs)	12. Weight Ticket #
NONE	20,000			

13. Description	14. Material	15. Quantity	16. Unit (Wt., Vol)
8'x10' BIN	SCRAP METAL (COMMINGLED MC/MD)	1 BIN	8'x10'

INERT CERTIFICATION

This certifies and verifies that the AEDA residue, Range Residue and/or Explosive Contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, are inert and/or free of explosive related materials.

17. TtFW Senior UXO Supervisor Certification

Signature	Address	Date
	12100 E 195ST Ste 200	11/4/04
Printed/Typed Name: ROBERT STOUT	BOTHELL, WA 98011	Phone: 360/908/0139

18. Government Assigned Verification

Signature	Address	Date
Printed/Typed Name		Phone

Transporters

19. Transporter 1 Acknowledgement of Receipt of Materials (Receiving signature verifies that container was received with seal intact)

Signature	Address	Date
	NW 5611 COLUMBIA BLVD	11/4/04
Printed/Typed Name: KEN KING	PORTLAND, OR 97218	Phone: 503-287-8861

20. TtFW Acknowledgement of Receipt of Materials (Signature verifies that container was received with seal intact and contents were loaded to Transporter 1)

Signature	Address	Date
	12100 E 195ST SUITE 200	11/4/04
Printed/Typed Name: ROBERT STOUT	BOTHELL, WA 98011	Phone: 360908-0139

21. Transporter 2 Acknowledgement of Receipt of Materials (Receiving signature verifies that containers were received with seals intact)

Signature	Address	Date
Printed/Typed Name		Phone

22. Discrepancy Indication Space

Signature	Address	Date
Printed/Typed Name		Phone

Non-Hazardous MEC Waste Inert/Demilitarization Certification/Verification Manifest

(Continued)

Demilitarization / Recycle Facility

23. Recycler Acknowledgement of Receipt of Materials (Receiving signature verifies that containers were received with seal intact)

Signature	Address	Date
X Ken King	4W5611 COLUMBIA BLVD	11/4/04
Printed/Typed Name: KEN KING	PORTLAND, OR 97218	Phone: 503 287 8861

DEMILITARIZATION CONFIRMATION

This certifies and verifies that each item or items contained have been demilitarized to the minimum requirements of DOD 4160-M-1, Defense Department Demilitarization Trade Security Control Manual.

24. Recycler

Signature	Signature	Signature
X Ken King	~~4W5611 COLUMBIA BLVD~~	X Ken King
Printed/Typed Name: KEN KING	Printed/Typed Name: ~~PORTLAND OR 97218~~	Printed/Typed Name: KEN KING

25. TtFW Senior UXO Supervisor Certification

Signature	Signature	Signature
Printed/Typed Name: ROBERT STOUT	Printed/Typed Name	Printed/Typed Name

26. Government Assigned Verification

Signature	Signature	Signature
Printed/Typed Name	Printed/Typed Name	Printed/Typed Name

27. Final Disposition (Write in form of final disposition; recycle/demil, etc.)

Non-Hazardous MEC Waste Inert/Demilitarization Certification/Verification Manifest

General

1. Generator's Name and Mailing Address: U.S. ARMY, CAMP BONNEVILLE 23201 NE PLUSS Rd VANCOUVER, WA	1.a Generator's Phone #: (360) 894 0332
2. Project Location: CAMP BONNEVILLE, WA LANDFILL 4/DEMO AREA 1	2.a Project Phone #: (360) 944-5500
3. MEC Contractor Name and Mailing Address: TETRA TECH, 800 OAK RIDGE TRNPK, SUITE A600 OAK RIDGE, TN 37830	3.a MEC Contractor Phone #: (865) 220-4761
4. Government Assigned Verification Name and Mailing Address	4.a Certifier Phone #: ( )
5. Transporter 1 Name and Mailing Address: METRO METALS NW 5611 NE COLUMBIA BLVD, PORTLAND, OR 97218	5.a Transporter 1 Phone #: (503) 287-8861
6. Transporter 2 Name and Mailing Address	6.a Transporter 2 Phone #: ( )
7. Recycler Name and Mailing Address: METRO METALS, NW 5611 NE COLUMBIA BLVD, PORTLAND, OR 97218	7.a Recycler Phone #: (503) 287-8861

MEC Contractors and Government Certifier

8. Security Seal #	9. Gross Wt. (Lbs)	10. Tare Wt (Lbs)	11. Net Wt. (Lbs)	12. Weight Ticket #
NONE	20,000			

13. Description	14. Material	15. Quantity	16. Unit (Wt., Vol)
8'x20' BIN	SCRAP METAL (DEMILITARIZED/MD)	1 BIN	8'x20'

INERT CERTIFICATION

This certifies and verifies that the AEDA residue, Range Residue and/or Explosive Contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, are inert and/or free of explosive related materials.

17. TtFW Senior UXO Supervisor Certification

Signature	Address	Date
	12100 E 195 ST SUITE 200	10/19/04
Printed/Typed Name		**Phone**
ROBERT STOUT	BOTHELL, WA 98011	(360)-905-0134

18. Government Assigned Verification

Signature	Address	Date
Printed/Typed Name		**Phone**

Transporters

19. Transporter 1 Acknowledgement of Receipt of Materials (Receiving signature verifies that container was received with seal intact)

Signature	Address	Date
	5611 NE COLUMBIA BLVD	10/19/04
Printed/Typed Name		**Phone**
MARTY GRENCHIK	PORTLAND, OR 97218	(503) 287-8861

20. TtFW Acknowledgement of Receipt of Materials (Signature verifies that container was received with seal intact and contents were loaded to Transporter 1)

Signature	Address	Date
	12100 E 195 ST SUITE 200	10/19/04
Printed/Typed Name		**Phone**
ROBERT STOUT	BOTHELL, WA 98011	(360) 905-0134

21. Transporter 2 Acknowledgement of Receipt of Materials (Receiving signature verifies that containers were received with seals intact)

Signature	Address	Date
Printed/Typed Name		**Phone**

22. Discrepancy Indication Space

Signature	Address	Date
Printed/Typed Name		**Phone**

Non-Hazardous MEC Waste Inert/Demilitarization Certification/Verification Manifest

(Continued)

Demilitarization / Recycle Facility

23. Recycler Acknowledgement of Receipt of Materials (Receiving signature verifies that containers were received with seal intact)

Signature	Address	Date
X Ken King	NW 5611 Columbia Blvd	11/4/04
Printed/Typed Name: KEN KING	Portland, OR 97218	Phone: 503-287-8861

DEMILITARIZATION CONFIRMATION

This certifies and verifies that each item or items contained have been demilitarized to the minimum requirements of DOD 4160-M-1, Defense Department Demilitarization Trade Security Control Manual.

24. Recycler

Signature	Signature	Signature
X Ken King		X Ken King
Printed/Typed Name: KEN KING	Printed/Typed Name	Printed/Typed Name: KEN KING

25. TtFW Senior UXO Supervisor Certification

Signature	Signature	Signature
Printed/Typed Name: ROBERT STOUT	Printed/Typed Name	Printed/Typed Name

26. Government Assigned Verification

Signature	Signature	Signature
Printed/Typed Name	Printed/Typed Name	Printed/Typed Name

27. Final Disposition (Write in form of final disposition; recycle/demil, etc.)

Quality Control Surveillance Report

Activity

- ☐ Anomaly Reacquisition
- ☐ Brush Cutting/Clearing
- ☐ Data Management
- ☐ Demolition/Disposal
- ☐ Geophysical Data Collection
- ☐ Geophysical Data Processing
- ☐ Intrusive Investigation
- ☐ Land Survey
- ☒ Ordnance Avoidance
- ☐ Ordnance Escort
- ☐ Project Management
- ☐ Other: _____
- ☐ Scrap Processing
- ☒ Surface Clearance
- ☐ Transect Activity

Inspection Phase

☐ Preparatory ☑ Initial ☐ Follow up

References (Work Plan Section, Specification Section, SOP Number, etc.)

HASP & Demolition Area 1 work plan.

Observed Condition/Activities:

Soil screening/stockpile area, surface sweep for UXO completed. Montgomery & Fleck conducted surface sweep of area prior to running a mower over area & start of a more in depth clearance with the vallon ordnance locator.

Conducted By:	Signature:	Date:
Ted Jensen		5/10/04

UXOQC Review

Comments: Completed a 20% surface inspection of area area found to be clear of any metal debris.

☒ Acceptable ☐ Unacceptable	Deficiency Report #: Non-Conformance Report #:

Name:	Signature:	Date:
Ted Jensen		5/10/04

TETRA TECH Inc.

Quality Control Surveillance Report

Activity Tree falling & clearance

- [ ] Anomaly Reacquisition
- [x] Brush Cutting/Clearing
- [ ] Data Management
- [ ] Demolition/Disposal
- [ ] Geophysical Data Collection
- [ ] Geophysical Data Processing
- [ ] Intrusive Investigation
- [ ] Land Survey
- [x] Ordnance Avoidance
- [x] Ordnance Escort
- [ ] Project Management
- [ ] Other: _____
- [ ] Scrap Processing
- [ ] Surface Clearance
- [ ] Transect Activity

Inspection Phase

- [ ] Preparatory
- [x] Initial
- [ ] Follow up

References (Work Plan Section, Specification Section, SOP Number, etc.)

HASP, ~~Site Specific~~ Demolition Area 1 work plan.

Observed Condition/Activities:

Clearance of Trees in Magazine laydown area of Demolition Range area 1. Tree clearance conducted by Brown Field environmental. Proper PPE utilized, good coordination between ground personnel & excavator operator during tree moving and stacking operations

Good correlation between UXO personnel on site providing UXO escort/avoidance support.

Conducted By:	Signature:	Date:
Ted Jennen	T. Jennen	5/11/04

UXOQC Review

Comments: Work progressing well & safely.

[x] Acceptable [ ] Unacceptable	Deficiency Report #: Non-Conformance Report #:

Name:	Signature:	Date:
Ted Jennen	T. Jennen	5/11/04

TETRA TECH Inc.

Quality Control Surveillance Report

Activity

- ☐ Anomaly Reacquisition
- ☒ Brush Cutting/Clearing
- ☐ Data Management
- ☐ Demolition/Disposal
- ☐ Geophysical Data Collection
- ☐ Geophysical Data Processing
- ☐ Intrusive Investigation
- ☐ Land Survey
- ☐ Ordnance Avoidance
- ☐ Ordnance Escort
- ☐ Project Management
- ☐ Other: _____
- ☐ Scrap Processing
- ☐ Surface Clearance
- ☐ Transect Activity

Inspection Phase

☐ Preparatory ☐ Initial ☒ Follow up

References (Work Plan Section, Specification Section, SOP Number, etc.)

Work Plan, Magazine Laydown area prep.

Observed Condition/Activities:

Brown Field enviromental cleared trees & all brush from ~~point of~~ the magazines point of placement and out 60'. Two stumps remain in area and will require grinding flush with the ground or removed. This task will be completed by another company.

Conducted By:	Signature:	Date:
Ted Jennen	T. Jennen	5-12-04

UXOQC Review

Comments:

Tree removal completed as required. stacked trees to be hauled on 17 may 04.

☒ Acceptable ☐ Unacceptable	Deficiency Report #: Non-Conformance Report #:

Name:	Signature:	Date:
Ted Jennen	T. Jennen	5-12-04

TETRA TECH Inc.

Quality Control Surveillance Report

Activity

- [ ] Anomaly Reacquisition
- [x] Brush Cutting/Clearing
- [ ] Data Management
- [ ] Demolition/Disposal
- [ ] Geophysical Data Collection
- [ ] Geophysical Data Processing
- [ ] Intrusive Investigation
- [x] Land Survey
- [x] Ordnance Avoidance
- [ ] Ordnance Escort
- [ ] Project Management
- [ ] Other: _____
- [ ] Scrap Processing
- [x] Surface Clearance
- [ ] Transect Activity

Inspection Phase

- [ ] Preparatory
- [x] Initial
- [ ] Follow up

References (Work Plan Section, Specification Section, SOP Number, etc.)

Camp Bonneville site Quality Control Plan.

Observed Condition/Activities:

Landfill 4/Demo area 1 a 100% surface sweep was conducted of the defined area plus a 25 ft buffer zone. This area was then cleared of all brush.

Conducted By:	Signature:	Date:
Ted Jennen	T. J. Jennen	5/26/04

UXOQC Review

Comments: Brush clearance was completed and removed leaving the work area very clear. outstanding JOB!

- [x] Acceptable
- [ ] Unacceptable

Deficiency Report #:
Non-Conformance Report #:

Name:	Signature:	Date:
Ted Jennen	T. J. Jennen	5/26/04

TETRA TECH Inc.

Quality Control Surveillance Report

Activity

- [ ] Anomaly Reacquisition
- [ ] Brush Cutting/Clearing
- [x] Data Management
- [x] Demolition/Disposal
- [ ] Geophysical Data Collection
- [ ] Geophysical Data Processing
- [ ] Intrusive Investigation
- [ ] Land Survey
- [ ] Ordnance Avoidance
- [ ] Ordnance Escort
- [ ] Project Management
- [ ] Other: _____
- [ ] Scrap Processing
- [ ] Surface Clearance
- [ ] Transect Activity

Inspection Phase

- [ ] Preparatory
- [ ] Initial
- [x] Follow up

References (Work Plan Section, Specification Section, SOP Number, etc.)

- Conducted explosive inventory

Observed Condition/Activities:

- All explosive were accounted for as per magazine data cards.

Conducted By:	Signature:	Date:
Ted Lennon		10-7-04

UXOQC Review

Comments: Inventory being maintained as drawn/as required.

[x] Acceptable [ ] Unacceptable	Deficiency Report #: Non-Conformance Report #:

Name:	Signature:	Date:

TETRA TECH Inc.

APPENDIX E – MEC ACCOUNTABILITY FORMS

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Reference	Final Disposition Date
1	7.62mm CTGS - BLANK - 18	MEC	6-2-04	LANDFILL/ DEMO AREA	DISPOSED OF BY DETONATION ~~DISPOSED OF 6-2-04~~	CB003 CB004	6-2-04
2	7.62mm CTG - RIFLE - 1	MEC	6-2-04	LAND FILL/ DEMO AREA	DISPOSED OF BY DET.	CB004	6-2-04
3	60mm MORTAR FUZE - PD-1	MEC	6-2-04	LANDFILL/ DEMO AREA	DISPOSED OF BY DET.	CB007	6-2-04
4	20mm PROJECTILES - 2	MEC	6-2-04	LANDFILL/ DEMO AREA	DISPOSED OF BY DET.	CB001 CB004	6-2-04
5	PROJECTILE BASE W/ FILLER - 1	MEC	6-2-04	LANDFILL/ DEMO AREA	DISPOSED OF BY DET	CB009	6-2-04
6	2.75" ROCKET W/H - 1	MEC	6-7-04	LANDFILL/DEMO	DISPOSED OF BY DET	CB010	6-7-04
7	3" STOKES MORTAR - 1	MEC	6-7-04	LANDFILL/ DEMO	DISPOSED OF BY DET	STOKES	6-7-04
8	.50CAL CTG - 1	MEC	6-7-04	LAND FILL/DEMO	DISPOSED OF BY DET	CB013	6-7-04
9	MARINE MARKERS - 2	MEC	6-7-04	LANDFILL/DEMO	DISPOSED OF BY DET	CB012	6-7-04
10	57mm PROJO - 1	MEC	6-14-04	LANDFILL DEMO AREA	DESTROYED BY DET	CB022	6-14-04
11	37mm CANISTER - 1	MEC	6-14-04	LANDFILL DEMO AREA	DESTROYED BY DET	CB020	6-14-04
12	.50CAL CTGS - 7	MEC	6-14-04	LANDFILL DEMO	DESTROYED BY DET	CB014	6-14-04
13	5.56mm BLANK CTGS - 106	MEC	6-14-04	LANDFILL DEMO	DESTROYED BY DET	CB005	6-14-04
14	37mm PROJ. HE - 1	MEC	6-29-04	LANDFILL DEMO	DESTROYED BY DET	0457	6-29-04
15	.50CAL CTG - 1	MEC	6-29-04	LANDFILL DEMO	DESTROYED BY DET	—	6-29-04
16	20mm PROJECTILES - 5	MEC	6-29-04	LANDFILL DEMO	DESTROYED BY DET.	0463	6-29-04

Log Verification

SUXOS Signature

Date: 6-29-04

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Reference	Final Disposition Date
17	HYDRAULIC INITIATORS - 1	MEC	6-29-04	LANDFILL DEMO AREA	DISPOSED OF DETONATION	0461	6-29-04
18	CARTRIDGE ACTUATED DEVICES - 4	MEC	6-29-04	LAND FILL DEMO AREA	DISPOSED OF DETONATION	0460	6-29-04
19	FLARES - 4	MEC	6-29-04	LANDFILL DEMO	DISPOSED OF DET	0466	6-29-04
20	M904 BOMB NOSE FUZE - 1	MEC	6-29-04	LAND FILL DEMO	DISPOSED OF DET	—	6-29-04
21	AN103 BOMB NOSE FUZE - 1	MEC	7-7-04	LAND FILL DEMO	DISPOSED OF BY DET	0476	7-7-04
22	FLARES (UNKNOWN NOMEN) - 3	MEC	7-7-04	LANDFILL DEMO	DISPOSED OF BY DET	0477	7-7-04
23	20mm CTG - 1	MEC	7-7-04	LAND FILL DEMO	DISPOSED OF BY DET	0475	7-7-04
24	~~FIRE~~ SMOKE GRENADE - 1	MEC	7-7-04	LAND FILL DEMO	DISPOSED OF BY DET	0478	7-7-04
25	SUBCALIBER RKT - 1	MEC	6-22-04	LAND FILL DEMO	DISPOSED OF BY DET	0421	7-7-04
26	20mm PROJ. - 1	MEC	6-22-04	LAND FILL DEMO	DISPOSED OF BY DET	0463	7-7-04
27	NOSE FUZE, NOMEN UNKNOWN - 2	MEC	7-9-04	LAND FILL DEMO AREA	DISPOSED OF BY DET	0480	7-12-04
28	AN103 BOMB NOSE FUZE - 1	MEC	7-9-04	LAND FILL DEMO AREA	DISPOSED OF BY DET	0481	7-12-04
29	PROJ. BASE FUZE - 1	MEC	7-9-04	LAND FILL DEMO AREA	DISPOSED OF BY DET	0482	7-12-04
30	20mm PROJ. - 1	MEC	7-9-04	LANDFILL DEMO AREA	DISPOSED OF BY DET	—	7-12-04
31	MK13 FLARES - 3	MEC	7-9-04	LAND FILL DEMO AREA	DISPOSED OF BY DET	0494	7-12-04
32	FLARE CTGS, NOMEN UNKNOWN - 7	MEC	7-9-04	LAND FILL DEMO AREA	DISPOSED OF BY DET	0495	7-12-04

Log Verification

SUXOS Signature

Date: 7-14-04

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Reference	Final Disposition Date
33	FUZE BOOSTER - 1	MEC	7-9-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-12-04
34	BLASTING CAPS - 2	MEC	7-9-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-12-04
35	37mm TRACER ELEMENT - 1	MEC	7-9-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-12-04
36	MISC FUZE PART - 1	MEC	7-9-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-12-04
37	GRENADE FUSE - 1	MEC	7-8-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-12-04
38	M5 LANDMINE FUZE - 1	MEC	7-13-04	LANDMINE DEMO	DISPOSED OF BY DET	0516	7-13-04
39	FLARE (UNKNOWN) - 1	MEC	7-13-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-13-04
40	RIFLE GRENADE - 1	MEC	7-13-04	LANDFILL DEMO	DISPOSED OF BY DET	0508	7-13-04
41	ANTI PERS. PRAC LANDMINE - 1	MEC	7-13-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-13-04
42	2.36 ROCKET - 1	MEC	7-21-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
43	90mm PROJ. - 2	MEC	7-21-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
44	105mm PROJ. - 1	MEC	7-21-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
45	FLARES (NOMEN UNKNOWN) - 3	MEC	7-20-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
46	MK13 FLARES - 3	MEC	7-20-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
47	SMOKE GRENADE - 1	MEC	7-20-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
48	40mm GRENADE CTG - 1	MEC	7-20-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04

Log Verification

SUXOS Signature [signature]

Date: 7-21-04

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Reference	Final Disposition Date
49	20mm PROJ. - 3	MEC	7-19-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
50	PD FUZE (PROJ.) - 1	MEC	7-19-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
51	C-4 EXPLOSIVE - 1 lbs	MEC	7-21-04	LAND FILL DEMO	DISPOSED OF BY DET	—	7-21-04
52	3.5" ROCKET FUZE - 2	MEC	7-21-04	LAND FILL DEMO	DISPOSED OF BY DET	—	7-21-04
53	57mm AP PROJ. - 1	MEC	7-21-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-21-04
54	50CAL CTGS - 25	MEC	—	LAND FILL DEMO	DISPOSED OF BY DET	—	7-28-04
56	7.62mm CTGS - 103	MEC	—	LANDFILL DEMO	DISPOSED OF BY DET	—	7-28-04
57	5.56mm CTGS - 25	MEC	—	LANDFILL DEMO	DISPOSED OF BY DET	—	7-28-04
58	CARTRIDGE ACTUATED DEVICES (CADS)	MEC	7-27-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-28-04
59	ACTUATORS - 4	MEC	7-27-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-28-04
60	ELECTRIC BLASTING CAPS - 8	MEC	7-21-04	LANDFILL DEMO	DISPOSED OF BY DET	—	7-28-04
61	3IN AP PROJ - 1	MEC	8-2-04	LANDFILL DEMO	DISPOSAL BY DET	0564	8-2-04
62	105mm AP PROJ - 1	MEC	8-2-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-2-04
63	40mm PROJ - 2	MEC	8-2-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-2-04
64	50 CAL CTGS - 15	MEC	—	LAND FILL DEMO	DISPOSAL BY DET	—	8-9-04
65	MK 6 FLARE CANDLES - 5	MEC	—	LAND FILL DEMO	DISPOSAL BY DET	—	8-9-04

Log Verification

SUXOS Signature

Date:

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Reference	Final Disposition Date
66	NOSE FUZE CL/BOOSTER-1	MEC	8-9-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-9-04
67	SPARROW MISSILE SEAOEVICE	MEC	8-2-04	LANDFILL DEMO	DISPOSAL BY DET	0538	8-9-04
68	PBM LANDMINE FUZE-1	MEC	8-9-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-9-04
69	100 SERIES TAILFUZE-1	MEC	8-9-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-9-04
70	JAPANESE 37mm PROJ-1	MEC	8-9-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-9-04
71	90MM AP PROJ-1	MEC	8-9-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-9-04
72	75mm PROJECTILE-1	MEC	8-16-04	LANDFILL DEMO	DISPOSAL BY DET	0593	8-16-04
73	CS CTG-1	MEC	8-16-04	LANDFILL DEMO	DISPOSAL BY DET	0594	8-16-04
74	PEPPER SPRAY CTG-1	MEC	8-16-04	LANDFILL DEMO	DISPOSAL BY DET	—	8-16-04
75	5IN PROJECTILE -2	MEC	8-17-04	LANDFILL DEMO	DISPOSED OF BY DET	0602	8-17-04
76	5IN PROJECTILE-1	MEC	8-18-04	LANDFILL DEMO	DISPOSED OF BY DET	0602	8-18-04
77	40mm PROJECTILE, HE-1	MEC	8-18-04	LANDFILL DEMO	DISPOSAL BY DET	0627	8-18-04
78	AN103 BOMB NOSE FUZE-1	MEC	8-18-04	LANDFILL DEMO	DISPOSED OF BY DET	0626	8-18-04
79	FLARES - 3	MEC	~~8-19-04~~ 8-20-04	LANDFILL DEMO	DISPOSED OF BY DET	0603	8-20-04
80	SOCIAL CTGS-15	MEC	~~8-19-04~~ 8-20-04	LANDFILL DEMO	DISPOSED OF BY DET	—	8-20-04
81	7.62 CTGS - 23	MEC	~~8-19-04~~ 8-20-04	LANDFILL DEMO	DISPOSED OF BY DET	—	8-20-04

Log Verification

SUXOS Signature

Date:

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Reference	Final Disposition Date
82	5.56CTGS - 17	MEC	8-19-04	LANDFILL DEMO	DISPOSED OF BY DET	—	8-20-04
83	EJECT. SEAT SECONTAINERS - 2	MEC	8-19-04	LANDFILL DEMO	DISPOSED OF BY DET	0546	8-20-04
84	PROJECTILE CASING FLASH TUBE-6	MEC	8-19-04	LANDFILL DEMO	DISPOSED OF BY DET	—	8-20-04
85	LANDMINE FUZES - 2	MEC	8-18-04	LANDFILL DEMO	DISPOSED OF BY DET	0516	8-20-04
86	BOMB NOSE FUZE - 1	MEC	8-18-04	LANDFILL DEMO	DISPOSED OF BY DET	—	8-20-04
87	3" STOKES MORTAR - 3	MEC	7-16-04	LANDFILL DEMO	DEMILSD BY PERF	—	8-28-04
88	90mm PROJECTILE - 1	MEC	8-28-04	LANDFILL DEMO	DEMILSD BY PERF		8-28-04
89	5" RKT WARHEAD - 2	MEC	7-17-04	LANDFILL DEMO	DEMILSD BY PERF	—	8-28-04
90	5" RKT WARHEAD - 1	MC	7-17-04	LANDFILL DEMO	DEMILSD BY PERF	—	9-15-04
91	2.75" HE WARHEAD - 1	MEC	9-15-04	LANDFILL DEMO	DISPOSED OF BY DET	—	9-15-04
92	PROJECTILE FUZE - 1	MC	9-15-04	LANDFILL DEMO	DEMILSD BY PERF	—	9-15-04
93	BDU76 PRACTICE BOMB - 1	MC	9-15-04	LANDFILL DEMO	DEMILSD BY PERF	—	9-15-04
94	2.75" HE WARHEAD - 1	MEC	9-20-04	SCREEN PLANT	DISPOSED OF BY DEMO	—	9-20-04
95	FLARE - 1	MEC	9-20-04	LANDFILL DEMO AREA	DISPOSED OF BY DEMO	—	9-20-04
96	40mm PROJECTILE - 1	MEC	9-20-04	SCREEN PLANT	DISPOSED OF BY DEMO	—	9-20-04
97	BOMB FUZE - 1	MEC	9-20-04	SCREEN PLANT	DISPOSED OF BY DEMO	—	9-20-04

Log Verification

SUXOS Signature

Date:

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Reference	Final Disposition Date
98	2.75" ROCKET W/ ARMHEAD	MEC	9-2-04	SCREENING PIT	DISPOSAL BY DETONATION	—	9-22-04
99	BURTON 3" PROJ. CIVIL WAR	MEC	6-8-04	LAND FILL	TURNED OVER TO ARMY EOD		6-24-04
100	ROCKET PROPELLANT, BALLISTITE	MEC	8-10-04	LANDFILL	DISPOSED OF BY DET		8-16-04
101	ROCKET PROPELLANT, BALLISTITE	MEC	8-14-04	LANDFILL	DISPOSED OF BY DET		8-16-04
102	20mm PROJ. W/CTG	MEC	6-9-04	LANDFILL	DISPOSED OF BY DET		6-9-04

Log Verification

SUXOS Signature

Date: