



6.0 TASK-SPECIFIC HEALTH AND SAFETY PLAN

The cleanup action for the small arms ranges will be conducted in full accordance with the previous established Camp Bonneville Conservation Conveyance APP (Michael Baker, 2006a). This APP is currently being applied to the work being done at CBMR. This plan has four principal elements as follows:

- Accident Prevention Plan (APP)
- Health and Safety Plan (HASP)
- Explosives Safety Submittal (ESS)
- Project Hazard Analysis (PHA)

Each of these elements is related to the work to be done for the cleanup of RAU 2A – Small Arms Ranges. The general procedural specifications of each element will be fully enforced and applied to the small arms ranges cleanup action as those specifications are relevant and appropriate.

The elements of the APP and the program being implemented on a site-wide basis there under are fully compliant with the applicable OSHA rules and guidance for hazardous site work and for general construction work. The APP and its component elements address all relevant topics, including the following:

- Health and Safety Policies
- Site Characteristics
- Site and Task Related Hazards
- Training
- Personal Protective Equipment
- Medical Surveillance
- Exposure Monitoring and Air Sampling Programs
- Physical Hazards
- Site Controls and Work Practices
- Site Operations
- Personal Hygiene and Decontamination
- Emergency Responses
- Accident Reporting
- Documentation and Safety-Related Recordkeeping

In addition to this task-specific health and safety plan, all workers employed in the cleanup of the small arms ranges will be trained in and required to follow the applicable portions of the general site wide APP and its component parts.

6.1 Munitions-Related Hazards

The small arms ranges will have been surface cleared of MEC before implementation of this cleanup action is initiated. Therefore, MEC avoidance is not expected to be an issue during implementation of this Cleanup Action Plan. However, as an additional safety precaution, the



personnel conducting this cleanup action will undergo MEC Awareness Training as outlined below in Section ____ and as described more fully in the APP and ESS. In addition, fully qualified, fully qualified and equipped MEC and unexploded ordnance (UXO) management personnel will be available onsite throughout this project in the unlikely event any suspected MEC items or Munitions Debris (MD) are encountered during any of the activities related to the cleanup of the nine small arms ranges. These MEC personnel will be in radio communications with the personnel conducting the small arms ranges cleanup to provide rapid response to any MEC or MD issues that may potentially arise.

6.2 Chemical Hazards

Based on soil sampling conducted for the RI/FS (Calibre, 2005), the following hazardous substances were detected in soils at one or more of the small arms ranges:

- Arsenic: maximum reported level of 22.9 mg/kg, slightly above the ecological threshold but below the human health risk criteria
- Barium: maximum reported level of 227 mg/kg, slightly above the ecological threshold but below the human health risk criteria
- Lead; maximum reported level of 26,300 mg/kg exceeding the human health and ecological protection criteria and, thus, the target of this cleanup action
- 2,4-Dinitrotoluene; maximum reported of 20 mg/kg which is below regulatory criteria
- Soil dust as a particulate nuisance for worker safety and health with threshold limit values (TLVs) of 10 mg/cubic meter inhaleable and 3 mg/cubic meter respirable

Based on threshold limit values for worker breathing zones, a maximum permissible total dust level has been established for each of the nine small arms ranges being addressed under this cleanup action. These values are as follows:



Table 6-1 RAU 2A Maximum Permitted Airborne Dust Levels

Range Name	Maximum Permitted Total Dust Level	Resulting Maximum Airborne Lead Concentration	Percent of Lead Exposure Limit
	(mg/m ³)	(mg/m ³)	(%)
Combat Pistol Range	10	0.008	16
Undocumented Pistol Range	10	0.002	3
1,000-Inch Rifle and Machine Gun Range	4	0.025	50
25-Meter M60 Machine Gun and Pistol Range	10	0.002	4
25-Meter Machine Gun Range	1	0.026	53
25-Meter Record Firing Range & Field Firing Range	4	0.036	71
Field Ranges 1 and 2	10	0.023	46
Field Fire Ranges 1 and 2	4	0.029	57
Rifle Ranges 1 and 2	4	0.017	35

6.3 Physical Hazards

Excavation depths will be less than four feet at the nine small arms ranges. Therefore, confined space entry and trenching rules are not issues for this cleanup action.

The excavations will require the use of heavy equipment. Workers must be alert to equipment movements and swing radii. In addition, hauling and maintenance vehicles will be moving on and around the work sites; therefore traffic is potential physical hazard. As noted above, the exclusion zones will be delineated with rope or snow fence and will be posted with warning signs.

As discussed in **Section 6.2**, airborne dust is a potential physical, as well as chemical hazard at the excavation points and at the screening/loading station. As discussed in **Section 6.5** below, airborne dust will be the controlling factor in selection of Personal Protective Equipment. RAU 2A work Site perimeter and worker breathing zone air monitoring will be conducted throughout excavation and soils handling operations. If appropriate, dust control and mitigation measures will be conducted by spraying the areas of concern areas with water. In addition, worker breathing zone air samples will be collected using low-volume filter pumps. This information will be monitored by the Site Health and Safety Officer and may used to revise the level of respiratory protection depending upon results.

Whenever the ground is penetrated by excavation, there is potential to encounter underground utilities. Based on site history, existing documentation, and observed site conditions, there is a low probability of encountering underground utilities during excavation operations at the nine small arms ranges. Before starting excavations, site personnel will confirm the absence of underground utilities at the planned excavation locations by further review of site map, conversations with site personnel, and contact with the appropriate underground utilities locator services. This topic will be addressed in the site specific training to alert excavation personnel of the appropriate course of action in the unlikely event any underground utility line is encountered.



Stockpiles at each small arms range and at the holding and screening area will be placed on plastic and sloped to maintain pile stability.

The excavated soil holding and screening area presents several physical hazards, as follows:

- Moving machinery parts such as conveyor and vibrating screens
- Mobile equipment and haul vehicles
- Trips and falls from elevated working or maintenance locations
- Electric power and hydraulic mechanisms
- Dust
- Access by visitors delivering fuel and supplies
- Truck operators removing soil for off site disposal

6.4 Task-Specific Training

As specified by Section 5.1 of the HASP, all personnel assigned to the small arms ranges cleanup will have received OSHA specified hazard site worker training before they begin work on this task. This training will have included the following

- ✓ OSHA-mandated hazardous waste operations (HAZWOPER) training (40 hours)
- ✓ OSHA-mandated site specific training (24 hours of actual on-site work under the direct supervision of a trained and experienced supervisor)
- ✓ Supervisors are required to have eight additional hours of HAZWOPER Supervisor training before assuming supervisory duties
- ✓ All personnel will be up-to-date on the OSHA required annual renewal training

Workers assigned to this small arms ranges cleanup task will receive tas-specific training in accordance with the following:

- ✓ Site-specific health and safety training as outlined in Section 5.2 of the HASP
- ✓ MEC awareness training as described in Section 5.3 of the HASP

Before work is initiated on the small arms ranges cleanup, the workers will receive task-specific training on the following topics:

- ✓ Review of the relevant OSHA Standards
- ✓ The content of this work plan including the specific nature of the planned operations and the potentials for chemical hazard exposure and the nature of the physical hazards associated with this task
- ✓ A review of the APP and the task-specific health and safety issues
- ✓ Review of the purpose, limitations, selection, fitting, use, and maintenance of half-face respirators and worker breathing zone air monitors
- ✓ Review of the medical surveillance program
- ✓ Communication of lead-related health hazards



- ✓ Communication of hazards, if any, potentially associated with any stabilizing agents to be used in performing this task
- ✓ Applicable engineering controls and safe-work practices
- ✓ Review of employee right-of-access to records under Federal law
- ✓ Recognition of underground utilities and procedures to follow (i.e. stopping work in the affected area) if such utilities are encountered

6.5 Personal Protective Clothing and Equipment

Initial operations at both the excavation sites and the screening/loading station will be conducted wearing Level C Personal Protective Clothing and Equipment (PPCE). Level C PPCE will consist of the following protective items:

- Protective coveralls made of Tyvek™ or other appropriate material
- Steel toed work shoes/boots with thick (one inch) soles
- Boot covers (either disposable polyethylene or non-disposable rubber)
- Rubber gloves
- Hard hats
- Safety glasses with side shields
- Hearing protection
- Half-face air purifying respirator with dust cartridges

If justified by dust monitoring results, the task health and safety officer has the authority to reduce the protection level to Modified Level D PPCE (also known as Level D+) for either excavation area workers, screening/loading station workers, or both. In this event, dust monitoring will continue and the higher level of protection will be reinstated if made necessary by soil types, weather conditions, or other factors.

Modified Level D PPCE will consist of the following protective items:

- Normal work clothes or coveralls
- Steel toed work shoes/boots with thick (one inch) soles
- Boot covers (either disposable polyethylene or non-disposable rubber)
- Rubber gloves
- Hard hats
- Safety glasses with side shields
- Hearing protection



7.0 SCHEDULE

Figure 7-1 Project Schedule

ID		Task Name	Duration
1		7000 HTW Remdiation Field Operations	40 days
2		RAU 2A-4 (Combat Pistol Range)	40 days
3		Soil Excavation/Transport	4 days
4		Soil Processing/Treatment	16 days
5		Disposal of Soil	5 days
6		RAU 2A-15 (Undocumented Pistol Range)	37 days
7		Soil Excavation/Transport	1 day
8		Soil Processing/Treatment	16 days
9		Disposal of Soil	5 days
10		RAU 2A-16 (1,000ft Rifle/Machine Gun Range)	37 days
11		Soil Excavation/Transport	2 days
12		Soil Processing/Treatment	16 days
13		Disposal of Soil	5 days
14		RAU 2A-17 (25m M60/Pistol Range)	37 days
15		Soil Excavation/Transport	3 days
16		Soil Processing/Treatment	16 days
17		Disposal of Soil	5 days
18		RAU 2A-18 (25m Machine Gun Range)	37 days
19		Soil Excavation/Transport	11 days
20		Soil Processing/Treatment	16 days
21		Disposal of Soil	5 days
22		RAU 2A-19 (25m Record Firing/Field Firing Range)	28 days
23		Soil Excavation/Transport	3 days
24		Soil Processing/Treatment	16 days
25		Disposal of Soil	5 days
26		RAU 2A-20 (Field Ranges Nos. 1 & 2)	25 days
27		Soil Excavation/Transport	2 days
28		Soil Processing/Treatment	13 days
29		Disposal of Soil	5 days
30		RAU 2A-21 (Rifle Ranges Nos. 1 & 2)	25 days
31		Soil Excavation/Transport	2 days
32		Soil Processing/Treatment	13 days
33		Disposal of Soil	5 days
34		RAU 2A-22 (Field Fire Ranges)	25 days
35		Soil Excavation/Transport	2 days
36		Soil Processing/Treatment	13 days
37		Disposal of Soil	5 days



8.0 COMPLIANCE MONITORING AND CLEANUP ACTION REPORTING

8.1 Draft Compliance Monitoring Plan

Within 30 days of the issuance of the final CAP for RAU-2A, a Draft Compliance Monitoring Plan (CMP) will be prepared and submitted to WDOE for review, as per the requirements of the PPCD. In this instance, the CMP will be confirmational in nature (WAC173-340-410). That is, the sampling work detailed in the CMP will be intended to confirm that the cleanup standards defined in this CAP have been met by the proposed cleanup methods, confirming the effectiveness of the cleanup action in protecting human health and the environment.

After WDOE's comments are received and considered, a Final CMP will be prepared.

8.2 Draft Cleanup Action Report

As per the requirements of the PPCD (WDOE, 2006), a Draft Cleanup Action Report (CAR) will be prepared and submitted to WDOE for review within 30 calendar days of completion of the excavation, screening, stabilization, disposal, and restoration activities outlined in the final CAP for RAU-2A.

This report will conform to the specifications and format requirements set forth in the MTCA regulations and in the PPCD. This report will include the following information:

- ✓ A narrative description of the work done including:
 - Summary of any remedial investigations conducted (if any are required for RAU-2A);
 - Summary of cleanup actions conducted;
 - Results of any cleanup actions conducted;
 - Results of any compliance monitoring conducted;
 - Description of each item of MEC encountered during the investigation and cleanup of RAU-2A, but not limited to the following information:
 - Identification of the MEC item;
 - Description of the fusing condition of the MEC item;
 - Description of the location and depth of the MEC item.
- ✓ Explanations of any deviations from this Cleanup Action Plan
- ✓ Photographs of the work in progress
- ✓ Maps of the final excavation areas and depths
- ✓ Confirmatory sampling locations and analytical results
- ✓ Waste disposal documentation

This report, in draft form, will be submitted to the WDOE in the timeframe specified in the PPCD. Review comments from WDOE will be addressed and a Final CAR will be prepared..



8.3 Draft Long-Term Operation and Monitoring Plan.

While the lead removal action detailed in this CAP will not result in the construction of any facility or monitoring wells requiring long-term operations and maintenance, a Draft Long-Term Operation and Monitoring Plan (OMP) will be prepared for RAU-2A, if required. To comply with the requirements of the PPCD, the Draft OMP will be submitted to WDOE for review within 60 calendar days of completion of the work required in the final CAP for RAU-2A.



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