WORK PLAN

BUILDING 2204
INDOOR FIRING RANGE
DEMOLITION

EIELSON AIR FORCE BASE, ALASKA

FINAL/Revision 0
JULY 1997

Jacobs Engineering Group Inc.

In affiliation with:
Anderson Alaska, Inc.
Philip Environmental, Inc.
Radian International, LLC
Shannon & Wilson, Inc.
Wilder Construction Company

Total Environmental Restoration Contract
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FINAL/Revision 0
JULY 1997

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Task Order No. 07
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<td>Description</td>
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<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>354th CES</td>
<td>354th Civil Engineering Squadron</td>
</tr>
<tr>
<td>354th SPS/CC</td>
<td>Eielson AFB Security Police Squadron</td>
</tr>
<tr>
<td>ACM</td>
<td>asbestos-containing material</td>
</tr>
<tr>
<td>AFB</td>
<td>Air Force Base</td>
</tr>
<tr>
<td>AOC</td>
<td>area of concern</td>
</tr>
<tr>
<td>BESCORP</td>
<td>Brice Environmental Services Corporation</td>
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<tr>
<td>CES HazMat</td>
<td>Eielson AFB CES Hazardous Waste Handling and Recycling Facility</td>
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<tr>
<td>CQC</td>
<td>Contractor Quality Control</td>
</tr>
<tr>
<td>CQCP</td>
<td>Contractor Quality Control Plan</td>
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<tr>
<td>C/V/R</td>
<td>Clarification/Verification Report</td>
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<tr>
<td>D&amp;D</td>
<td>decontamination and demolition</td>
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<td>DRMO</td>
<td>Defense Reutilization and Marketing Office</td>
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<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>EPP</td>
<td>Environmental Protection Plan</td>
</tr>
<tr>
<td>HDPE</td>
<td>high density polyethylene</td>
</tr>
<tr>
<td>HUD</td>
<td>U.S. Department of Housing and Urban Development</td>
</tr>
<tr>
<td>HVAC</td>
<td>Heating, ventilation, and air conditioning</td>
</tr>
<tr>
<td>ID/IQ</td>
<td>indefinite duration/indefinite quantity</td>
</tr>
<tr>
<td>Jacobs</td>
<td>Jacobs Engineering Group Inc.</td>
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<tr>
<td>mg/kg</td>
<td>milligrams per kilogram</td>
</tr>
<tr>
<td>mg/L</td>
<td>milligrams per liter</td>
</tr>
<tr>
<td>MPR</td>
<td>monthly progress report</td>
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<tr>
<td>MRL</td>
<td>method reporting limit</td>
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<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
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<tr>
<td>PCB</td>
<td>polychlorinated biphenyl</td>
</tr>
<tr>
<td>PPE</td>
<td>personal protective equipment</td>
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<tr>
<td>QAR</td>
<td>Quality Assurance Representative</td>
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<tr>
<td>RAR</td>
<td>remedial action report</td>
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<tr>
<td>RBC</td>
<td>risk based concentrations</td>
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<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
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<tr>
<td>SAP</td>
<td>Sampling and Analysis Plan</td>
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SSHO  Site Safety and Health Officer
SSHP  Site Safety and Health Plan
TCLP  toxicity characteristic leaching procedure
TERC  Total Environmental Restoration Contract
TSCA  Toxic Substances Control Act
USAED  U.S. Army Engineer District, Alaska
USAF  U.S. Air Force
WMP  Waste Management Plan
XRF  X-ray fluorescence
yds$^3$  cubic yard
μg/ft$^2$  micrograms per square foot
1.0 INTRODUCTION

The U.S. Army Engineer District, Alaska (USAED), contracted with Jacobs Engineering Group Inc. (Jacobs) to decontaminate and demolish a former indoor small-arms firing range on Eielson Air Force Base (AFB), Alaska. This work is performed under Task Order 07 of the Total Environmental Restoration Contract (TERC).

The decontamination and demolition (D&D) work involves cleaning surfaces exposed to lead dust and removing and disposing of range sands and appurtenances; protective armor and sound proofing that shield the inside surfaces of the firing range wall, floor, and ceiling coverings; selected ducts and utility services; and miscellaneous furniture and materials. The range is located in the basement of Building 2204 which is designated as Area of Concern (AOC) 32. Eielson AFB is located on the Richardson Highway near the town of North Pole and is about 20 miles southeast of Fairbanks (Figure 1-1).

The indoor range sands contain bullet fragments, lead particles, and lead-coated sand and dust at concentrations that exceed non-regulated reuse or disposal. Samples were first collected and tested by the 354th Civil Engineering Squadron (354th CES) at Eielson AFB. Subsequent samples were collected by Jacobs' subcontractor, Brice Environmental Services Corporation (BESCORP), in support of a bench-scale treatability test and an engineering evaluation of alternatives for beneficial reuse or disposal of the range sands. These studies were performed in Spring 1997 and were the precursors of this removal action. The findings and recommendations of the treatability study and engineering evaluation are the basis for the selected cleanup strategy and approaches to the D&D presented in this document.
1.1 PURPOSE

This work plan describes the remedial activities to be performed and the approaches that Jacobs (the Contractor) will use to complete the D&D of AOC 32. Specifically, this plan:

- establishes a basis for safe working conditions and measures to prevent the spread of potentially harmful pollutants;
- identifies discrete project activities that will be managed as separate features of work;
- details the activities and methods that will be used to implement the D&D and to restore the building’s basement to a condition suitable for human occupancy;
- specifies the methods to be used to contain and reuse or dispose of range sands, steel, and other demolition debris in an environmentally acceptable manner; and
- presents the work schedule and milestones for summary reports.

1.2 OBJECTIVES

The primary objective of this removal action is to safely and efficiently decontaminate the basement of Building 2204 so that the Air Force can reuse the space for storage, offices or other purposes. To meet this objective, the Contractor will perform the D&D of the firing range to achieve cleanup levels as outlined below:

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<th>Cleanup Level</th>
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<td>1. Decontaminate, remove, and dispose of the protective shielding, soundproofing, floor tiles, and other materials.</td>
<td>5 milligrams per liter (mg/L) toxicity characteristic leaching procedure (TCLP) lead</td>
</tr>
<tr>
<td>2. Decontaminate the newly exposed surfaces and ducts that are scheduled to remain in the building. (The cleanup value is the most conservative of the three that are recommended by the U.S. Department of Housing and Urban Development [HUD].)</td>
<td>100 micrograms per square foot (µg/ft²)</td>
</tr>
<tr>
<td>3. Remove and treat or dispose of all firing range sands.</td>
<td>400 milligram/kilogram (mg/kg) total lead</td>
</tr>
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Additionally, a remedial action report that summarizes the removal action will be prepared.
A secondary objective of the Contractor is to perform the work with a minimum of water or wetting agent so that the type, volume, and disposition of waste streams are minimized to the fullest extent possible.

1.3 WORK PLAN ORGANIZATION

Section 2.0 of this work plan summarizes the history of the site and pre-remedial activities, including the results of a bench-scale treatability study and engineering evaluation performed on the firing range sands. Sections 3.0 through 7.0 describe the approach and procedures to accomplish the objectives identified above.

Section 8.0 describes the construction quality control and laboratory quality assurance measures that will be in effect for this effort. Section 9.0 identifies both the special and routine reporting to be performed, and Section 10.0 presents the sequence and schedule of activities. USAED, Contractor, and Subcontractor personnel and functions for the project are identified in Section 11.0. Finally, Section 12.0 lists the references pertinent to this work plan.

The Site Safety and Health Plan (SSHP) and SSHP Addendum, which are bound separately from this work plan, describe the practices and procedures that the Contractor and others will adhere to during all phases of the D&D. Along with the SSHP, the following work plan appendices complete the work plan package:

- Appendix A - Technical specifications for the decontamination, demolition, and/or disposal of the firing range sands, structural and other materials, and the building;
- Appendix B - Waste Management Plan (WMP), which identifies the waste streams anticipated from the D&D activities and provides methods for profiling and disposal;
- Appendix C - Environmental Protection Plan (EPP), which presents the methods to be used by the Contractor to prevent the release or migration of contaminants into the environment;
- Appendix D - Sampling and Analysis Plan (SAP), which identifies the samples to be collected during the D&D, the methods used to protect the integrity of the samples, and the means to process, interpret, report, and store the resulting analytical data;
• Appendix E – Contractor Quality Control Plan (CQCP), which defines the inspection and measurement systems that will be used to ensure and report on subcontractor performance, adherence to specifications, and other quality standards for each definable work element; and

• Appendix F - Floor, ceiling, and wall asbestos survey results.
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2.0 PROJECT BACKGROUND

The USAED, on behalf of its U.S. Air Force (USAF) customer, has directed the Contractor to decontaminate and demolish a former small-arms firing range located in the basement of Building 2204 at Eielson AFB, Alaska. The building itself is a multi-story concrete dormitory that will remain functional throughout the project. Figure 2-1 identifies the location of this building relative to Eielson AFB and the location of the small-arms firing range within Building 2204.

A preliminary site survey was conducted by the USAF and the USAED, Jacobs, and Jacobs' subcontractor, BESCORP, in September 1996. The purpose of the survey was to:

1. Affirm the preliminary scope of work and review worker safety and environmental considerations with representatives of the 354th CES and USAED.
2. Confirm the location and dimensions of the range, identify routes for ingress and egress of equipment and personnel, assess means to remove firing range sands and accessory steel, locate external equipment and D&D debris staging areas, and confirm logistical requirements.
3. Establish the types and approximate disposal quantities of firing range sands, protective shielding and soundproofing materials and identify and assess potential on-base disposal options.

These goals were satisfied during the site visit and, together with detailed measurements obtained during a second site visit in April 1997, form the basis of this remediation work plan.

2.1 SITE DESCRIPTION

The indoor small-arms firing range is located in the south end of the basement. The range is rectangular in shape and is almost 96 feet long and 35 feet wide (Figure 2-2). Four support rooms abut the range at its north (entrance) end. Ceiling height is generally 8.7 feet, except in Room #4 which is 8.4 feet high. Access to the range is reached through Room #3. A 3.3-foot high by 6-foot wide maintenance access way is located at the east end of the building behind
the bullet strike plate. There is also a small emergency exit leading to a stairway on the north side of the firing range.

One-half of the range, nearest the rear firing line, is a tiled surface that slopes down toward the firing range sands. The east half of the range is divided into two areas, both covered by dry sand that trapped deflected bullet fragments. A concrete sump that runs the width of the room separates the sands into a bullet trap area and a range floor area. The bullet trap pit is below and in front of a steel strike plate that deflected most bullets fired through the targets down to the bullet trap sands. Wood boardwalks, made of 4-foot by 8-foot plywood on frames, extend the length of both side walls and across the middle of the range floor sands.

The bullet trap area extends across the 35-foot width of the range and is approximately 11 feet long. The steel strike plate rises at a 45-degree angle back towards the firing line, and it extends from the floor to the ceiling. The bullet trap sands are 12 to 27 inches thick with a mean of approximately 18 inches. The range floor sands are 8 to 17 inches thick with a mean of approximately 13.5 inches. Both the range floor and bullet trap sands lie on soil, not on a concrete foundation as originally expected.

Typically, the sands are very dry, loose, and slough easily. A large agglomeration of bullet fragments and casings are contained in the bullet trap sands. No live ammunition is believed present in the sands because bullet inventories were monitored when both entering and leaving the firing range. Nevertheless, the preparatory phase (see Contractor Quality Control Plan, Appendix E) prior to removal of the sands will address hazards that are posed by live ammunition. Bullets and spent casings are also present in the range floor sands, but at a reduced rate and in a gradient that diminishes toward the firing line. During the first site visit, a stale sewage odor and the presence of moisture were noted along the northeast edge of the bullet trap area. This odor was not detected in the second site visit but liquid was observed in the concrete sump near the bullet trap sands, which suggests condensation or wicking of water from the underlying soils.
Most walls and the range ceiling are covered with soundproofing acoustical tiles, most of which are bonded to plywood panels anchored in the concrete. Three concrete columns, pipe, and electrical utilities are covered by protective steel plates.

2.2 SITE HISTORY

The small-arms firing range is believed to have been constructed concurrently with the dormitory building. Bullet fragments indicate that 22-caliber and 45-caliber ammunition was frequently used. Signs posted near the entrance indicate that shotguns could also have been used in the range. However, lead shot was not observed in the sands. The range is inactive and has not been used for target practice since the mid to late 1980s. Access is restricted by the 354th Eielson AFB Security Police Squadron (354th SPS/CC), which currently keeps small arms and ammunition in the vault adjacent to the firing range (Figure 2-2).

Previous investigative work at the range includes a sand sampling and analysis event conducted by the 354th MDOS/SGOAB (Bioenvironmental Engineering) in August 1992. Those test data indicated that total lead in surface sands from the range floor area ranged from 290 to 4,000 mg/kg, and total lead in sands collected 6 inches below the surface ranged from 4 to 79 mg/kg. One sand sample was collected and analyzed from within the bullet trap area and found to contain 97,000 mg/kg total lead. Analyses for the leachability of this lead or other metals using the TCLP was not performed as part of this sampling event.

Observed lead particle sizes range from intact bullets to lead dust. Lead contamination in the bullet trap area is due principally to the accumulation of spent bullets that struck the backstop and fell as intact bullets, fragments, or dust particles. Being a soft metal, lead also smeared onto sand grains as the bullet or fragment was deflected into the bullet trap sands. In the range floor sands, lead contamination is due to (1) large particles that have ricocheted off the backstop or armored support columns and walls or (2) a combination of lead dust associated with small-arms firing and lead dust carried from the bullet trap area via foot traffic.
2.3 SAMPLING OF POTENTIAL CONTAMINANT PATHWAYS

On 20 March 1997 the Contractor sampled ground surface soils and building material surfaces external to the firing range to determine if lead or metal contamination had been carried out of the range by foot traffic or discharged by room ventilation exhaust. These data, which were in a technical memorandum entitled “Wipe and Soil Sampling Results, Indoor Firing Range (AOC 32), June 1997,” were gathered to determine if any remediation activities should be conducted outside of the range. Table 2-1 identifies the location, sample type, analyses performed, and analytical results obtained of the eleven samples taken. Lead was found to be the major potential contaminant of concern. Sixteen other metals were also quantified using Environmental Protection Agency (EPA) Method 6010. The total lead results from the wipe samples were determined using Method SW7421 and TCLP lead was determined using Method SW1311. The data indicate the following:

- The data are consistent. Similar results were obtained from similar sample locations and from the duplicate sample.
- Lead is present at low levels in all wipe samples collected from the floor and wall surfaces outside the range except for sample number 045SW that was collected from the floor outside the north entrance to the basement. It exceeds the prescribed HUD level of 100 μg/ft². This area will be decontaminated.
- No soils sampled below the range ventilation discharge ports exceed the 400 mg/kg cleanup criteria.
- Based on TCLP data, the lead present in the soil does not exceed the 5 mg/L cleanup criteria.
- None of the metals present in the soil exceeds EPA Region III Risk Based Concentrations (RBCs) or background concentrations, except for arsenic, which was estimated at 10 mg/kg in the duplicate sample but was not detected in the primary sample. However, arsenic is not a contaminant of concern at this site, nor is it a concern at the concentration detected. Further evaluation is not recommended.
### Table 2-1
Indoor Firing Range Sample Results

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Location Description</th>
<th>Analyte</th>
<th>Sample Type</th>
<th>Analytical Method</th>
<th>MRL</th>
<th>Result</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE97EIE-0480</td>
<td>Soil Beneath the Outside Northwest Vent Total Lead Grab Surface</td>
<td>Total Lead</td>
<td>Wet Wipe SW7421</td>
<td>1</td>
<td>14 µg/ft²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>041SW</td>
<td>Entryway Floor to the Arms Room</td>
<td>Total Lead</td>
<td>Wet Wipe SW7421</td>
<td>1</td>
<td>77 µg/ft²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>042SW</td>
<td>Entryway Floor to the Range Main Entrance</td>
<td>Total Lead</td>
<td>Wet Wipe SW7421</td>
<td>1</td>
<td>18 µg/ft²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>043SW</td>
<td>Entryway Floor to the Range Main Entrance</td>
<td>Total Lead</td>
<td>Wet Wipe SW7421</td>
<td>1</td>
<td>90 µg/ft²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>044SW</td>
<td>Wall Outside the Entrance to the Building</td>
<td>Total Lead</td>
<td>Wet Wipe SW7421</td>
<td>1</td>
<td>20 µg/ft²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>045SW</td>
<td>Floor Outside the Entrance to the Building</td>
<td>Total Lead</td>
<td>Wet Wipe SW7421</td>
<td>1</td>
<td>278 µg/ft²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>046SO</td>
<td>Soil From the Footpath Outside the Entrance to the Building Total Lead Grab Surface</td>
<td>Total Lead</td>
<td>Grab Surface SW7421</td>
<td>20</td>
<td>390 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>047SO</td>
<td>Soil Beneath the Outside Northwest Vent Total Lead TCLP Lead Grab Surface SW1311/6010</td>
<td>Total Lead</td>
<td>Grill Surface SW7421</td>
<td>20</td>
<td>90 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>048SO</td>
<td>Soil Beneath the Outside Southwest Vent Aluminum Grab Surface SW6010</td>
<td>Aluminum</td>
<td>Grab Surface SW6010</td>
<td>20</td>
<td>10000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>049SO</td>
<td>Soil Outside the Strike Plate Access Door Aluminum Grab Surface SW6010</td>
<td>Aluminum</td>
<td>Grab Surface SW6010</td>
<td>20</td>
<td>11700 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>050SO</td>
<td>Duplicate Sample of BE97EIE49SO</td>
<td>Aluminum</td>
<td>Grab Surface SW6010</td>
<td>20</td>
<td>11600 mg/kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Notes:
- J = Qualified
- MRL = Method Reporting Limit
- ND = Not Detected
- mg/kg = milligrams per kilogram
- µg/ft² = micrograms per square foot
- mg/L = milligrams per liter
2.4 TREATABILITY TEST FINDINGS AND RECOMMENDATIONS

A bench-scale treatability study was performed on the bullet trap and range floor sands to determine the metal content of each and the ability to use density separation or chemical leaching techniques to remove the lead and allow the reuse or conventional disposal of the treated sands. Performed in March and April 1997, the treatability study was followed with an engineering evaluation of alternatives for sand treatment and disposal. These documents are:

- Bench-Scale Treatability Study, Indoor Firing Range Sands, Eielson AFB, Alaska
- Engineering Evaluation, Indoor Firing Range Sands Treatment and Disposal, Eielson AFB, Alaska

Highlights of these reports and their findings form the basis of the remedial actions recommended in this work plan. Key elements and findings of each report follow.

2.4.1 Bench-Scale Treatability Study

The purpose in conducting the treatability study was two-fold. The first purpose was to establish the quantities of sand requiring treatment and the approximate total mass and fragment size distributions of lead or other metals present. The second was to determine if treated bullet trap and range floor sands could meet potential environmental cleanup levels (i.e., 400 mg/kg total lead and 5 mg/L TCLP lead) using gravity separation alone or in combination with a multi-stage leaching separation process.

Principal findings of the treatability study performed by BESCORP are summarized below. Each conclusion influences the activities proposed for this remedial action:

- The range is constructed over a soil floor, not concrete as originally believed. Although these soils were not sampled, BESCORP suggests that approximately 3 inches of soil should be excavated when removing the bullet trap and range floor sands. This soil should be treated and disposed of with the firing range sands.
- The quantity of all indoor range sand is approximately 76 cubic yards.
- Bullet trap sands which represent 20 percent of total mass account for approximately 83 percent of the lead contamination.
• Density separation using >200-mesh screens can effectively treat approximately 90 percent of all firing range sand to proposed cleanup levels (i.e., 400 mg/kg total lead, 5 mg/L TCLP lead).

• Density-separated range floor sands could be disposed of in a non-Resource Conservation and Recovery Act (RCRA) landfill while the screened bullet fragments and fines could be shipped to a smelter for lead recovery. Due to lead smeared on sand grains and a high percentage of small lead fragments and fines, the bullet trap sands cannot be treated to proposed cleanup levels using density separation alone.

• Leach treatment can not consistently achieve proposed cleanup levels for bullet trap sands, even at near-optimal pH, contact time, and leachant/soil loading ratios.

2.4.2 Engineering Evaluation of Treatment and Disposal Options

Using the conclusions reached in the treatability study, BESCORP identified and evaluated processes to recycle, treat and/or dispose of the firing range sands once they were removed from Building 2204. Among the alternatives identified, BESCORP evaluated:

• soil washing to remove metals laden fines, followed by landfilling of treated sands;

• chemical treatment (soil leaching), followed by disposal of treated sands in a Class D Landfill (e.g., Fairbanks-North Star Borough Landfill);

• transport and direct disposal of all sands in a Class C Landfill (i.e., an EPA-approved out-of-state landfill);

• chemical stabilization (using calcium cements or silicates) followed by disposal in a Class D Landfill; and

• smelting for metals recovery, followed by land disposal of inert materials.

The alternatives were evaluated by comparing their applicability, ease of implementation, effectiveness, long-term liability, and order-of-magnitude costs. Due to uncertainties regarding the potential for lead to have leached into the underlying bare soils, or for lead fines to have worked their way into the top several inches of these gravelly-silty soils, BESCORP assumed that one foot of soils (about 50 cubic yards) will be removed concurrently with the bullet trap and range floor sands. For estimating purposes, this results in a combined sand and soil volume of 120 cubic yards (or 170 tons) requiring handling, treatment and/or disposal.

The engineering evaluation report indicates that the most cost-effective way to remove and dispose of the range floor and bullet trap sands is to containerize the material in 1-cubic-yard
lined "supersacks" for transportation and treatment at a lead smelter. In this manner, the sands can be shipped as "non-hazardous" and the lead can be recovered for beneficial reuse. Additionally, all lead-bearing sand fines and dusts recovered during decontamination of the range appurtenances and the basement can also be added to the sands being placed in the supersacks and transported for metals recovery.

Costs for transportation and disposal of the untreated sands at a smelter have been shown to be less than shipping and disposal of the sands directly into a RCRA landfill if the sands are designated as hazardous waste. Ease of implementation and reliability also favor out-of-state transport and smelting over onsite or local soil washing, chemical stabilization, or other waste treatment or reduction alternatives that may still require subsequent processing. In addition, the other treatment alternatives will require reuse or disposal of solid and liquid waste streams.

Finally, the engineering evaluation report shows out-of-state smelting to be the preferred alternative so long as the quantity of the firing range sands is less than 1,000 tons (or 670 cubic yards). At this quantity the implementability and "finality" of smelting and lower costs of transportation are eclipsed by operating a physical separation/leach treatment process onsite and reusing or disposing of the treated sands in a local landfill. Based on more accurate field data described below, smelting of the lead-contaminated sands remains the preferred alternative because the actual quantities of sands have been found to be even less than assumed in the engineering evaluation report.

2.5 PRE-DEMOLITION INVENTORY OF INDOOR FIRING RANGE

On 24 April 1997, following completion of the treatability study and evaluation of engineering alternatives, BESCORP conducted a second site visit of the indoor firing range with the purpose of:

- reconfirming D&D details with the Eielson AFB Bioenvironmental Engineer;
- inventorying and measuring space utilization and materials for better quantity estimates; and
• affirming the applicability and feasibility of identified methods to efficiently remove the sand from the range.

The findings of this second visit are summarized in Table 2-2. Plywood panels (typically 1/2" and 1/4") were found secured to the ceilings and walls. The plywood served as backing material for some of the acoustical tiles. These are to be decontaminated and removed. Gypsum sheetrock must also be removed. A sample of the sheetrock was taken to Northern Testing Laboratories in Fairbanks, Alaska, to test for the presence of asbestos. The analytical results indicate no asbestos to be present in the sheetrock. These results can also be found in Appendix F.

The Air Force has surveyed the acoustical tiles and floor tiles for asbestos-containing materials (ACM). No ACM was found. The survey data is included as Appendix F.

Originally scheduled for removal, the fluorescent lighting fixtures are now to be decontaminated and stored in the basement of Building 2204 for reuse in the building. Because many of them are attached to the plywood ceiling panels scheduled for removal, the light fixtures must first be decontaminated and then detached from the plywood and staged. Fixtures attached to concrete ceilings will remain in place. Before removing any fixtures, an inspection of all lighting ballasts will be conducted to determine if any ballasts may potentially contain polychlorinated biphenyls (PCBs). All ballasts that are not clearly marked “No PCBs” will be removed and transferred to the Eielson AFB CES Hazardous Waste Handling and Recycling Facility (CES HazMat) for disposal. The access door behind the bullet trap area and the range ventilation ports will be resealed to match its pre-demolition condition after the D&D is complete.
## Table 2-2
Building 2204 Firing Range Dimensions and Inventory of D&D Materials

<table>
<thead>
<tr>
<th>Measurement or Description</th>
<th>Room 1 - Utility Room</th>
<th>Room 2 - Conference Room</th>
<th>Room 3 - Entrance to Range</th>
<th>Room 4 - Storage Room</th>
<th>Room 5 - Shooting Range</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (L x W x H, in Feet)</td>
<td>6.5x11.9x8.7</td>
<td>11x11.9x8.7</td>
<td>17.2x11.9x8.7</td>
<td>18.2x16.1x8.4</td>
<td>85x35x8.7</td>
<td></td>
</tr>
<tr>
<td>Floor Tiles, glued to floor</td>
<td>80 sf</td>
<td>134 sf</td>
<td>210 sf</td>
<td>372 sf</td>
<td>1,820 sf</td>
<td>2,616 sf</td>
</tr>
<tr>
<td>5/8&quot; Sheetrock on stud walls</td>
<td>137 sf</td>
<td>256 sf</td>
<td></td>
<td>106 sf (1/2&quot;)</td>
<td>1,000 sf (1/2&quot;)</td>
<td>1,466 sf</td>
</tr>
<tr>
<td>Plywood sound baffle</td>
<td></td>
<td></td>
<td></td>
<td>230 sf</td>
<td></td>
<td>230 sf</td>
</tr>
<tr>
<td>Plywood secured to ceiling</td>
<td>205 sf (1/2&quot;)</td>
<td></td>
<td></td>
<td>1,860 sf (1/2&quot;)</td>
<td>280 sf (1/4&quot;)</td>
<td>2,345 sf</td>
</tr>
<tr>
<td>Plywood entry to range area</td>
<td>64 sf (1/2&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64 sf</td>
</tr>
<tr>
<td>Plywood on boardwalks</td>
<td></td>
<td></td>
<td></td>
<td>512 sf (1/2&quot;)</td>
<td>512 sf</td>
<td></td>
</tr>
<tr>
<td>Lumber, dimensional, on walls</td>
<td>170 if 2x4</td>
<td>225 if 2x4</td>
<td>140 if 2x4</td>
<td>240 if 2x4</td>
<td>358 if</td>
<td>1,133 if</td>
</tr>
<tr>
<td>Lumber, dimensional, on ceiling</td>
<td></td>
<td></td>
<td></td>
<td>150 if 1x4</td>
<td>150 if</td>
<td></td>
</tr>
<tr>
<td>Lumber, dimensional, above pillar</td>
<td></td>
<td></td>
<td></td>
<td>140 if 2x12</td>
<td>140 if</td>
<td></td>
</tr>
<tr>
<td>Lumber, dimension, boardwalks</td>
<td></td>
<td></td>
<td></td>
<td>300 if 2x6</td>
<td>1,000 if 1x4</td>
<td>1,300 if</td>
</tr>
<tr>
<td>Lumber, dimension, in sumps</td>
<td></td>
<td></td>
<td></td>
<td>180 if 2x12</td>
<td>35 if 4x4</td>
<td>215 if</td>
</tr>
<tr>
<td>Concrete block vault, south side</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acoustical tile, outer wall</td>
<td>58 sf</td>
<td>99 sf</td>
<td>70 sf</td>
<td></td>
<td></td>
<td>610 sf</td>
</tr>
<tr>
<td>Acoustical tile, inner wall &amp; ceiling</td>
<td>482 sf</td>
<td>80 sf</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acoustical tile on ceiling</td>
<td>205 sf</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluorescent fixtures, plug-in type</td>
<td>Misc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chalk Board &amp; Cork Board</td>
<td>Misc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chairs, Wood Table, Wood Door</td>
<td>1 ea.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invest-Derived Sampling Wastes</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammable storage cabinet (empty)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseboard heater w/misc. piping</td>
<td>Misc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous debris</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poly drum, sawdust material</td>
<td></td>
<td></td>
<td></td>
<td>1 @ 20-gal.</td>
<td>1 ea.</td>
<td></td>
</tr>
<tr>
<td>Steel fume hood w/blower</td>
<td></td>
<td></td>
<td></td>
<td>Misc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porcelain bathroom sink</td>
<td></td>
<td></td>
<td></td>
<td>Misc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2&quot; Steel backstop plate</td>
<td></td>
<td></td>
<td></td>
<td>490 sf</td>
<td>490 sf</td>
<td></td>
</tr>
<tr>
<td>1/4&quot; Steel armor on utility piping</td>
<td></td>
<td></td>
<td></td>
<td>80 sf</td>
<td>80 sf</td>
<td></td>
</tr>
<tr>
<td>All-thread hangers for utilities</td>
<td></td>
<td></td>
<td></td>
<td>144 if</td>
<td>144 if</td>
<td></td>
</tr>
<tr>
<td>3/8&quot; Steel &quot;L&quot; channel for armor</td>
<td></td>
<td></td>
<td></td>
<td>115 if</td>
<td>115 if</td>
<td></td>
</tr>
<tr>
<td>3/8&quot; Steel armor, concrete pillars</td>
<td></td>
<td></td>
<td></td>
<td>105 sf</td>
<td>105 sf</td>
<td></td>
</tr>
<tr>
<td>3/8&quot; Steel armor, ceiling fixtures</td>
<td></td>
<td></td>
<td></td>
<td>367 sf</td>
<td>367 sf</td>
<td></td>
</tr>
<tr>
<td>3/8&quot; Steel wall, Rooms #4 &amp; #5</td>
<td></td>
<td></td>
<td></td>
<td>112 sf</td>
<td>112 sf</td>
<td></td>
</tr>
<tr>
<td>Sheet metal HVAC ducts &amp; lights</td>
<td></td>
<td></td>
<td></td>
<td>890 sf</td>
<td>890 sf</td>
<td></td>
</tr>
<tr>
<td>Range floor sands</td>
<td>-100 cy</td>
<td>20 cy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullet trap sands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior ventilation blowers</td>
<td></td>
<td></td>
<td></td>
<td>2 ea.</td>
<td>2 ea.</td>
<td></td>
</tr>
<tr>
<td>Target retrieval system - 2 electric motors, 1280 if, 1/4&quot; steel cable, 15&quot; 2&quot;-steel pipe, 20&quot; steel brackets</td>
<td></td>
<td></td>
<td></td>
<td>1 ea.</td>
<td>1 ea.</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- cy = cubic yards
- lf = lineal feet
- sf = square feet
During the April site visit, BESCORP and the Bioenvironmental Engineer observed standing liquid in the concrete sump adjacent to the bullet trap sands. It is possible that this and previous episodes of wetness may have caused migration of lead or lead-contaminated fines into the surface of the underlying soils. This observation supports the assumption used in the engineering analysis (Section 2.4.2) that some soils beneath the bullet trap sands will also be excavated and removed concurrently with the bullet trap sands.

Of perhaps greater significance to the project, however, was the observation of no stains in the firing range sands from leaks, spills, condensation or wicking of water. Thus, the likelihood of lead mobilizing and migrating from the firing range sands into the underlying soil appears remote. It is anticipated that as the sands are removed from the firing range, some amount of underlying soil will also be removed. This is expected to eliminate the possibility of leaving any potentially contaminated soils in place.
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3.0 PRE-DECONTAMINATION AND DEMOLITION ACTIVITIES

Jacobs will award subcontracts for D&D work to specialty small Alaska businesses. Before demolition, representative samples of building debris will be inspected and tested for their potential as a characteristic hazardous waste, as defined in the Sampling and Analysis Plan (Appendix D). Materials deemed to be non-hazardous or non-regulated (presently presumed to be all D&D debris) will be recycled or disposed of in bulk. Any that are hazardous, as defined by RCRA or the Toxic Substances Control Act (TSCA) will be segregated and disposed of as required by Air Force, federal, state, and local regulations (Waste Management Plan, Appendix B). No regulated wastes are expected to be generated so long as the work is completed using only small quantities of water or wetting agents.

3.1 GOVERNMENT ACTIVITIES

In addition to releasing permits or authorizations to mobilize and perform the remedial actions, the Government must complete two tasks before the Contractor can commence demolition of the firing range: (1) inform the occupants of Building 2204 of the pending demolition activities and short-term impacts to quality of life, and (2) clear the ammunition vault and remove any other Government property. Both of these activities are described below.

3.1.1 Notification and Posting

Ten or more days before the start of the remedial activities, the Government shall post at all entrances to Building 2204 an announcement of imminent actions. The announcement should include the normal work day hours, project schedule, and duration. A small sketch will identify those areas to be cordoned off by the Contractor for staging of equipment, handling or stockpiling materials, and vehicle ingress/egress and parking. The Contractor shall prepare the notification and site sketch and provide the Government ten copies of these materials at least two weeks prior to start of field work.
3.1.2 Firing Range Vault Clearance

Before the Contractor is allowed access to the indoor firing range, the 354th SPS/CC must remove all ammunition and any other effects stored in the munitions vault adjacent to the range. When vault clearance is completed, notice to proceed shall be forwarded from the 354th SPS/CC to the 354th MDOS/SGOAB (Bioenvironmental Engineering) who, in turn, will inform the USAED that D&D activities in the range may commence.

3.2 CONTRACTOR ACTIVITIES

3.2.1 Firing Range Material Characterization

Prior to mobilization to the site, the Contractor will characterize surface lead dust contamination, test surface decontamination techniques, and collect bulk samples from firing range materials to better ascertain their final disposition. Pre-demolition characterization of the range materials will facilitate and expedite the proper containerization, profiling, and disposal of all waste materials. Materials destined for disposal in the Fairbanks-North Star Borough Landfill can be pre-approved for disposal by the landfill manager if the materials are satisfactorily characterized.

Following decontamination, the Contractor will use a Spectrace X-ray fluorescence (XRF) analyzer to measure lead contamination on heating, ventilation, and air conditioning (HVAC) ducts, bullet strike plate, armor plates, and wall, ceiling and floor surfaces in the firing range and office areas. Table 3-1 identifies the firing range materials to be characterized. These results will be used to determine whether demolition activities will be conducted under lead abatement conditions. Occupational Safety and Health Administration (OSHA) standard require that demolition activities be conducted in abatement conditions if surface lead concentrations exceed 1.0 mg/cm².
### Table 3-1
Pre-demolition Lead Sampling and Decontamination Testing Program

<table>
<thead>
<tr>
<th>Item</th>
<th>Material</th>
<th>Location</th>
<th>Number of Samples</th>
<th>Number of XRF Screening Tests</th>
<th>Number of Pre-Composite TCLP Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concrete Ceilings</td>
<td>Rms 1, 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Floor Tiles</td>
<td>Rms 1, 2, 3, 4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Floor Tiles</td>
<td>Range</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Acoustical Ceiling Tiles</td>
<td>Rm 3</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Acoustical Ceiling Tiles</td>
<td>Range</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Acoustical Wall Tiles</td>
<td>Rms 1, 2, 3</td>
<td>2</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Acoustical Wall Tiles</td>
<td>Range</td>
<td>2</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Sheetrock on Walls</td>
<td>Rms 2, 3, 4</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Plywood on Walls</td>
<td>Rms 3, 4</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Plywood on Walls</td>
<td>Range</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Lumber on Walls</td>
<td>Rms 2, 3, 4</td>
<td>4</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Bullet Strike Plate</td>
<td>Range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Steel Armor on Columns</td>
<td>Range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>HVAC Duct Metal</td>
<td>Range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Boardwalk Plywood</td>
<td>Range</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Lumber in Floor Sump</td>
<td>Range</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>Plywood Sound Baffle</td>
<td>Range</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>Unknown Drum Containing Sawdust</td>
<td>Range</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Notes:  

a) Pre-composite TCLP samples shall be combined into composite samples for TCLP lead analysis as follows:

- Composite Sample No. 1 = Item 2
- Composite Sample No. 2 = Item 3
- Composite Sample No. 3 = Items 4 and 6
- Composite Sample No. 4 = Items 5 and 7
- Composite Sample No. 5 = Items 8, 9, and 11
- Composite Sample No. 6 = Items 10, 15, 16, and 17

b) Pre-decon = before decontamination  
Post-decon = after decontamination
Acoustical Tiles in the Range

The firing range walls and ceiling are covered with 6-inch-square interlocking tiles. There are approximately 1,900 square feet of tiles on the ceiling and 1,140 square feet of tiles on the walls. Because most of these tiles have been painted and no air was drawn through the tiles, it is unlikely that any lead penetrated the tile surfaces. The Contractor will select random representative samples of wall and ceiling tiles. Surface lead will be measured using the XRF field analyzer.

If lead is not detected, the Contractor will select the number of random, representative samples indicated in Table 3-1 and send them to the analytical laboratory for bulk composite TCLP lead analysis. If the TCLP lead result is equal to or less than 5.0 mg/L, all the tiles in the range can be pre-approved for disposal in the Fairbanks-North Star Borough Landfill.

If lead is detected, the Contractor will decontaminate the tiles using a dry or wet vacuum or a wet wipe technique. The cleaned tiles will be analyzed for residual lead using the XRF analyzer. Samples of the decontaminated tiles will be collected as indicated in Table 3-1 and sent to the analytical laboratory for bulk composite TCLP lead analysis. If the TCLP result is equal to or less than 5.0 mg/L, all tiles in the range can be pre-approved for disposal in the Fairbanks-North Star Borough Landfill. If the TCLP lead result is greater than 5.0 mg/L, the tiles will have to be cleaned more effectively or they may need to be containerized and disposed of as a regulated waste.

Acoustical Tiles in Offices and Storerooms

Approximately 1,000 square feet of tiles must be removed from walls and ceilings in the four rooms adjoining the range. While room alignment or doors generally prevented fugitive dusts from entering these rooms, the Contractor will test several areas of acoustical tile in the four rooms using XRF to determine the baseline lead contamination present. The procedure
described above for acoustical tiles in the firing range will be followed for tiles in the offices and storeroom.

Sample collection will follow the guidance in Table 3-1. The tile samples from the offices and storerooms will be composited separately from the firing range tile samples for TCLP lead analysis.

**Plywood Backing and Sheetrock**

Almost 1,500 square feet of plywood is mounted on the walls and ceilings. The acoustical tile and electrical lighting fixtures are then attached to the plywood sheeting. The remaining walls are surfaced with sheetrock. Throughout all rooms, the plywood and sheetrock will be stripped from the wall studs and ceilings. Anticipating that these surfaces will not require cleaning, bulk samples will be collected according to Table 3-1 and composited with samples of lumber on the walls.

**Wood Boardwalks**

Approximately 512 square feet of 4-foot by 8-foot plywood and support frame must be removed and disposed of. The Contractor will determine the effectiveness of dry or wet vacuum on the following three areas measuring at least 2 feet by 2 feet: (1) one test area in the boardwalk that crosses the range, and (2) two test areas on side boardwalks about one-third of the distance from the bullet strike plate toward the firing line. After decontamination, the Contractor will conduct surface lead contamination tests using the XRF analyzer. After the wood surface is cleaned, samples will be collected according to Table 3-1. The samples will be composited and sent to the laboratory for analysis of TCLP lead. As above, these data will indicate the effectiveness of decontamination and whether the wood can be disposed of locally or if it must be containerized and disposed of as a regulated waste.
Floor Tiles

Following decontamination, the contractor will measure surface lead contamination at various locations on the floors of the firing range as described in Table 3-1. Locations near doorways are of primary interest because these locations lie within human pathways where highest concentrations of lead are likely to be found.

Metallic Surfaces

Exposed metallic surfaces that may be covered with lead-contaminated dust include the bullet strike plate, protective armor on columns, HVAC ducts, target retrieval cable, brackets, and hangars. Using an XRF analyzer, the Contractor will measure lead contamination on the various surfaces according to Table 3-1.

3.2.2 Subcontractor Procurement

To sustain jobs in Alaska’s smaller communities, specialty subcontractors will perform all field demolition, hauling, and waste management services. Procured using competitive bid, negotiated fixed-fee, or fixed unit rate schedules, opportunities exist in the following specialties:

- **Sand removal and firing range D&D**: Remove, bulk and manifest sands and decontaminate and disassemble the range’s metal armor on columns, steel backstop, floor and acoustical tiles, plywood and dimensional lumber, sheetrock, and lighting fixtures.

- **Analytical chemistry**: Samples requiring chemical analyses will be sent to a pre-qualified TERC laboratory working under a competitively bid, USAED-approved multi-year indefinite duration/indefinite quantity (ID/IQ) agreement with fixed unit rates.

- **Transportation**: One subcontract will be awarded to transport an estimated 70 to 120 cubic yards of recyclable, non-regulated sands and soils from Eielson AFB to an out-of-state lead smelter. A second agreement will be written to transport regulated wastes if lead dusts or similar regulated waste streams are generated which require out-of-state treatment or disposal. Finally, a local licensed hauler will be procured to transport the non-hazardous wastes to a local solid waste landfill for disposal.

- **Material Recycle and Waste Treatment or Disposal**: Where practical, steel will be hauled to the Eielson Defense Reutilization and Marketing Office (DRMO) for reuse or salvage. RCRA- or TSCA-regulated wastes will be transported to Eielson AFB CES.
HazMat for disposal through DRMO. Nonregulated wastes will be disposed of at the Fairbanks-North Star Borough Landfill.

- One subcontract will be let to refine the lead-contaminated sand and underlying soils. Treated sands will be disposed of as inert smelter slag. Because no lead smelter exists in Alaska, the sand and soil mixture will be trucked to the continental U.S. for metals recovery.

3.2.3 Authorizations

In coordination with Eielson AFB, the Contractor and the D&D subcontractor will obtain the following permits or authorizations:

- Temporary passes (for less than 30 days) for company vehicles and individuals who will work onsite.
- Authorization to cordon off and mark with barricade tape an equipment staging and laydown area, vehicle parking spaces, vehicle access routes, a work exclusion zone, and a D&D materials/debris storage and a temporary hazardous waste staging area. Area location(s) and sizes will be established by the Air Force, the USAED, and the Contractor during the pre-construction site visit. All areas will be posted as appropriate.
- Authorization to set up a field office trailer near Building 2204 with electrical service (110 volt, 20-amp, hard wire or temporary conduit). Because of the short duration of the project, the Contractor and/or subcontractors will use cellular phones in lieu of hard-wire service.
- Authorization for the Contractor and its subcontractors to access other portions of Building 2204 for sources of potable water and use of sanitary facilities.
- Authorization for plasma arc cutting of the steel strike plate in the basement of Building 2204.
- Authorization to dispose of non-regulated, non-hazardous D&D debris, paper refuse and other solid wastes at the Fairbanks-North Star Borough Landfill.

3.2.4 Mobilization

After the D&D subcontract(s) are awarded, Jacobs and its subcontractor(s) will mobilize personnel and equipment to the site. These activities include the following:

- The D&D subcontractor will mark temporary parking area(s), vehicle ingress/egress routes to the end of the building to remove and load out sand, a project field office, a temporary hazardous waste storage area, and an outside work zone for equipment lay-down and temporary storage of D&D materials and debris.
• The D&D subcontractor and a representative(s) from Eielson AFB will identify and mark utilities that run to or through the indoor firing range area. All utilities which are to remain in service during construction will be tagged. All utilities to be removed or that do not need to be functional during construction will be “locked out” and tagged.

3.2.5 Safety and Health

Safety and health is an essential part of every worker and line management function and responsibility. It is the responsibility of each person to see that everyone on the project complies with all requirements of the Standard SSHP and the SSHP Addendum for this project. During the D&D activities, it is especially important for subcontractors to conduct or participate in daily safety tailgate meetings and to ensure that all workers are provided necessary personal protective equipment (PPE) and training for its proper use.
4.0 FIRING RANGE DECONTAMINATION AND DEMOLITION

Because of potential impacts to human health caused by the inhalation of lead dust and environmental degradation associated with spreading of lead-contaminated sand fines, the Contractor will take steps to control and contain dusts during all remedial actions. These measures include:

- Prohibiting the entry of any personnel into the firing range until all sand and debris are removed, or during the filling of "supersacks," unless wearing at least half-face respirators with particulate cartridges and appropriate clothing (refer to SSHP Addendum);
- Sequencing the work activities to prevent the resuspension of dusts; and
- Using a water mist to raise the sand moisture content, thereby controlling fugitive dust emissions.

The activities performed during the decontamination and demolition of the Building 2204 indoor firing range are described in the following subsections. The general order of work is to:

1. Decontaminate, demolish, and remove the bullet strike plate, HVAC ducts, and the plywood boardwalks.
2. Remove the range sands, containerize sands into supersacks and place the filled supersacks on truck trailers for transport.
3. Decontaminate, demolish, and remove the target retrieval system and other range appurtenances, steel protective armor, acoustical tiles and plywood backing, dimensional lumber, HVAC fans, office furnishings, gypsum sheetrock, and electrical heating and light fixtures.
4. Decontaminate all bare structural walls, ceilings and floors.
5. Collect and analyze confirmatory wipe tests to ensure D&D objectives have been met.

Early removal of the sands will lessen sand "drag-out" on work boots and demolition debris and avoid potential resuspension of sand dust when decontaminating range appurtenances, demolishing structural materials, or decontaminating interior surfaces of the building.
4.1 OUTSIDE WORK ZONE LINER

A contractor's work zone at the south end of the building will be marked and lined where range sands, demolition debris, and potentially hazardous materials will be containerized, stored, and loaded onto trucks. No part of the work zone that is used for storage will be located on turf. To prevent contamination of the ground surface, the D&D subcontractor will lay a 50-foot square liner of heavy canvas or similar material. An impermeable synthetic liner is not needed because there are no hazardous liquids to be handled and any spilled sands will not readily mobilize metals even during rainfall events. Liner edges will be secured with stakes, sand bags, or equivalent. The liner will be capable of withstanding multi-axle tractors and trailers driving across and being loaded with supersacks, steel or other recyclables, and D&D debris. Following any unexpected spill of sands, and again during demobilization, the liner will be swept or vacuumed and any sands will be placed into a supersack destined for smelting. The liner itself is not expected to require disposal as a regulated waste.

In one corner of the work zone liner, the D&D subcontractor will construct a Temporary Hazardous Material Storage Area. Measuring 10 feet square, it will be lined using 20-mil high density polyethylene (HDPE). Bright flagging tape will mark this area to prevent the improper storage of materials or vehicle access. A double layer of sandbags will be placed around all sides, creating a berm 8 to 10 inches high. The HDPE liner will be placed over and then tucked beneath the sand bags to create a secondary containment cell with a capacity of approximately 500 gallons. It is expected that no hazardous wastes will be generated that will require temporary storage in this area. In the worst case, however, no more than four 55-gallon drums containing mostly non-liquid regulated hazardous wastes (e.g., air filters, personal protective equipment respirator cartridges, furniture upholstery) will ever be stored in this area.

4.2 BULLET STRIKE PLATE REMOVAL

To safely and efficiently remove the strike plate, the D&D subcontractor will cut the plate into sections that can be lifted and/or pulled from the range through the maintenance access
(whose opening is approximately 3.3 feet high and 6 feet wide). The following tasks will be performed to execute this action:

1. Both front and rear surfaces will be decontaminated using a wet wipe or wet vacuum. No washing agent will be added to the water.

2. The D&D subcontractor will lower the strike plate to a horizontal position with block and tackle or equivalent equipment. This is done so as to not endanger the worker(s) while cutting plate sections.

3. Before any cutting by use of a torch, the Contractor will obtain a hot-work permit from Fire Chief Devon.

4. Using a plasma arc torch, the plate will be cut into panels approximately 5 feet wide. The contractor may cut the panels into smaller pieces to facilitate its removal from the building and subsequent handling. Wherever practical, the cutting of this or any steel using a hot torch should be minimized because of the potential to create lead fumes. Visible lead smear areas shall not be cut with a torch if these areas can be avoided.

5. Once dragged through the access way, the bullet strike plate sections will be stored in the outside work zone or loaded directly onto a flat-bed truck for transport and delivery to the DRMO at Eielson AFB.

4.3 WOOD BOARDWALKS

Approximately 80 lineal feet of boardwalk lines the outer walls supplemented by a 30-foot connecting walkway in the center of the firing range. The boardwalk was constructed using 4-foot by 8-foot sheet plywood secured to a wood frame. Unless pre-demolition test data prove otherwise, it is assumed that lead dusts and fines can be wet-wiped or wet-vacuumed from the wood, allowing it to be disposed of as non-hazardous material. If bulk test data indicate otherwise, the plywood could be subject to RCRA regulations and containerized, transported to, and disposed of in a Class C Landfill. The D&D subcontractor will perform the following tasks:

1. Using a carpenter’s wrecking bar or similar tool, remove the plywood walkway from its underlying frame.

2. Tip the plywood on its side and wet wipe or vacuum both surfaces.

3. Cut the plywood and wood frame into smaller sections. If pre-demolition data deem the materials to be non-hazardous, carry the materials to the outside work zone and discard in the solid waste bins or trucks. If hazardous, place the wood on pallets or containerize it in a tote and stage it in the Temporary Hazardous Waste Storage Area.
4.4  RANGE FLOOR AND BULLET TRAP SANDS

Refer to Sections 5.0 and 6.0 for information on the removal and disposition of the indoor firing range sands.

4.5  PROTECTIVE ARMOR

Three structural columns in the center of the firing range are protected with steel plates bolted into the columns. Corner welds help secure the plates together. Protective metal trays shield pipelines and possibly electrical conduits that traverse the walls and ceilings. The D&D subcontractor will decontaminate and remove this armor by performing the following tasks:

1. Damp wipe or wet vacuum all exposed outside surfaces of the column armor and utility trays. Once removed from the columns or walls, damp wipe or vacuum all exposed inner surfaces. Uncovered surfaces and utility runs will be cleaned as described in later subsections.

2. Cut the 3/8-inch and/or 1/4-inch steel armor plates protecting the concrete columns and utilities using shears, if possible, or a torch. Trim the anchor bolts as close to the column or walls as practical without damaging the concrete. Wet wipe or vacuum and then remove any steel “L” channels and the all-thread hangers used with the armor protecting the utilities.

3. Brushing off any sand particles adhering to the previously cleaned surfaces, remove the metal from the range and stack it on the lined outside work zone area designated for non-hazardous, recyclable material.

4.6  TARGET RETRIEVAL SYSTEM

Using a wet wipe and/or wet vacuum, the D&D subcontractor will remove sand and dusts from the target retrieval motors, almost 1,300 feet of steel cable, and the steel frame before disassembling all of the components and carrying them to the outdoor staging area. Before disconnecting the motors, the electrical circuit will be de-energized by removing the lead between the buss bar and the circuit breaker. The circuit will be tagged out.
4.7 ACOUSTICAL TILE AND PLYWOOD BACKING

The manner in which acoustical tiles will be removed and the point(s) of disposal are contingent upon bulk TCLP lead data obtained during the pre-demolition site visit (Section 3.2.1). Three options to remove and dispose of the tiles are described below.

1. Tiles will be removed directly from the walls and ceilings and containerized for transport and disposal in a RCRA landfill if bulk TCLP lead analytical results indicate the tiles contain lead at concentrations exceeding the cleanup level of 5 mg/L following decontamination.

2. Tiles will be decontaminated before removing them from the plywood backing or concrete surfaces if the test data indicate that lead in surface films can effectively be removed using a wet wipe or dry or wet vacuum. Decontaminated tiles may then be disposed of in a state-approved landfill.

3. Tiles will be removed from the walls without initial decontamination and disposed of in a state-approved landfill if bulk TCLP lead analytical results indicate that the tiles do not contain lead exceeding the cleanup level of 5 mg/L.

The following task sequence assumes that lead in surface films can be removed by wet wipe or wet vacuum, allowing the tiles to be disposed of as non-hazardous D&D waste (i.e., Option 2 above).

1. In the range room only, decontaminate all exposed surfaces of the acoustical tiles on the walls and ceilings using a wet wipe or dry or wet vacuum.

2. Physically strip the tiles from the plywood backing or cast-in-place concrete ceiling and walls. Acoustic tiles and mastics will be placed on pallets or in open-topped containers or plastic trash bags until hauled to the outside work zone. If determined to be non-hazardous, they will be placed in a dumpster or tote, or directly into a dump truck. If hazardous, the tiles will be placed in 1-cubic-yard double-lined supersacks which, when full, will be labeled and taken to the Temporary Hazardous Material Storage Area. (This area will be enlarged to accommodate the large number of supersacks required for acoustical tiles.)

3. Tiles removed from the walls and ceilings of offices and storage rooms will not be wet-wiped or vacuumed unless pre-demolition data indicate that such decontamination is warranted. Once removed from the walls and ceilings, these non-hazardous tiles will be hauled to the outside work zone and containerized as solid waste.

4. Remove the plywood backing sheets from the walls and ceilings, and any dimensional lumber acting as fir strips. It is not expected that plywood backing the acoustical tiles will have to be decontaminated before it is removed from the walls or ceiling. This wood will
be carried outside and placed in trucks to be hauled and disposed of in the Fairbanks-North Star Borough Landfill.

As an alternate to the sequence described above, the D&D subcontractor may find it possible to remove the tile and plywood backing (Tasks 2 through 4) in a single operation to reduce the labor effort while also reducing the source(s) of fugitive particulates.

4.8 OFFICE FURNISHINGS AND DIMENSIONAL LUMBER

Using a wet wipe or dry or wet vacuum, all office furniture, tables, cork and chalk boards, steel fume hood, electrical baseboard heaters, porcelain fixtures, and other items to be removed will be decontaminated to eliminate sand fines and dusts. Unsalvageable items will be cut, broken, or crushed into smaller pieces to reduce their bulk and then carried outside and discarded as solid wastes. All dimensional lumber designated to be removed will be cleaned by wet wipe or vacuum and then removed and disposed of as solid waste. Salvageable items will be carried outside and staged for transport to DRMO.

4.9 HVAC DUCTS

Almost 900 square feet of sheet metal in heating and ventilation ducts are secured to the ceiling in the range area. In some instances, the sheet metal on the sides facing the targets has been penetrated by bullet fragments. Lead dusts and sand fines are assumed to coat the outer surfaces; to a lesser extent, lead dusts may be present on the inner surfaces together with small lead fragments. So that this source of lead is contained, the D&D subcontractor will decontaminate the ducts before removing the sands. Preference will be to use shears to cut the ducts to avoid volatilizing lead if a torch were used. Wearing a respirator and eye protection, the following actions will be taken:

1. Wet wipe or vacuum all exposed outer surfaces of the HVAC metal and the ventilation blowers.
2. Disassemble or cut the ducts into manageable lengths and then cut the HVAC hangers and drop the duct sections onto the range floor. To expose all inner surfaces, disassemble or cut the ductwork as needed.
3. Wet wipe or vacuum all inner surfaces of the HVAC ducts.
4. Wet wipe or vacuum outer surfaces again to dislodge any sand or dust adhering to the previously cleaned surfaces.

5. Remove the HVAC metal from the range and stack it on the liner in the outside work zone in the area designated as non-hazardous, recyclable material.

6. Remove and discard any HVAC hangers still secured to the ceiling or walls.

7. As established during the pre-demolition site visit, the D&D subcontractor will place protective flanges or caps over the ends of the exposed HVAC ducts which enter and exit the indoor firing range. No HVAC ductwork is to be replaced.

4.10 FLOOR TILES

Floor tiles will be decontaminated by wet vacuum, then scraped off the concrete surfaces and carried outside and placed in solid waste totes or trucks. The tile will be hauled to the Fairbanks-North Star Borough Landfill and disposed of with other non-regulated D&D debris and solid wastes.

4.11 LIGHTING FIXTURES

Where practical, light fixtures are to be decontaminated and salvaged for Base reuse. Accordingly, care will be taken when handling, decontaminating, and staging the fixtures. Before working on any light fixtures, circuit(s) will be deactivated by removing leads between the buss bar and the breaker(s). The D&D subcontractor shall assure that the lines are de-energized and the circuit(s) tagged.

Hanging lights will be unplugged or disconnected and then dry vacuumed or wet wiped to remove any dusts and sand fines. To remove the light fixtures secured to plywood backing sheets, the Contractor will remove the cover panel and the anchor screws before disconnecting wiring. The unit will be dry vacuumed or wet wiped before reassembling the light fixture. Bare wire ends left in the electrical boxes will be taped and/or capped with an electrical nut. All fixtures will be staged in an area designated by the Air Force Project Manager.
4.12 TEMPORARY LIGHTING

The D&D subcontractor will provide temporary lighting for conducting all indoor firing range D&D activities. The electrical power source will be a portable generator, furnished by the D&D subcontractor, or a source(s) from elsewhere in Building 2204 if authorized by the Air Force.

4.13 BARE WALLS, CEILINGS, AND FLOORS

Once all steel armor, HVAC ducts, sheetrock, plywood, floor tiles, range stands and other materials have been stripped and removed from the range, the D&D subcontractor will dry and/or wet vacuum all exposed wall, ceiling and floor surfaces to remove sand fines and dusts. Where exposed, wall studs and base plates will also be vacuumed. Contractor’s flagging or tape will be used to mark the decontaminated surfaces.

Anticipating that one or more rooms will be totally decontaminated before all D&D work is completed in the range, entrances will be covered with a polyethylene film to prevent further migration of dusts into the cleaned areas.

4.14 POST-D&D QUALITY ASSURANCE SAMPLING

As part of the Contractor Quality Control program, the contractor will collect samples from locations shown in Figure 4-1 or materials that are listed in the SAP and Table 4-1. The samples will be sent to the analytical laboratory for appropriate analyses. The analytical data will determine if the surface and/or bulk lead concentrations of the materials planned for disposal and residual surface lead concentrations on the firing range walls, ceilings, and floors meet the project cleanup objectives (Section 1.2) after the D&D subcontractor has completed all D&D tasks.
## Table 4-1
Post-demolition Sample Location Identification

<table>
<thead>
<tr>
<th>Waste Description</th>
<th>Test/Matrix</th>
<th>Frequency</th>
<th>Analysis</th>
<th>No. of Samples</th>
<th>No. QA Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor of door-way Rm 1</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way Rm 2</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way between Rm 3 and Rm 5</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way between Rm 4 and Rm 5</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way vault</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way to main entrance</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Floor of doorway near sump</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 1</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 2</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 3</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 4</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>North wall of Rm 5</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>North wall of vault</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>East wall near access</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Entrance wall opposite door way to Rm 3 (West wall)</td>
<td>Total lead/wipes</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>North and south walls In firing range</td>
<td>Total lead/wipes</td>
<td>1 Wipe per wall</td>
<td>SW6010</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Concrete Columns</td>
<td>Total lead/wipes</td>
<td>1 Wipe per column</td>
<td>SW6010</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Concrete ceiling in the range</td>
<td>Total lead/wipes</td>
<td>1 in each half of range</td>
<td>SW6010</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Interior Soils</td>
<td>Total lead</td>
<td>5 composite</td>
<td>SW6010</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Liner</td>
<td>TCLP lead</td>
<td>1 per liner</td>
<td>SW1311/ SW6010</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Rags</td>
<td>TCLP lead</td>
<td>1 composite</td>
<td>SW1311/ SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Steel armor on columns</td>
<td>Total lead/wipes</td>
<td>1 per Column</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>HVAC duct metal</td>
<td>Total lead/wipes</td>
<td>1 per Duct</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous office materials</td>
<td>TCLP lead</td>
<td>1 composite</td>
<td>SW1311/ SW6010</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: ¹ The wall in Room 4 will only be sampled if the wall remaining after demolition is concrete.
5.0 FIRING RANGE SAND REMOVAL

5.1 PRECONDITIONING

Presently very dry, the bullet trap and range floor sands may be wetted slightly during interior D&D activities. This wetting will help suppress dusts during the handling of the sands, but will not be of such quantities as to cause sand fines or lead dusts to migrate into underlying soils. Debris that could impact the sand removal process will be picked by hand from the sands.

5.2 REMOVAL

Sands and bullet casings and lead fragments will be removed from the range using a "supersucker" vacuum truck. One or more laborers will attend to the suction hose while another laborer will control the vacuum pump and sand discharge operation. The suction hose will extend to the external work zone through the access door behind the strike plate. At the completion of the sand removal operation, the suction hoses and supersucker truck will be decontaminated.

5.3 CONTAINERIZING

Sand will be discharged into one-cubic-yard double-lined nylon "supersacks". When full, the bags will be tied off and labeled. Each bag will be designated with a source identification and sequential number (e.g., EAFB2204-001 to EAFB2204-NNN) to facilitate inventory and disposition manifests. The number of bags to be filled is estimated to range between 110 and 140, depending on the quantities of underlying soils that must be removed.

Throughout the D&D activities in the firing range or adjoining rooms, sweepings, rinse water used in the wet vacuum process, fines collected in dry or wet vacuums, and other incidental wastes will be placed in one or more of the supersacks already containing range sands. The volume of water added to any single supersack will be controlled to limit the moisture content to 50 percent.
5.4 STAGING OR LOADING

Filled supersacks will be moved by a forklift and placed on a truck trailer or taken to a staging area on the lined work zone. All loading will take place on the lined work zone to capture any spills. Once loaded, each row of supersacks will be secured by straps and the entire load covered with a tarp before the trailer can leave the work zone.

5.5 MANIFESTING

Because the sands are a recyclable feed material destined for a lead smelter, a bill of lading can be used that is much simpler to execute and track than a hazardous waste shipping manifest. A straight bill of lading (WMP, Appendix B) will be prepared that identifies the number of supersacks on each truck load together with a description of the sand, the hazard class (if any), packing group, approximate weight, and label/placard requirements (none foreseen). The Contractor will provide copies of the bills of lading and the EPA identification number of the smelting facility to the Air Force Project Manager and the USAED.
6.0 FIRING RANGE SAND AND DEBRIS TRANSPORTATION AND DISPOSAL

6.1 TRANSPORTATION OF NON-REGULATED WASTES

6.1.1 Transportation and Disposal of Firing Range Sands

Bagged sands will be transported by a long-haul carrier licensed to haul freight through Canada and the United States. Approximately five to seven truck loads will be driven from Alaska to the smelter contracted to treat the sand.

Firing range sands containing lead and bullet fragments will be reclaimed in a lead smelter as a non-regulated recyclable feed material. The smelter will be procured through competitive bid. Because there are no lead smelter facilities in Alaska, the firing range sands must be taken to the “Lower 48” for treatment.

6.1.2 Transportation and Disposal of Salvaged Materials

Heavy gauge steel used in the bullet strike plate, protective steel armor, “L” iron and cable used in the target retrieval system, lighting fixtures, furniture, and other materials yet to be designated by the Base Bioenvironmental Engineer have reuse or salvage value. Once decontaminated, these materials will be dragged or carried outside the range and staged on the lined work zone until loaded onto a truck. This truck will be provided by the D&D subcontractor or a local hauler and the materials will be hauled to the DRMO.

6.1.3 Transportation and Disposal of Non-regulated Debris

Decontaminated D&D debris (e.g., crushed furniture, sheetrock, plywood, dimensional lumber, floor tiles, acoustical tiles, and sheet metal) and paper trash generated by onsite workers will be placed in a solid waste tote box or truck. A licensed hauler will be contracted to transport these wastes to the Fairbanks-North Star Borough Landfill where the wastes will be weighed and disposed of.
6.2 TRANSPORTATION AND DISPOSAL OF REGULATED WASTES

All regulated wastes, such as PCB-containing light ballasts, will be transferred to Eielson AFB CES HazMat and handled and disposed of according to the WMP (Appendix B).
7.0 DEMOBILIZATION

Upon completion of the range decontamination and demolition project, Jacobs will arrange for the utilities to be disconnected from the job-site trailer. The D&D subcontractor will remove all temporary barricades, tarps or liners in the outside work zone, and any equipment and materials.

When the demolition is complete, the grounds are restored to an acceptable condition, and all revegetation requirements are completed, Jacobs will inspect the site with the Air Force and USAED representatives to determine that the tasks for the building are complete and satisfactory. The D&D subcontractor will conduct any final work that is required as a result of the final inspection.
8.0 QUALITY CONTROL AND QUALITY ASSURANCE

Contractor quality control (CQC) is the responsibility of Jacobs Engineering. To ensure that all subcontractors are performing their work in accordance with contract specifications and standards of practice, Jacobs will perform the following:

1. Implement the CQCP as prescribed in Appendix E.

2. Provide continuous onsite CQC with an experienced construction supervisor trained and certified in the USAED's construction quality control program.

3. Prepare daily and weekly CQC reports that summarize work completed, work that did not meet specification, corrective actions planned or taken, field quantities (e.g., labor, materials) expended, and schedule and cost status of field activities.

4. Record and track the status of truck loads of materials sent to the Fairbanks-North Star Borough Landfill, DRMO, an out-of-state smelter, or a regulated waste disposal facility. Obtain copies of all bills of lading, manifests, or sample chains of custody, and coordinate with the project chemist and laboratory the transfer of samples requiring analysis.

5. Communicate daily with the Task Order Leader and/or Project Manager, informing them of project status, work scheduled and completed, resources committed and expended, problems resolved and foreseen, and planned work and resource requirements.
9.0 REPORTING

Jacobs will prepare both routine and summary reports for the USAED and Air Force under this task order. Each report is described below.

9.1 WEEKLY CQC REPORT

During all field activities, the CQC/Site Superintendent will prepare a daily report on the progress and accomplishments of the project (Section 8.0 and Appendix E). This report will be submitted to and reviewed by the USAED's Quality Assurance Representative (QAR). Once accepted and signed by both individuals, it will be forwarded to Jacobs' task leader and project manager who will use it to monitor project status and to become informed about pending field decisions.

The project manager will compile the daily reports into a CQC summary highlighting:

- all work scheduled and completed;
- problems resolved or looming together with corrective actions taken or planned;
- quick overview of committed and accrued costs and remaining funds by budget item;
- schedule status; and
- work planned for future periods.

Submitted to the USAED QAR on a weekly basis during and following the D&D field activities, approximately four weekly CQC reports will be prepared under this task order.

If appropriate, a task order clarification/verification report (C/VR) that requests USAED consent in advance to adjustments in work scope or changes in site conditions or unit quantities, estimated completion costs, or performance schedule will be prepared and submitted.
9.2 REMEDIAL ACTION REPORT

After completing the D&D activities, Jacobs will provide the USAED with a remedial action report (RAR) that highlights all work completed under the task order. The report will summarize the treatability study and engineering evaluation of remedial alternatives, describe the approach and procedures used to decontaminate and demolish the range and its appurtenances, and present analytical data that attests to the successful removal and disposition of recyclable materials, solid wastes, and any regulated materials. The RAR will include a photographic record of events (with negatives), copies of daily and weekly reports, manifests and bills of lading associated with transporting and disposing of all wastes and recycled materials, and chains of custody and field and analytical laboratory data.

The RAR will be prepared in draft copy and submitted for USAED, Air Force, and regulatory agency review and comment. Once comments are received and compiled and responses are developed and reviewed with the USAED and Air Force, the RAR will be revised and distributed.

9.3 MONTHLY PROGRESS REPORT

Jacobs will provide the USAED a monthly progress report (MPR) that summarizes task order performance, including a detailed accounting of technical work accomplished, quality control, job-site safety, earned-value analysis that compares actual work completed vs. work budgeted and scheduled, and an analysis of variance by work breakdown structure or budget line items. The MPR also reviews the status of government-owned property and contract issues such as C/VRs, small business utilization, and invoices.
10.0 PROJECT SCHEDULE

Once notification has been received that the indoor ammunition vault has been cleared and the D&D subcontractor has access to the range, it is estimated that all D&D activities and demolition will be completed in a maximum of 122 days. Table 10-1 identifies the major milestones and presents a time line for the proposed decontamination and demolition of the Building 2204 indoor firing range.

Table 10-1
Schedule of D&D Activities for Building 2204 Indoor Firing Range

<table>
<thead>
<tr>
<th>Task</th>
<th>Start</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization</td>
<td>30 Jun 97</td>
<td>10 Jul 97</td>
</tr>
<tr>
<td>Building Remediation</td>
<td>11 Jul 97</td>
<td>08 Aug 97</td>
</tr>
<tr>
<td>Sand Remediation</td>
<td>11 Jul 97</td>
<td>15 Aug 97</td>
</tr>
<tr>
<td>Waste Transportation &amp; Disposal</td>
<td>11 Jul 97</td>
<td>02 Dec 97</td>
</tr>
<tr>
<td>Demobilization</td>
<td>11 Aug 97</td>
<td>30 Oct 97</td>
</tr>
</tbody>
</table>
11.0 PROJECT ORGANIZATION

Jacobs and specialty subcontractors will perform the decontamination and demolition of the indoor range at Building 2204 on Eielson AFB. The Project Organization Chart is shown in Figure 11-1. Jacobs will prepare all project work plans; procure and manage subcontractors who will perform the treatability tests and D&D activities, transport and dispose of range sands and D&D debris, and conduct analytical tests; perform the post-remediation confirmatory sampling of the decontaminated structure; and prepare summary reports of project activities and monthly performance and cost and schedule status. The primary subcontractor (the D&D subcontractor) will be responsible for treatability testing, removal and recycling of the firing range sands, and decontamination and demolition of the firing range.

11.1 PROJECT ORGANIZATION - ROLES AND RESPONSIBILITIES

Program Manager: Chris Williams. As program manager, Mr. Williams helps to ensure that technical resources and administrative services are applied efficiently and in a timely manner. He also works with the task order staff to ensure consistency across all TERC projects as to technical approach, application of Team and subcontractor resources, customer service and quality, budget management, adherence to schedules, and early notification and resolution of variance.

QC Supervisor: Erich Evered, P.E. The QC supervisor ensures that project records are accurate and complete, work is performed in accordance with contract terms and work plan specifications, and that performance meets or exceeds the customer’s expectations and withstands peer review.
Figure 11-1  Project Organization
TO No. 07, D&D of the Indoor Firing Range, Eielson AOC 32, Alaska

Resident Engineer
USAED-Alaska
M. Redmond, PE

Program Manager
C. Williams

Task Order Team Leader
USAED-Alaska
D. Williams, PE.

Team Specialists
USAED-Alaska
P. Roth, EM
B. Walters - Chemist
TBD - QAR

Alaska District Project Manager
C. Dillon, PE

Q.C. Supervisor
E. Evered, PE
(Acting)

S&H Manager
J.R. Dearholt

Contracts Administration
C. Nestor
G. Connolly

Project Controls
M. Ferri
N. Keswani, CM

Task Order Leader
K. Kearney

Remediation Work Plans
and Reports
K. Kearney
- Treatability Study
- Sand Remediation
- Bldg. Remediation

Treatability Study
BESCORP
- Lead Sand
- Lead Wash Water

Remediation
BESCORP
- Sand Remediation
- Building Remediation

CQC/Site Supervisor:
D. Burgess
Site Safety:
D. Burgess
Site Administrative Assistant:
TBD

Waste Transportation & Disposal
BESCORP
- Lead Sand
- Lead Recycling
- Lead Debris

Sampling and Analysis
G. Beckman
- Field Screening
- Confirmation Sampling and Analysis
- Waste Characterization

Alaska TERC Mission Statement
Together, jointly manage projects to exceed our customers' expectations for safe, timely, and cost effective remediation.
Project Manager: *Chris Dillon, P.E.* The project manager is responsible for and serves as a single point of contact with USAED's Task Order Team Leader for all work performed under the TERC. Principal duties of the project manager include ensuring that communications between task order staff, subcontractors, and the USAED are clear and frequent, and that the work performed solves the customer's problem. The project manager approves all labor and expenses incurred under the project, and provides the USAED with job cost and performance reports.

Task Order Leader: *Kim Kearney.* The task order leader is the principal technical point of contact between Jacobs and the project team. Together with the site superintendent, the task order leader directs and approves all work performed, including that of subcontractors, and helps ensure that the work is performed in accordance with pre-approved plans and applicable laws and regulations.

CQC/Site Superintendent/Site Safety & Health Officer: *Dave Burgess.* Because the specialty subcontractor is performing essentially all of the decontamination and demolition work, and in consideration of the restricted work space and short schedule, Mr. Burgess is assigned the joint responsibilities of supervising the field activities and inspecting the quality of work performed by the subcontractor and any specialty subcontractors. In the CQC capacity, Mr. Burgess will ensure that all activities meet work plan and contract requirements. In the event work does not meet specification or standard of care, the CQC can direct that the work be done again or recommend that payment be denied for the work performed. A daily CQC report will be transmitted to the task order leader and compiled into a weekly CQC summary report that is then forwarded to the USAED by the project manager.

As Site Superintendent, Mr. Burgess is responsible for the timely execution of the work and for providing daily and weekly summaries of work completed, work scheduled, and problems encountered and resolved. He will coordinate sampling and sample handling and transfers with Jacobs' project chemist, Ms. Gloria Beckman.
As Site Safety & Health Officer (SSHO), Mr. Burgess will ensure that all respirator and personal protection is donned by all personnel when entering the range or bagging the sands until it is determined through wipe tests that the materials have been decontaminated and respirator and/or eye protection is no longer required. As SSHO, Mr. Burgess will also ensure that safe work practices are used by the subcontractors when securing and dropping the bullet strike plate, when using cutting torches or mechanical equipment, when removing or demolishing friable materials, when lifting and carrying heavy or large objects, and when working around trucks and forklifts. As SSHO, Mr. Burgess has the authority to stop work when unsafe work practices persist.

Contracts Administration: Connie Nestor and Gerry Connolly. Contracts administrators are responsible for all task order acquisition activities and managing contract matters. This includes subcontractor procurement and oversight; tracking and dispositioning purchases, rental agreements, and property; and processing subcontractor and vendor invoices. Their job responsibilities also include periodic internal audit to ensure continued compliance with federal, state and local laws and regulations related to contract management and acquisition.

Safety and Health Supervisor, Alaska: Rick Dearholt. Mr. Dearholt’s responsibilities include development, implementation, and oversight of all safety and health related aspects of the Task Order. Mr. Dearholt will assist the SSHO/Site Superintendent during initial start up and at each new phase of work according to the SSHP and SSHP Addendum and be available at all times for emergencies and onsite consultation.

Project Controls: Melissa Ferri and Nick Keswani. Project Controls helps the project manager maintain schedule and control costs by providing regularly scheduled updates to incurred and projected costs and performance schedule. Together with the contract administrators, project controls tracks and reconciles committed costs, actual incurred costs, and accounts payable to ensure the status of subcontractor and vendor costs. These costs are linked with labor and other direct costs incurred by Jacobs to satisfy schedule and management information services reporting requirements.
D&D Subcontractor Representative: The D&D Subcontractor Representative’s responsibilities include directing all work crews, ensuring equipment in good condition is mobilized and staged when required, coordinating with the Site Superintendent when specialty subcontractors (e.g., electrical, hauling, waste disposal) are to arrive on the job site, and for completing all tasks in accordance with contract and work plan terms. Principal job activities include conducting treatability tests and the engineering evaluation of remedial actions, sand removal and disposition, and the decontamination and demolition of the indoor range, all appurtenances, and the disposal of the D&D recyclable materials and debris.
12.0 REFERENCES


APPENDIX A

Technical Specifications
TABLE OF CONTENTS

SECTION 01500  TEMPORARY CONSTRUCTION FACILITIES
SECTION 02935  TURF
SECTION 02050  DEMOLITION
TEMPORARY CONSTRUCTION FACILITIES

1.1 GENERAL REQUIREMENTS

1.1.1 Site Plan

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be used by the Contractor, including avenues of ingress/egress to the area. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

1.1.2 Identification of Employees

Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly indicating the company for whom the employee works.

1.1.3 Employee Parking

Contractor employee parking shall not interfere with existing and established parking requirements of the military installation. The selection of designated parking areas shall be consistent with the requirements of the base.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES

1.2.1 Utility Services

The Government will make all reasonably required utilities available to the Contractor from existing outlets and supplies. The Contractor shall carefully conserve any utilities furnished without charge.

The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall provide and maintain necessary temporary connections and distribution lines. The Contractor shall notify the Contracting Officer, in writing, 5 working days before final electrical connection is desired so that a utilities contract can be established.
1.2.2 Sanitation

The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.

1.2.3 Telephone

The Contractor shall make arrangements and pay all costs for telephone facilities desired.

1.3 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary-relocated roads as necessary to maintain traffic flow. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of the existing roads with respect to the vehicles that will be used on the roads, to their potential interference with airfield approach zones, and to the road's allowable load limit.

1.3.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper execution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be
adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the Contracting Officer shall be removed.

1.3.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas, or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed and clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.4 CONTRACTOR'S TEMPORARY FACILITIES

1.4.1 Supplemental Storage Area

Upon Contractor’s request, the Contracting Officer will designate a supplemental area for the Contractor’s use and storage of trailers, equipment, and materials. This area may not be in close proximity to the construction site but shall be within the military boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area.

1.4.2 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers that, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the military property.
1.4.3 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse with construction equipment or other vehicles on grassed or unpaved areas that are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor’s discretion.

1.4.4 Security Provisions

The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the Eielson Air Force Base Security Police Squadron (354th SPS/CC), requesting periodic security checks of the temporary project field office.

1.5 CLEANUP

Construction debris, waste materials, packaging material, and the like shall be removed from the work site daily. Any dirt or mud that is tracked onto paved or surfaced roadways shall be cleaned away. Salvageable materials resulting from demolition activities shall be stored within the fenced area described above or at the supplemental storage area. Material not stored in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.6 RESTORATION OF STORAGE AREA

Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.
SECTION 02935
TURF

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AGRICULTURAL MARKETING SERVICE (AMS)


AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D 2607 (1969) Peats, Mosses, Humus, and Related Products

COMMERCIAL ITEM DESCRIPTION (CID)

- CID A-A-1909 (Basic: Notice 1) Fertilizer

1.2 SUBMITTALS

The following shall be submitted:

1.2.1 Equipment List

A list of proposed pesticide application, seeding, and mulching equipment to be used in performance of turfing operation, including descriptive data and calibration tests.

1.2.2 Maintenance Report

Written record of all maintenance work performed.
1.2.3 Turf Establishment Period

Written calendar time for the turf establishment period. When there is more than one turf establishment period, the boundaries of the turfed area covered for each period shall be described.

1.2.4 Certificates

Certificates of compliance certifying that materials meet the requirements specified prior to the delivery of materials. Certified copies of the reports for the following materials shall be included:

Seed: For mixture, percent pure live seed, minimum percent germination and hard seed, maximum percent weed seed content, date tested, and state certification.

Fertilizer: For chemical analysis, composition percent.

Agriculture Limestone: For calcium carbonate equivalent and sieve analysis.

Peat: For compliance with ASTM D 2607.

Top Soil: For pH, particle size, chemical analysis, and mechanical analysis.

1.3 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.3.1 Delivery

1.3.1.1 Topsoil

A soil test shall be provided for topsoil delivered to the site.
1.3.1.2 Soil Amendments

Soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's chemical analysis. In lieu of containers, soil amendments may be furnished in bulk. A chemical analysis shall be provided for bulk deliveries.

1.4 INSPECTION, STORAGE, AND HANDLING

1.4.1 Inspection

Seed, sod, and/or sprigs shall be inspected upon arrival at the job site by the Contracting Officer for conformity to type and quality in accordance with Section 2.1, MATERIALS.

Other materials shall be inspected for meeting specified requirements, and unacceptable materials shall be removed from the job site.

1.4.2 Storage

Materials shall be stored in areas designated by the Contracting Officer.

Sod or sprigs shall be lightly sprinkled with water; covered with moist burlap, straw, or other covering; and protected from exposure to wind and direct sunlight until planted. Covering for sod shall allow air to circulate and prevent internal heat from building up.

Seed, lime, and fertilizer shall be stored in cool, dry locations away from contaminants. Chemical treatment materials shall not be stored with other landscape materials.

1.4.3 Handling

1.4.3.1 Materials

Care shall be taken to avoid injury to sod. Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.
PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Seed

2.1.1.1 Seed Classification

State-certified seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS-01 and applicable state seed laws.

2.1.1.2 Seed Mixtures

Seed mixtures shall be proportioned by weight as follows:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Mixture Percent by Weight</th>
<th>Percent Pure Live Seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctared Red Fescue</td>
<td>60</td>
<td>73</td>
</tr>
<tr>
<td>Norcost Bearing Hair Grass</td>
<td>40</td>
<td>73</td>
</tr>
</tbody>
</table>

The seed mix will have an application rate of 3 lb. per 1,000 square feet.

2.1.1.3 Quality

Weed seed shall not exceed 1 percent by weight of the total mixture. Wet, moldy, or otherwise damaged seed shall be rejected.

2.1.1.4 Seed Mixing

The field mixing of the seed shall be performed onsite in the presence of the Contracting Officer.
2.1.2 Soil Amendments

Soil amendments shall consist of lime, fertilizer, organic amendments, and soil conditioners meeting the following requirements.

2.1.2.1 Lime

Lime shall be agricultural limestone, have a minimum calcium carbonate equivalent of 90 percent, and be ground to such a fineness that at least 90 percent will pass a 10-mesh sieve and at least 50 percent will pass a 60-mesh sieve.

2.1.2.2 Fertilizer

Fertilizer shall be commercial grade, free flowing, uniform in composition, and conforming to CID A-A-1909. Granular fertilizer shall consist of nitrogen-phosphorus-potassium ratio: 20 percent nitrogen, 20 percent phosphorus, and 10 percent potassium, and have an application rate of 500 lb/acre.

2.1.2.3 Straw

Straw shall be stalks from oats, wheat, rye, barley, or rice furnished in air-dry condition and with a consistency for placing with commercial mulch-blowing equipment.

2.1.2.4 Hay

Hay shall be native hay, sudan-grass hay, broomsedge hay, or other herbaceous mowings furnished in an air-dry condition suitable for placing with commercial mulch-blowing equipment.

2.1.2.5 Wood Cellulose Fiber

Wood cellulose fiber shall not contain any growth or germination-inhibiting factors and shall be dyed an appropriate color to facilitate visual metering during application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH range from 4.5 to 6.0.
2.1.2.6 **Wood Chips**

Wood chips shall be chips or shredded bark with maximum particle size of 5 mm (3/16 inch).

2.1.2.7 **Paper Fiber Mulch**

Paper fiber mulch shall be recycled news print that is shredded for the purpose of mulching seed.

2.1.3 **Water**

Water shall not contain elements toxic to plant life.

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**PART 3 EXECUTION**

3.1 **SEEDING TIMES AND CONDITIONS**

3.1.1 **Seeding Time**

Seed shall be sown from 15 May to 15 August.

3.1.2 **Turfing Conditions**

Turf operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the turf operations, proposed times shall be submitted to and approved by the Contracting Officer.

3.2 **SITE PREPARATION**

3.2.1 **Grading**

The Contracting Officer shall verify that finished grades are as specified, and the placing of topsoil and smooth grading have been completed in accordance with Section 02050 Demolition.
3.2.2 Application of Soil Amendments

3.2.2.1 Soil Test

A soil test shall be performed for pH, chemical analysis, and mechanical analysis to establish the quantities and type of soil amendments required to meet local growing conditions for the type and variety of turf specified.

3.2.2.2 Lime

Lime shall be applied at the rate recommended by the soil test. Lime shall be incorporated into the soil to a minimum depth of 100 mm (4 inches) or may be incorporated as part of the tillage operation.

3.2.2.3 Fertilizer

Fertilizer shall be applied at the rate recommended by the soil test. Fertilizer shall be incorporated into the soil to a minimum depth of 100 mm (4 inches) and may be incorporated as part of the tillage or hydroseeding operation.

3.2.2.4 Soil Conditioner

Soil conditioner shall be spread uniformly over the soil to a minimum depth of 25.4 millimeters (1 inch) and thoroughly incorporated by tillage into the soil to a minimum depth of 100 mm (4 inches).

3.2.3 Tillage

Soil on slopes gentler than 3-horizontal-to-1-vertical shall be tilled to a minimum depth of 100 mm (4 inches). On slopes between 3-horizontal-to-1-vertical and 1-horizontal-to-1-vertical, the soil shall be tilled to a minimum depth of 50 mm (2 inches) by scarifying with heavy rakes or other method. Rototillers shall be used where soil conditions and length of slope permit. On slopes 1-horizontal-to-1-vertical and steeper, no tillage is required.
3.2.4 Finished Grading

3.2.4.1 Preparation

Turf areas shall be filled as needed or have surplus soil removed to attain the finished grade. Drainage patterns shall be maintained as specified. Turf areas compacted by construction operations shall be completely pulverized by tillage. Soil used for repair of erosion or grade deficiencies shall conform to topsoil requirements. Finished grade shall be 25 mm (1 inch) below the adjoining grade of any surfaced area. New surfaces shall be blended to existing areas.

3.2.4.2 Field Area Debris

Field areas shall have debris and stones larger than 75 mm (3 inches) in any dimension removed from the surface.

3.2.4.3 Protection

Finished graded areas shall be protected from damage by vehicular or pedestrian traffic and erosion (see Section 3.5).

3.3 SEEDING

3.3.1 General

Prior to seeding, any previously prepared seedbed areas compacted or damaged by interim rain, traffic, or other cause shall be reworked to restore the ground condition previously specified. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.

3.3.2 Equipment Calibration

The equipment to be used and the methods of turfing shall be subject to the inspection and approval of the Contracting Officer prior to commencement of seeding operations.
Immediately prior to the commencement of turfing operations, the Contractor shall conduct turfing equipment calibration tests in the presence of the Contracting Officer.

3.3.3 Applying Seed

3.3.3.1 Broadcast Seeding

Seed shall be uniformly broadcast at the rate recommended by the soil testing using broadcast seeders. Half of seed shall be broadcast in one direction, and the remainder at right angles to the first direction. Seed shall be covered to an average depth of 5 mm (1/4 inch) by disk harrow, steel mat drag, cultipacker, or other approved device.

3.3.3.2 Drill Seeding

Seed shall be uniformly drilled to an average depth of 15 mm (1/2 inch) and at the rate recommended by the soil test using equipment having drills not more than 160 mm (6-1/2 inches) apart. Row markers shall be used with the drill seeder.

3.3.3.3 Rolling

Immediately after seeding, except for slopes 3-horizontal-to-1-vertical and greater, the entire area shall be firmed with a roller not exceeding 130 kg (90 pounds) for each 0.3 meter (foot) of roller width. Areas seeded with seed drills equipped with rollers shall not be rolled.

3.3.4 Hydroseeding

Seed and fertilizer shall be added to water and thoroughly mixed at the rates specified. Slurry shall be uniformly applied under pressure over entire area. The hydroseeded area shall not be rolled.
3.3.5 Water

Watering shall be started within 7 days after completing the seeded area. Water shall be applied at a rate sufficient to ensure moist soil conditions to a minimum depth of 25 mm (1 inch). Run-off and puddling shall be prevented.

3.4 RESTORATION AND CLEANUP

3.4.1 Restoration

Existing turf areas, pavements, and facilities that have been damaged from the turfing operation shall be restored to original condition at Contractor's expense.

3.4.2 Clean Up

Excess and waste material shall be removed from the planting operation and shall be disposed of offsite. Adjacent paved areas shall be cleaned.

3.5 PROTECTION OF TURFED AREAS

Immediately after turfing, the area shall be protected against traffic or other use by erecting barricades and providing signage as required or as directed by the Contracting Officer.

3.6 TURF ESTABLISHMENT PERIOD

3.6.1 Commencement

The period for establishing a healthy stand of turf shall begin on the first day of work under this contract and shall end three (3) months after the last day of turfing operations required by this contract. Written calendar time shall be furnished to the Contracting Officer for the turf establishment period. When there is more than one turf establishment period, describe the boundaries of the turfed area covered for each period.
3.6.2 Satisfactory Stand of Turf

3.6.2.1 Seeded Area

Field Area: A satisfactory stand of turf from the seeding operation for a field area is defined as a minimum of 10 grass plants per square foot. The total bare spots shall not exceed more than 2 percent of the total seeded area.

3.6.3 Maintenance During Turf Establishment Period

3.6.3.1 General

Maintenance of the turfed areas shall include eradicating weeds, eradicating insects and diseases, protecting embankments and ditches from erosion, maintaining erosion control materials and mulch, protecting turfed areas from traffic, mowing, watering, and post-fertilization.

3.6.3.2 Mowing

Field areas shall be mowed once during the season to a minimum height of 3 inches.

3.6.3.3 Watering

Watering shall be at intervals to obtain a moist soil condition to a minimum depth of 1 inch. Frequency of watering and quantity of water shall be adjusted in accordance with the growth of the turf. Run-off, puddling, and wilting shall be prevented.

3.6.3.4 Post-Fertilization

Nitrogen carrier fertilizer shall be applied at the rate of 0.5 pounds per 1,000 square feet after the first month and again in 3 months. The application shall be timed prior to the advent of winter dormancy and shall avoid excessively high nitrogen levels.
3.6.3.5 Repair

The Contractor shall re-establish eroded, damaged or barren areas. Mulch shall also be repaired or replaced as required.

3.6.3.6 Maintenance Report

A written record shall be furnished to the Contracting Officer of the maintenance work performed.

3.7 FINAL ACCEPTANCE

3.7.1 Preliminary Inspection

Prior to the completion of the turf establishment period, a preliminary inspection shall be held by the Contracting Officer. Time for the inspection shall be established in writing. The acceptability of the turf in accordance with the turf establishment period shall be determined. An unacceptable stand of turf shall be repaired as soon as turfing conditions permit.

3.7.2 Final Inspection

A final inspection shall be held by the Contracting Officer to determine that deficiencies noted in the preliminary inspection have been corrected. Time for the inspection shall be established in writing.
SECTI0N 02050
DEMO LI0N

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

- 29 CFR 1926 Safety and Health Regulations for Construction
- 40 CFR 61 National Emission Standards for Hazardous Air Pollutants
- 40 CFR 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibited

ENGINEERING MANUALS (EM)

- EM 385-1-1 (1992) U.S. Army Corps of Engineers
  Safety and Health Requirements Manual

NATIONAL FIRE PROTECTION ASSOCIATION

- NFPA 241 Building Construction and Demolition Operations

1.2 GENERAL REQUIREMENTS

The work includes demolition, salvage of materials, removal of resulting rubbish and debris, and earthwork and revegetation. Rubbish and debris shall be removed from Government property daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Contracting Officer. In the interest of occupational safety and health, the work shall be performed in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections. In the interest of conservation, salvage shall be pursued to the maximum extent possible.
1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FLO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES:

1.3.1 Work Plan

The work plan shall document the procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged, protection of property that is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with EM 385-1-1.

1.4 DUST CONTROL

The amount of dust resulting from demolition shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding, and pollution.

1.5 PROTECTION

1.5.1 Protection of Personnel

During the demolition work, the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral
support or shoring, and are determined to be in stable condition, may be allowed to remain standing without additional bracing, shoring, or lateral support until demolished. Jacobs shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5.2 Protection of Existing Property

Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government; any damaged items shall be repaired or replaced as approved by the Contracting Officer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5.3 Protection from the Weather

Salvageable materials shall be protected from the weather at all times.

1.5.4 Protection of Trees

Trees within the project site and the immediate surrounding area that might be damaged during demolition and that are indicated to be left in place shall be protected by a 1.83 m (6 foot) high fence. The fence shall be securely erected a minimum of 1.5 m (5 feet) from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree damaged during the work under this contract shall be replaced in kind or as approved by the Contracting Officer.
1.5.5 Environmental Protection

The work shall comply with the requirements of Appendix C, Environmental Protection Plan.

1.6 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.7 USE OF EXPLOSIVES

Use of explosives will not be permitted.

1.8 AVAILABILITY OF WORK AREAS

The Contractor’s staging area(s) shall be in the general vicinity of the buildings to be demolished. The Contractor shall propose staging and storage areas in the Work Plan for review and approval by the Contracting Officer. The Contractor shall be responsible for safety in, and security of, his or her storage area(s), staging area(s), and work areas.
PART 2 PRODUCTS

(Not Applicable)
PART 3 EXECUTION

3.1 EXISTING STRUCTURES

Existing structures shall not be demolished.

3.2 LEAD-CONTAINING MATERIALS

3.2.1 Health-Hazard Lead-Containing Materials

The indoor firing range sands contain bullet fragments, lead particles, and lead-coated sand. Additionally, interim building surfaces have been exposed to lead dusts and may contain lead concentrations above allowable limits. The Contractor shall comply with applicable health and safety criteria outlined in 29 CFR 1926. Lead shall remain an integral component of the total waste stream. Lead shall not be collected or concentrated as a separate waste stream, but shall be handled as part of the total waste stream of the indoor firing range. The Contractor shall plan and conduct building demolition operations to avoid the generation of Resource, Conservation, and Recovery Act (RCRA) waste.

3.2.2 Worker Safety Planning

The Contractor's Work Plan (WP) and Site Safety and Health Plan (SSHP) shall address the Contractor's actions with respect to lead-containing material, surfaces exposed to lead dust, and PCBs, as applicable to each plan. The following concerns, as a minimum, shall be addressed:

a. Training as required by Federal, State, and local regulations (SSHP);
b. Unique problems associated with the demolition project with respect to lead-containing materials (WP);
c. Personnel protective equipment, respirator protection program controls (SSHP);
d. Worker exposure assessment procedures (SSHP);
e. Medical surveillance, including medical removal protection and blood lead assessment (SSHP);
f. Air monitoring program (WP, SSHP);
g. The disposal of lead-containing materials (Certificates);
h. Worker and Contractor qualifications (SSHP; WP); and
i. The requirements of 29 CFR 1926, Sections 1926.62 and 1926.354 (SSHP; WP).

3.3 UTILITIES

Disconnection of utility services, with related meters and equipment, shall be coordinated through the Contracting Officer. Existing utilities shall be removed as indicated. When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area. Utility outages and disconnects shall be coordinated with the Air Force 354th Civil Engineering Squadron through the Contracting Officer at least 10 working days in advance.

3.4 EARTHWORK

3.4.1 Work Request

Before any excavation the Contractor shall obtain and fully process an Air Force (AF) Form 103, Base Civil Engineer Work Clearance Request. The form requires extensive coordination with several Base agencies, including furnishing all locations, and detailed information and sketches regarding any proposed excavation(s). Processing a separate request for each planned excavation is required; each phase of processing the form and its attachments shall be completed at least 5 working days prior to commencing work involving that phase. It shall be prominently displayed on the job site at all times for review by the Contracting Officer.

3.4.2 Regrading

Due to the operation of machinery on grassed areas, it may be necessary to regrade and reseed these areas. Topsoil shall be placed and the area reseeded as specified in Section 02935: Turf. The finished elevation shall provide positive drainage away from the building site. The finish grade surface shall be reasonably smooth and free from irregular surface changes. The degree of smoothness shall be that ordinarily obtained from either bladegrader or scraper operation.
3.5 DISPOSITION OF MATERIAL

Title to materials and equipment to be demolished, except Government salvage and historical items, is vested to the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss, or damage to such property after notice to proceed.

3.5.1 Salvageable Items and Materials

Contractor shall salvage items and materials to the maximum extent possible.

3.5.1.1 Material Salvaged for the Contractor

Material salvaged for the Contractor shall be stored as approved by the Contracting Officer and shall be removed from Government property before completion of the contract. Material salvaged for the Contractor shall not be sold on the site.

3.5.1.2 Paleontological/Archaeological Items

Should the Contractor uncover any skeletons, artifacts, or other archaeological remains, the work shall be stopped and the Contracting Officer notified immediately.

3.5.2 Unsalvageable Materials

Concrete, masonry, and other demolition debris, except concrete permitted to remain in place, shall be disposed of in a permitted facility at the Contractor's expense.

3.6 CLEAN UP

Debris and rubbish shall be removed from the basement and staging area. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.
3.7 CERTIFICATION

The Contractor shall provide a properly executed AF Form 300 certifying that demolition has been completed and that all requirements have been met in accordance with the contract and applicable regulations.
APPENDIX B

Waste Management Plan
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   of D&D Materials ........................................................................ B-3
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ATTACHMENT

Attachment B-1 Waste Profile Sheet
   Waste Inventory Log
   Straight Bill of Lading
### ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAC</td>
<td>Alaska Administrative Code</td>
</tr>
<tr>
<td>AFB</td>
<td>Air Force Base</td>
</tr>
<tr>
<td>CES HazMat</td>
<td>Eielson AFB Civil Engineering Squadron Hazardous Waste Handling and Recycling Facility</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CQC</td>
<td>Contractor Quality Control</td>
</tr>
<tr>
<td>D&amp;D</td>
<td>decontamination and demolition</td>
</tr>
<tr>
<td>DOT</td>
<td>U.S. Department of Transportation</td>
</tr>
<tr>
<td>DRMO</td>
<td>Defense Reutilization and Marketing Office</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>EPP</td>
<td>Environmental Protection Plan</td>
</tr>
<tr>
<td>HUD</td>
<td>U.S. Department of Housing and Urban Development</td>
</tr>
<tr>
<td>HVAC</td>
<td>heating, ventilation, and air conditioning</td>
</tr>
<tr>
<td>Jacobs</td>
<td>Jacobs Engineering Group Inc.</td>
</tr>
<tr>
<td>PCB</td>
<td>polychlorinated biphenyl</td>
</tr>
<tr>
<td>POL</td>
<td>petroleum, oil, and lubricants</td>
</tr>
<tr>
<td>PPE</td>
<td>personal protective equipment</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
</tr>
<tr>
<td>SAP</td>
<td>Sampling and Analysis Plan</td>
</tr>
<tr>
<td>SSHP</td>
<td>Site Safety and Health Plan</td>
</tr>
<tr>
<td>TCLP</td>
<td>toxicity characteristic leaching procedure</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
</tr>
<tr>
<td>WMP</td>
<td>Waste Management Plan</td>
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<tr>
<td>XRF</td>
<td>X-ray fluorescence</td>
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</table>
1.0 INTRODUCTION

This Waste Management Plan (WMP) is prepared for the decontamination and demolition (D&D) activities at the indoor small-arms firing range in the basement of Building 2204, at Eielson Air Force Base (AFB), Alaska. It is intended as a guide for the removal, handling, characterization, bulking, profiling, labeling, manifesting, transporting, and disposing of wastes developed during the D&D activities described in the Work Plan. The Work Plan describes how the fieldwork will be performed, and the WMP describes the process of managing project generated wastes from removal to final waste disposition. Supporting information for the WMP is provided in the Sampling and Analysis Plan (SAP, Appendix D), which describes the field screening and laboratory analyses used to characterize wastes; the Site Safety and Health Plan (SSHP), which describes safe practices and procedures that the Contractor and others will adhere to during all phases of the D&D (and is being released under separate cover); and the Environmental Protection Plan (EPP, Appendix C), which describes spill prevention control and counter measures, emergency response, and spill notification.

The WMP details the following waste management activities:

- anticipated waste generation;
- handling, accumulation, and containerization of wastes onsite;
- field characterization and bulking of wastes;
- profiling and labeling of waste containers;
- manifesting and transporting wastes offsite;
- offsite treatment, recycling, or disposal; and
- reporting.

This plan is based on anticipated types of waste, waste streams, and estimated quantities, and provides options for the disposal of the expected wastes. Preferred options for disposal include: (1) recycling and reuse (i.e., smelting for lead recovery) and (2) landfilling, to the maximum extent practical. With the exception of one 20-gallon container of sawdust material yet to be characterized, there is no pre-construction knowledge of hazardous wastes present in
Building 2204, nor will execution of D&D activities in accordance with the Work Plan generate hazardous waste. However, this WMP includes provisions for managing hazardous waste in the event it is encountered.

2.0 RESPONSIBILITIES

The Contractor will manage the work described in the Work Plan. A D&D subcontractor will remove, accumulate, field characterize, bulk, and sample the wastes. The D&D subcontractor will also be responsible for transportation and disposal of nonregulated wastes and for profiling, labeling, manifesting, transporting, and disposing of regulated wastes, if necessary. The D&D subcontractor will track regulated wastes to their respective final dispositions and will assist the Contractor with compiling the waste closure report. Either the D&D subcontractor or a local transportation subcontractor will transport and dispose of non-regulated wastes at theSubtitle D Fairbanks-North Star Borough Landfill. An interstate transportation subcontractor(s) will transport non-regulated sands and soils from Eielson AFB to an out-of-state smelter. The D&D subcontractor will transport Resource Conservation and Recovery Act (RCRA) or Toxic Substances Control Act (TSCA) regulated wastes to the Eielson AFB Civil Engineering Squadron Hazardous Waste Handling and Recycling Facility (CES HazMat) for disposal through the Defense Reutilization and Marketing Office (DRMO). A smelting subcontractor will refine lead-containing sand and soil, dispose of treated sands, and recycle the recovered lead. An offsite laboratory subcontractor will analyze confirmation samples submitted to it in accordance with the SAP.

3.0 ANTICIPATED WASTES AND QUANTITIES

Wastes expected to be produced during the removal project are listed in Table B-1. The quantities of waste materials shown in the table are estimated values. The following general types of waste are expected to be generated during the execution of the field work:

- demolition debris including: floor, ceiling and wall materials, heating and ventilation ducts, steel bullet strike plate, steel protective plates, and other interior furnishings;
- lead-contaminated sands and underlying gravelly-silty soil;
<table>
<thead>
<tr>
<th>Measurement or Description</th>
<th>Room 1 - Utility Room</th>
<th>Room 2 - Conference Room</th>
<th>Room 3 - Entrance to Range</th>
<th>Room 4 - Storage Room</th>
<th>Room 5 - Shooting Range</th>
<th>Totals</th>
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</thead>
<tbody>
<tr>
<td>Dimensions (L x W x H, in Feet)</td>
<td>6.5x11.9x8.7</td>
<td>11x11.9x8.7</td>
<td>17.2x11.9x8.7</td>
<td>18.2x16.1x8.4</td>
<td>85x35x8.7</td>
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<td>Floor Tiles, glued to floor</td>
<td>80 sf</td>
<td>134 sf</td>
<td>210 sf</td>
<td>372 sf</td>
<td>1,820 sf</td>
<td>2,616 sf</td>
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<td>Sheetrock on stud walls</td>
<td>137 sf</td>
<td>256 sf</td>
<td>80 sf</td>
<td>136 sf</td>
<td>1,000 sf</td>
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<td>Plywood secured to walls</td>
<td>80 sf</td>
<td>106 sf</td>
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<td>1,860 sf</td>
<td>2,345 sf</td>
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<td>Plywood sound baffle</td>
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<td>Plywood secured to ceiling</td>
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<td>Plywood entry to range area</td>
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<td></td>
<td></td>
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<td>64 sf</td>
<td>64 sf</td>
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<tr>
<td>Plywood on boardwalks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>512 sf</td>
<td>512 sf</td>
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<td>Lumber, dimensional, on walls</td>
<td>170 lf 2x4</td>
<td>225 lf 2x4</td>
<td>140 lf 2x4</td>
<td>240 lf 2x4</td>
<td>358 lf</td>
<td>1,133 lf</td>
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<td>Lumber, dimensional, on ceiling</td>
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<td>150 lf 1x4</td>
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<td>Lumber, dimensional, above pillar</td>
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<td>140 lf 2x12</td>
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<td>Lumber, dimension, boardwalks</td>
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<td>300 lf 2x6</td>
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<td>Lumber, dimension, in sumps</td>
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<td>180 lf 2x12</td>
<td>215 lf</td>
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<td>Concrete block vault, south side</td>
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<td></td>
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<td>35 if 4x4</td>
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<tr>
<td>Acoustical tile, outer wall</td>
<td>58 sf</td>
<td>482 sf</td>
<td>70 sf</td>
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<td>Acoustical tile, inner wall</td>
<td>99 sf</td>
<td>80 sf</td>
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<td>1,136 sf</td>
<td>1,315 sf</td>
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<td>Acoustical tile on ceiling</td>
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<td></td>
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<td>205 sf</td>
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<td>Fluorescent fixtures, plug-in type</td>
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<td></td>
<td></td>
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<tr>
<td>Chalk Board &amp; Cork Board</td>
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<td></td>
<td>Misc.</td>
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<tr>
<td>Chairs, Wood Table, Wood Door</td>
<td>1 ea.</td>
<td></td>
<td></td>
<td></td>
<td>13 ea.</td>
<td>14</td>
</tr>
<tr>
<td>Invest-Derived Sampling Wastes</td>
<td></td>
<td></td>
<td></td>
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<td>X</td>
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<tr>
<td>Flammable storage cabinet</td>
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<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Baseboard heater w/misc. piping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Misc.</td>
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<tr>
<td>Miscellaneous debris</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Misc.</td>
<td></td>
</tr>
<tr>
<td>Poly drum, contents unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 @ 20-gal.</td>
<td>1 ea.</td>
</tr>
<tr>
<td>Steel fume hood w/blower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Misc.</td>
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<tr>
<td>Porcelain bathroom sink</td>
<td></td>
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<td>Misc.</td>
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<tr>
<td>1/2&quot; Steel backstop plate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>490 sf</td>
<td>490 sf</td>
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<tr>
<td>Steel armor on utility piping</td>
<td>80 sf</td>
<td></td>
<td></td>
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<td>80 sf</td>
<td></td>
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<tr>
<td>All-thread hangers for utilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>144 lf</td>
<td>144 lf</td>
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<tr>
<td>Steel &quot;L&quot; channel for armor</td>
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<td></td>
<td></td>
<td></td>
<td>115 lf</td>
<td>115 lf</td>
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<tr>
<td>Steel armor, concrete pillars</td>
<td>105 sf</td>
<td></td>
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<td>105 sf</td>
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<tr>
<td>Steel armor, ceiling fixtures</td>
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<td></td>
<td></td>
<td></td>
<td>367 sf</td>
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<tr>
<td>3/8&quot; Steel wall, Rooms #4 &amp; #5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>112 sf</td>
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<tr>
<td>Sheet metal HVAC ducts &amp; lights</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>890 sf</td>
<td></td>
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<tr>
<td>Range floor sands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-100 cy</td>
<td>100 cy</td>
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<tr>
<td>Bullet trap sands</td>
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<td></td>
<td></td>
<td>-20 cy</td>
<td>20 cy</td>
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<tr>
<td>Exterior ventilation blowers</td>
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<td>2 ea.</td>
<td>2 ea.</td>
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<tr>
<td>Target retrieval system - 2 electric motors, 1280 lf, 1/4&quot; steel cable, 15' 2&quot;-steel pipe, 20' steel brackets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 ea.</td>
<td>1 ea.</td>
</tr>
</tbody>
</table>

Notes: cy = cubic yards, lf = linear feet, sf = square feet, HVAC = heating, ventilation, and air conditioning
• 20-gallon poly drum of unknown sawdust solids;
• waste personal protective equipment (PPE) and sorbent materials; and
• trash.

4.0 REGULATORY REQUIREMENTS

The handling of wastes will be performed in accordance with the following regulations:

• Packaging – Packaging will be in accordance with 49 CFR 172, 173, and 178.
• Labeling – Labeling will be in accordance with 49 CFR 172.400 through 172.450.
• Marking – Marking will be in accordance with 40 CFR 761.40 and 49 CFR 172.300 through 172.388.
• Placarding – Placarding will be in accordance with 49 CFR 172.500 through 172.560.
• Waste Accumulation – Accumulation will be in accordance with 40 CFR 262 and 8 AAC 61.
• Emergency Contact – Before shipping hazardous waste, the D&D subcontractor will submit a 24-hour emergency point of contact and a 24-hour telephone number as required in 49 CFR 172 Subpart G. The 24-hour emergency point of contact is Craig Jones, Brice Environmental Services Corp. The 24-hour phone number is (907) 456-1955.

Transportation and disposal of wastes will meet the regulatory requirements governing the materials, including those for RCRA (40 CFR 261, 262, 263 and 268) and the U.S. Department of Transportation (DOT) (49 CFR 171 through 180).

Wastes that are regulated by RCRA are required to be held onsite no more than 90 days from when identification begins. The Contractor will inform the Air Force 354th CES if RCRA-regulated wastes within the scope of this project are encountered but are not included in the plan for removal.

5.0 FIELD SCREENING AND BULK MATERIAL CHARACTERIZATION

As described in greater detail in the Work Plan, the Contractor will sample firing range materials to better determine their disposition before mobilizing to the site. In this manner the
most appropriate equipment, including type and number of waste containers, can be brought to the field and the materials more efficiently containerized and manifested for transportation and recycling or disposal without incurring down times while profiling wastes.

Wastes that will require field screening, sampling, or analysis include ceiling and wall acoustical tiles, plywood backing, sheetrock, floor tiles, and wood boardwalks. Additionally, a 20-gallon container of sawdust material will be screened and characterized if generator information is not available.

The Contractor will decontaminate all interior surfaces using wet wipe and dry or wet vacuum techniques. When complete, some surfaces will be tested in the field using a Spectrace 9000 X-ray fluorescence (XRF) analyzer to determine the effectiveness of the lead removal technique. These data will be used to establish (1) the effectiveness of the decontamination technique used for the particular material or surface and (2) the relative concentrations of residual lead dust contamination on interior surfaces.

Representative bulk wastes samples (greater than or equal to 100 grams) of wall and ceiling tiles, wood boardwalks, plywood backing, sheetrock, and floor tiles will be collected and sent to an independent laboratory and tested for toxicity characteristic leaching procedure (TCLP) lead to characterize the wastes for labeling, profiling, transportation, and disposal. The wastes will be sampled and tested as described in the SAP (Appendix D). Test data will indicate what amount of lead has accumulated on or within the materials and whether the materials can be decontaminated sufficiently to allow their disposal in a state-approved landfill (Fairbanks-North Star Borough Landfill). If TCLP lead exceeds 5 mg/L, the materials may need to be containerized and disposed of as a regulated waste.

Waste profile sheets for each waste stream and disposal facility will be completed for the wastes. An example of a profile sheet is attached to this Waste Management Plan (Attachment B-1). Waste profiles may be submitted to the recycling and/or disposal facility with documentation of representative analytical sampling, as required by the facility.
Following documented facility approval, the wastes will be scheduled into the facility for final disposition.

Before field work begins, a sample of the sawdust material from a 20-gallon drum located in one of the rooms of the firing range will be analyzed according to the SAP for TCLP metals and volatiles to characterize the material for disposal. The analytical results will ascertain whether it is hazardous or non-hazardous, thus determining its disposition.

The following wastes will not require field screening, sampling, or analysis for characterization:

- **Range Floor and Bullet Trap Sands:** This material has been characterized through tests performed during the treatability study. Total lead and TCLP analyses confirmed lead concentrations exceeding levels that are acceptable for Class D Landfill disposition. However, an evaluation of alternative disposition techniques disclosed that the sands can be recycled through a smelting facility. Since no smelting facilities are present in Alaska, the sands will be transported to an out-of-state smelter. Federal regulations (40 CFR 261.4) provide an exclusion to recyclable wastes being classified as hazardous if authorized by the U.S. Environmental Protection Agency (EPA) Regional Administrator.

- **Decontamination Wastewater:** The minor amounts of wastewater expected to be generated will be collected and placed in the containerized range and trap sands.

- **Trash:** All trash materials will be characterized based on generator information. No testing is required.

### 6.0 WASTE ACCUMULATION, CONTAINERIZATION, AND TEMPORARY STORAGE ONSITE

The Work Plan details the sequence and methods for removing lead-contaminated sands and soils; interior wall, ceiling, and floor coverings; and other materials that are identified in Table B-1.

Wastes will be collected, containerized, and temporarily stored onsite. The wastes will be collected and placed in containers that are to be used during shipping. If there are any regulated wastes, they will be placed in shipping containers that are in accordance with 49
CFR 173. Hazardous liquids will be shipped in UN/1A1/Y-type drums, and hazardous solids will be shipped in UN/1A2/Y-type drums.

Other packaging and containerization requirements include:

- A box truck will be used for transporting wastes to a landfill for disposal.
- After the liners are swept and/or wet wiped and sampled for lead analysis, the liners will be placed in DOT-approved 1-cubic-yard supersacks. The supersacks will be labeled and temporarily stored adjacent to Building 2204 until quick turnaround laboratory results are received. If the results demonstrate a TCLP lead concentration of less than or equal to 5 mg/L, the liners will be staged with other non-hazardous materials for transfer to the Fairbanks-North Star Landfill.
- Trash will be collected in garbage bags which will be placed in a tote or dumpster or directly into a truck.
- If rain water and non-petroleum, oil, and lubricants (POL) liquids from emptied containers and decontamination water are not hazardous, the liquids will be transferred to the supersacks containing sands and soil and transported to the smelter for disposal along with the sands and soil. Care will be taken to disperse the liquids so as not to exceed 50 percent moisture in any one supersack.

The wastes that accumulate during the D&D activities will be handled as described below.

6.1 RANGE FLOOR AND BULLET TRAP SANDS

The range floor and bullet trap sands (estimated to be 70 to 120 cubic yards) will be removed from Building 2204 by a vacuum truck that will be stationed in a lined staging area adjacent to either the southeast or southwest end of Building 2204. Incidental to removing the sands, a small volume of underlying soil may also be extracted by the vacuum truck. The sands and soil will then be discharged from the vacuum truck into 1-cubic-yard double-lined nylon sacks ("supersacks"). Depending on the quantity of underlying soil that is removed, approximately 110 to 140 supersacks will be filled and temporarily stored within the lined staging area. When full, the supersacks will be tied off and labeled. Each supersack will be designated with a source identification and sequential number (e.g., EAFB2204-001 to EAFB2204-NNN) to facilitate inventory and disposition manifests. Filled, labeled, and manifested supersacks will
be stored within the lined staging area until a sufficient number of supersacks has accumulated to fill a tractor trailer (approximately 22 supersacks).

6.2 WALL, CEILING, AND FLOOR MATERIALS

Acoustical tiles will be stripped from ceilings and walls, and floor tiles will be stripped from the floors. Plywood backing material will also be stripped. Sheetrock and other wall materials in Rooms 1, 2, 3, and 4 will be removed from studded walls. All removed materials will be containerized (e.g., in heavy-duty plastic bags) and transferred to a lined staging area within the paved parking area at the southwest end of Building 2204. The containerized wastes will be staged until full truck or dumpster loads are accumulated for transfer to the Fairbanks-North Star Borough Landfill.

6.3 BULLET STRIKE PLATE, PROTECTIVE ARMOR, AND HVAC DUCTS

The D&D subcontractor will cut the steel bullet strike plate and the protective steel armor that is covering three structural columns into pieces that can be handled by hand. Then the pieces will be removed through either the main entrance or the 3-foot by 6-foot maintenance access at the east end of the firing range. The materials will be staged at one of the two lined staging areas for loading onto a flat-bed truck for transport and delivery to the DRMO at Eielson AFB. Protective metal trays that shield pipelines that traverse the interior of the firing range and two sheet-metal HVAC ducts that traverse the ceilings will also be cut into pieces that can be easily removed and temporarily stored at the southwest end of Building 2204. The Site Superintendent and the 354 CES representative will determine which, if any, pieces are salvageable; those pieces will be transported to DRMO. All other pieces will be transported and delivered to the Fairbanks-North Star Borough Landfill.

6.4 WOOD BOARDWALKS

Four-foot by 8-foot plywood boardwalks that provide access across the floor sands will be cut into manageable pieces and removed from the firing range to the staging area at the southwest end of Building 2204. The pieces will then be combined with other debris in a roll-off
container or dumpster for transportation and delivery to the Fairbanks-North Star Borough Landfill.

6.5 LIGHTING FIXTURES

As described in the Work Plan, lighting fixtures will be inspected prior to beginning demolition activities to determine if ballasts potentially contain polychlorinated biphenyls (PCBs). For the purposes of this project, all ballasts that are not clearly marked with “No PCBs” or similar wording will be considered to contain PCBs and will be handled accordingly. These ballasts will be removed from the fixtures and containerized, and the container(s) will be labeled according to the waste handling and disposal procedures in Appendix C. The containerized ballasts will be transferred to CES HazMat for disposal through DRMO.

6.6 USED PPE, LINER, AND WIPE RAGS

PPE, liner material, and wipe rags will be tested for lead contamination prior to disposal. Contaminated materials will be combined, and representative samples will be collected, composited, and analyzed by an offsite laboratory for TCLP lead. If the TCLP lead concentration is equal to or less than 5 mg/L, the materials will be disposed of in the Fairbanks-North Star Borough Landfill. If the TCLP lead concentration is greater than 5 mg/L, the materials will be properly containerized, labeled, manifested, and transported as a regulated waste to CES HazMat for disposal through DRMO.

6.7 UNCHARACTERIZED 20-GALLON DRUM OF SAWDUST MATERIAL

Following characterization as described in Section 5.0 and in the SAP, the material will be transported to CES HazMat for disposal. CES HazMat will be provided a copy of the characterization results.
7.0 POST-DEMOLITION SAMPLING AND ANALYSIS

After all D&D tasks within the former firing range have been completed and the bare ceiling, wall, and floor surfaces have been cleaned, wipe tests will be made on these surfaces to confirm that lead concentrations on the surfaces are equal to or less than the U.S. Department of Housing and Urban Development (HUD) lead level of 100 µg/ft². The D&D subcontractor will perform the sampling and the Contractor Quality Control (CQC) Supervisor will direct the sampling in accordance with the SAP.

Likewise, the D&D subcontractor will collect samples of the remaining range floor and bullet trap soils. Samples will be collected, handled, and analyzed in accordance with the SAP.

8.0 LABELING

Based on the results of the field screening, sampling, and analysis, waste containers will be marked and labeled depending on waste composition and hazard class. The CES HazMat procedures (Appendix C) will be used as a key to determine appropriate marks and labels. Before transfer to CES HazMat, any containers holding hazardous materials will be marked and labeled in accordance with the procedures in Appendix C.

A waste inventory log (Attachment B-1) will be maintained. Data associated with each container (i.e. ID, sampling results, hazard class, transporter, container type, and disposal facility) will be included. If a drum is placed into an overpack drum, both the inner and outer drums will be marked with the same unique drum number and only the outer drum will be added to the drum log.

9.0 BILLS OF LADING AND MANIFESTING

After wastes have been field-screened, bulked, sampled, analyzed, profiled, and accepted by the appropriate disposal facility, bills of lading will be completed for each shipment of wastes. Straight bills of lading (Attachment B-1) or nonhazardous manifests will be used for transporting the firing range sands to an out-of-state smelting facility. Because the sands will
be transported across Canadian-U.S. boundaries, labeling and bills of lading shall comply with Canadian regulations.

Preparation of hazardous waste manifests is not the responsibility of the Contractor. All hazardous wastes will be labeled in accordance with Appendix C and transferred to CES HazMat for further disposition.

Each truckload of containerized firing range sands will be accurately weighed on a scale on Eielson AFB because (1) the quantity/volume of the material is required on the bills of lading; (2) the most common discrepancy on a bill of lading between the shipper and the transportation, storage, and disposal facility is the volume of the material for bulk shipments; and (3) bills of lading are signed legal documents. As customary practice, the tare weights will be subtracted from the total weights to obtain the net weights. All three weights will be recorded in the daily quality assurance report.

10.0 TRANSPORTATION

Because hazardous wastes will not be transported from Eielson AFB, hazardous waste transportation vehicles will not be placarded after receiving the waste containers.

The D&D subcontractor will transport hazardous wastes to CES HazMat or will contact CES HazMat (377-2100/1 856) to initiate a work order for pickup. A 10-day lead time is normally required.

11.0 DISPOSAL

Table B-2 indicates the anticipated disposal methods and facilities for the expected waste streams. The chemical compositions and physical characteristics of each waste must be approved before the disposal facilities will accept the waste. A Certificate of Disposal will be returned to the generator upon final disposal of the firing range sands.
## TABLE B-2
Summary of Waste Shipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Waste Stream</th>
<th>DOT Proper Shipping Name</th>
<th>Final Disposal Method</th>
<th>Disposal Facility</th>
<th>Transportation Sequence</th>
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<tr>
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<td>Final Name</td>
<td>Location</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Sands and Soil</td>
<td>Non-regulated*</td>
<td>Recycling</td>
<td>L-48 Smelter</td>
<td>TBD</td>
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<tr>
<td>2</td>
<td>Steel Plating</td>
<td>Non-regulated</td>
<td>Recycling</td>
<td>DRMO</td>
<td>Eielson AFB</td>
</tr>
<tr>
<td>3</td>
<td>Wood, Tiles, Paper, and Sheetrock</td>
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<td>Fairbanks Landfill</td>
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</tr>
<tr>
<td>4</td>
<td>Steel, Wire/Rod, Sheetmetal</td>
<td>Non-regulated</td>
<td>Landfill</td>
<td>Fairbanks Landfill</td>
<td>Fairbanks, AK</td>
</tr>
<tr>
<td>5</td>
<td>PPE, Liners</td>
<td>Per Analytical</td>
<td>Landfill</td>
<td>Fairbanks Landfill</td>
<td>Fairbanks, AK</td>
</tr>
<tr>
<td>6</td>
<td>PCB-containing Ballasts</td>
<td>Regulated</td>
<td>Disposal</td>
<td>CES HazMat</td>
<td>Eielson AFB</td>
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<tr>
<td>7</td>
<td>Decontamination Rinse Water</td>
<td>Non-regulated*</td>
<td>Recycling (included with sand)</td>
<td>L-48 Smelter</td>
<td>TBD</td>
</tr>
</tbody>
</table>

**NOTES:**

* = Assumes EPA exemption from 49 CFR 261.4  
Non-regulated = Not regulated by RCRA or TSCA  
TBD = To be determined
12.0 REPORTING

The following records and logs will be completed for documentation of the project's disposal activities. Copies of these forms are included as Attachment B-1:

- Waste Inventory Log;
- Waste Profile Sheets; and
- Bills of Lading.

The following types of records are also required for the documentation of the project's disposal activities and will be compiled during the completion of this Work Plan:

- Certificates of Disposal;
- Receipt of Landfill Disposal Tipping Fee;
- Sample Chain of Custody Forms;
- Analytical Results;
- Representative Sample Certification;
- Field Screening Log;
- Transporter Certifications/Licenses;
- Weigh Tickets; and
- Invoices.
ATTACHMENT B-1

Waste Profile Sheet
Waste Inventory Log
Straight Bill of Lading
J. SPECIAL HANDLING INFORMATION

GENERATOR CERTIFICATION

I hereby certify, as an authorized representative of the Generator named above, that BE1 has been fully informed of all information known about this waste, including but not limited to, the waste's generation process, composition, and physical characteristics, necessary to identify proper treatment and disposal of waste and this information is true and accurate.

If this is an existing profile which is being renewed, I hereby certify that there have been no changes in this waste, chemical, physical, or regulatory designation since full characterization by sample testing on the date listed above.

Signature

Printed Name

Title

Date
APPENDIX C

Environmental Protection Plan
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<td>SAP</td>
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1.0 INTRODUCTION

This Environmental Protection Plan (EPP) has been prepared for the decontamination and demolition (D&D) work at the indoor small arms firing range in the basement of Building 2204, on Eielson Air Force Base (AFB), Alaska. This plan is prepared primarily to support the contractor and its subcontractors who are under contract to the U.S. Army Engineer District, Alaska (USAED).

D&D actions include the demolition and removal of interior wall, ceiling and floor covering materials, such as acoustical tiles, plywood backing, sheetrock, floor tiles, wooden boardwalks, steel plate bullet backstop, steel armor plating, furniture, sheet metal ventilation ducts, and miscellaneous materials. Prior to commencement of demolition activities, representative samples of the materials to be removed will be bulk-tested according to the Sampling and Analysis Plan (SAP), Appendix D, to determine whether the materials can be characterized as non-hazardous waste and to determine the extent and methods of decontaminating the surfaces of the various materials. All removed materials are expected to be found non-hazardous and, according to the Waste Management Plan (WMP), Appendix B, these materials will be loaded into conveyances and transported to the Fairbanks-North Star Borough Landfill. If any materials are found to be hazardous, they will be segregated and disposed of according to the WMP.

The lead-contaminated firing range sands will be removed with a vacuum truck. All sand, estimated to be 70 to 120 cubic yards, will be removed from the range. A small amount of underlying soil could also be removed incidentally with the removal of the sands. Field screening with X-ray fluorescence (XRF) equipment will be conducted to ensure the remaining soil does not contain any lead that exceeds the cleanup objectives. Confirmation samples will be collected and analyzed by an offsite laboratory. The sands collected in the vacuum truck will be discharged into 1-cubic-yard U.S. Department of Transportation (DOT) approved supersacks and loaded onto a tractor trailer for transport to an out-of-state smelter for recycling.
The EPP consists of the following sections:

- Section 1.0, Introduction, describes the nature of the work, applicable regulations, and the site location.
- Section 2.0, Air Pollution, describes the procedures for suppressing or eliminating air pollutants and for emission monitoring and burning.
- Section 3.0, Landscape Protection, describes protection measures for land areas, trees, shrubs, and turf.
- Section 4.0, Surface Water Management, describes plans for handling surface waters resulting from precipitation, groundwater, and water used for demolition activities.
- Section 5.0, Noise Abatement, describes plans for controlling noise levels resulting from demolition activities.
- Section 6.0, Spill and Discharge Control, describes plans for handling fuel and lubricant spills, if they occur.
- Section 7.0, Site Security, describes plans for securing work sites from personal hazards and unauthorized entry.
- Section 8.0, Post-Construction Cleanup, describes cleanup of sites following demolition.
- Section 9.0, References, lists the references that were used to prepare this EPP.

1.1 SCOPE

This plan covers protection of environmental resources exposed to potential effects from the D&D activities. For the purposes of this plan, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare, unfavorably alter ecological balances of importance to human life, affect other species of importance to humankind, or degrade the utility of the environment for aesthetic and recreational purposes.

The Work Plan details the D&D activities and the relationship of these to the protection of human health and the environment. Protection of contractor or subcontractor personnel or visitors present within the project site boundaries from potential adverse effects of the D&D activities are addressed in the Site Safety and Health Plan (SSHP) Addendum. Technical specifications covering environmental protection for this task order are found in Appendix A.
This EPP describes measures to be taken to protect the quality of the air, water and land surrounding the work site from degradation due to the D&D activities.

1.2 APPLICABLE REGULATIONS

Construction activities of the Contractor or its subcontractors shall comply with applicable federal, state, and local laws and regulations concerning environmental pollution control and abatement, as well as applicable provisions of Engineer Manual (EM) 385-1-1, Corps of Engineers Safety and Health Requirements Manual, and specific requirements stated in the contract. Applicable regulations are cited in appropriate paragraphs within the text of this document and are also listed in Section 9.0, References.

1.3 SITE DESCRIPTION

Eielson AFB is an active military installation located near the town of North Pole in interior Alaska, approximately 20 miles southeast of the city of Fairbanks. The Work Plan provides a location map of Eielson AFB and a site location map of Building 2204 showing where the D&D and sands removal activities will occur.

2.0 AIR POLLUTION

2.1 GENERAL

D&D activities will generate dust and particulate emissions and could potentially release hazardous air pollutants regulated under Chapter 50, Air Quality Control, of the Alaska Administrative Code. However, pre-demolition treatments and demolition controls will reduce or eliminate emissions of hazardous air pollutants. Air quality monitoring will be continually performed during the D&D activities, and air emission controls will be implemented or expanded as needed.
2.2 DUST CONTROL

The amount of dust resulting from the D&D activities will be controlled to minimize exposure to workers and to prevent the spread of dust that could create a hazard or nuisance within or outside project boundaries.

Dust suppression during the D&D activities and control of dust that may emanate from trucks and from access roads require best management practices. These practices can include control methods such as:

- removing dust from interior surfaces as much as practical before demolition by dry or wet vacuum, wet wiping with cloths, washing, or a combination these methods;
- prewatering work surfaces and access road surfaces;
- wetting debris before loading, and
- covering loads carried in transport equipment.

Dry or wet vacuum, wet wiping, sprinkling, misting, or mechanical methods will be employed to remove or control dust that has accumulated on interior surfaces of the firing range. Sufficient, suitable equipment will be retained at the site and applications will be repeated to suppress the dust at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. The range sands will be lightly wetted prior to vacuum extraction to a vacuum truck located outside Building 2204. As the sands are discharged from the vacuum truck to transport containers, a cyclone dust collector that is attached to the vacuum truck will remove fugitive emissions.

2.3 EMISSION CONTROL MONITORING

Initial air monitoring background readings will be obtained by the Contractor’s Site Safety and Health Officer (SSHO) before activities begin. A description of the SSHO responsibilities is included in the Work Plan.

Air monitoring will be conducted during building interior demolition and sands removal activities to control and limit exposure to particulates as indicated in the SSHP. In the
worker's breathing zone, exposure monitoring will be conducted by visible sighting of airborne particulates and the use of electronic, direct-reading instruments or other particulate monitoring devices. Personnel protection will follow the requirements of the SSHP.

Through monitoring the work activities as described above, offsite air pollution should not be a concern; however, the SSHO will also monitor downwind locations for visual evidence of particulate migration. Background readings will be obtained before activities begin and compared to readings taken when particulate migration is observed. If concentrations are measured that exceed regulatory maximums, immediate corrective action will be taken to suppress or eliminate the pollutant.

2.4 BURNING

Burning at the project site for the disposal of refuse and debris will not be permitted. All refuse and debris that is suitable for Class C landfill will be hauled to the Fairbanks-North Star Borough Landfill.

3.0 LANDSCAPE PROTECTION

3.1 PRECONSTRUCTION SURVEY

Before starting any onsite construction activities, the Contractor and a representative of the Air Force 354th Civil Engineering Squadron (354th CES) will jointly make a pre-demolition condition survey, after which the Contractor will prepare a brief report, if applicable, indicating on a layout plan the condition of trees, shrubs, and grassed areas immediately adjacent to the work site and access routes. This report will be signed by both the Air Force and the Contractor upon mutual agreement as to its accuracy and completeness.

3.2 PROTECTION OF LAND AREAS

Construction activities will be confined to areas identified in the work plans or specifically assigned for the Contractor's use. No other areas on Government premises will be used by the Contractor without written consent of the Air Force.
3.3 PROTECTION OF TREES AND SHRUBS

Except for trees and shrubs marked on the plans to be removed, the Contractor will not deface, injure, or destroy trees or shrubs, nor remove or cut them without approval of the 354th CES. No ropes, cables, or guys will be attached to any existing nearby trees for anchorage's.

Trees that may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or other operations will be protected by placing fencing around them in accordance with the Project Technical Specifications (Appendix A).

Any tree scarred or damaged by the Contractor's equipment or operations will be restored as nearly as possible to its original condition, including coating as soon as possible with an approved tree wound dressing. Trees that are damaged beyond repair will be immediately removed, if so directed by the Air Force, and replaced with a tree of the same species and size.

3.4 GRADING AND SEEDING

Since Building 2204 is mostly surrounded by grassed areas, the D&D activities such as staging and loading debris and firing range sands will most likely occur on these areas. Precautions will be taken to minimize damage to the turf. Any turf damaged by contractor or subcontractor equipment or operations will be restored as nearly as possible to its original condition in accordance with the Project Technical Specifications (Appendix A).

4.0 SURFACE WATER MANAGEMENT

The presence of surface water at any site at which environmental work will occur presents two potential concerns. The first is that the surface water may come in contact with contaminants at the site and, in turn, may become contaminated. The second concern is surface water that becomes contaminated may then transport contaminants into uncontaminated soil and/or groundwater. The specific potential concern for this project is that surface water, most likely
collecting from precipitation, may become contaminated from spillage of lead-contaminated firing range sands as the sands are transferred to the shipping containers.

Surface water flow will be controlled during the D&D activities. Control measures will include, but will not be limited to, the following:

- keeping paved surfaces clean of solids and debris during D&D activities so that no solids are transported away from the demolition site by surface water flow;
- decontamination of equipment that contacts contaminants;
- inspecting all drainage ditches/swales and catch basins and erecting suitable controls around these structures to ensure no contaminated material is transported into these structures as part of demolition activities; and
- erecting controls around buildings during the D&D process to provide immediate runoff controls before contaminated materials may be transported into conveyance structures.

A minimum amount of liquid waste may be generated during certain D&D activities. Possible sources of liquids (such as release of residuals within utility lines) will be identified and removed before D&D activities begin. Information for handling such wastes is found in the WMP.

During the decontamination phase, covered areas within Building 2204 will provide surface water control. In uncovered areas, an emphasis will be placed on collecting any wash water that is used during the decontamination process. The decontamination water will be collected and contained as soon as possible. Any water so collected will be transferred into the supersacks containing sands and soil in such a manner as to not exceed 50 percent moisture in any one supersack.

5.0 NOISE ABATEMENT

D&D activities are not expected to generate noise above maximum permissible levels. Therefore, noise control is unnecessary. However, noise levels will be monitored and workers will be protected according to guidance given in the SSHP.
6.0 SPILL AND DISCHARGE CONTROL

Onsite spill control methods will be used to prevent or minimize the potential for spills of lead-contaminated sand or rinsate or the release of fuels and lubricants. Secondary containments, usually consisting of temporary canvas or high density polyethylene-lined areas, will be employed to contain potentially hazardous liquids or other materials until the D&D sequence requires their removal. Equipment and hoses will be inspected for integrity before pumping operations begin.

If the mitigation of seeps becomes necessary, booms and sorbents will be used to collect released product. The necessity of these controls will be determined onsite by consultation with the Air Force. Spill containment and cleanup kits will be available onsite. Drums and buckets will be used to collect releases, when necessary. Spills or releases will be immediately reported to the Air Force. In the event of a spill or release, the procedures below will be followed (when it is safe to do so):

- Stop the spill or release (shut off valves, hoses, etc.).
- Contain the spilled materials.
- Immediately report the spill to the Air Force:
  - during duty hours to 377-2922/3235 and
  - after duty hours to the Eielson Fire Department, 377-4156/4266.
- Clean up the spill.

These steps can occur simultaneously.

Waste materials, including disposable personnel protective equipment, from spill cleanups will be placed in containers and labeled for proper disposal. All petroleum, oil, and lubricant (POL) spill materials will be transported to the 354th CES Hazardous Waste Handling and Recycling Facility.

Decontamination procedures will be required of equipment and personnel to eliminate the spread of the spill or discharge of material outside the work area. An easily accessible location will be chosen for the decontamination area.
Hand tools and heavy equipment will be taken to the proper location for appropriate decontamination. Plastic sheeting will be used when necessary to transport contaminated equipment and to provide a work surface to prevent contamination of clean areas. Wash water generated during the spill response activities will be contained, stored, transported, and disposed of in accordance with the WMP.

Personnel involved in incident response activities and cleanup will wear protective equipment as identified in the SSHP to reduce contact with spill or discharge material.

7.0 SITE SECURITY

Site security at Eielson AFB pertains to safety of personnel and unauthorized entry to the work area. During site operations, unsafe conditions (e.g., containerizing and loading demolition debris and sands, working on uneven surfaces) will exist and create potential slip, trip, fall, and crushing hazards. Personnel will be prohibited from entering the work site boundary and the firing range unless they have been logged in by the SSHO. Site workers will secure all work areas at the end of each day. Barricades and caution banner tape, warning signs, or other effective means of delineation will be used around these areas. Unless warranted by site conditions and the potential for unauthorized entry, fencing will not be used. Specific site requirements will be determined in the preparatory phase of D&D activities.

All operating equipment will be shut down before workers leave the work site. If applicable, potential energy in equipment (arms or buckets of heavy equipment, etc.) will be released when not in use to eliminate the possibility of crushing accidents. Electrically energized systems will be guarded at all times by use of lockout/tagout procedures. Equipment, hydraulically or pneumatically energized lines, and hoses under pressure will be shut off and relieved of pressure before workers leave the site.

All exterior doors or openings will be locked or blocked from entry during non-working hours.
A logbook will be kept to document entry of all visitors into and out of the work area. The Contractor will notify the appropriate Base security officials and request periodic security checks of temporary facilities and work sites during non-working hours.

8.0 POST-CONSTRUCTION CLEANUP

Construction debris, waste materials, packaging materials, salvageable materials, and stored materials will be removed or handled according to the Work Plan and WMP.

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ACRONYMS AND ABBREVIATIONS

ADEC Alaska Department of Environmental Conservation
AOC area of concern
ASTM American Society for Testing and Materials
CAS Columbia Analytical Services
CES HAZMAT CES Hazardous Waste Handling and Recycling Facility
Contractor Jacobs Engineering Group Inc.
DRMO Defense Reutilization and Marketing Office
DQO data quality objective
Eielson AFB Eielson Air Force Base
EPA U.S. Environmental Protection Agency
FSP Addendum Field Sampling Plan Addendum
HUD U.S. Department of Housing and Urban Development
ID/IQ indefinite delivery/indefinite quantity
LQAPP Laboratory Quality Assurance Project Plan
mg/kg milligrams per kilogram
mg/L micrograms per liter
PPE personal protective equipment
ppm parts per million
QA quality assurance
QAPP Addendum Quality Assurance Project Plan Addendum
QC quality control
RCRA Resource Conservation and Recovery Act
SAP Sampling and Analysis Plan
SOW Statement of Work
Standard FSP Standard Field Sampling Plan
Standard QAPP Standard Quality Assurance Project Plan
TCLP toxicity characteristic leaching procedure
TERC Total Environmental Restoration Contract
TSD treatment, storage, and disposal
USAED U.S. Army Engineer District, Alaska
VOC volatile organic compound
XRF X-ray fluorescence
(μg/ft²) micrograms per square foot
EXECUTIVE SUMMARY

This Sampling and Analysis Plan (SAP) Addendum pertains to Task Order 07, Eielson AFB Indoor Firing Range Decontamination and Demolition, and is written to complement the TERC Standard Sampling and Analysis Plan (Standard SAP) (which includes the Standard Field Sampling Plan and Standard Quality Assurance Program Plan). Section 1.0 is the Field Sampling Plan Addendum and Section 2.0 is the Quality Assurance Project Plan Addendum to the Standard SAP. The Standard SAP has been reviewed and accepted by the U.S. Army Engineer District, Alaska (USAED). The outline for this addendum follows the USAED-recommended format as described in the Engineering Manual Number 200-1-3, Environmental Quality Requirements for the Preparation of Sampling and Analysis Plans (USACE 1994). The following sections address the specific requirements of the Standard SAP and those of the task order. The Standard SAP and this addendum will be available to all field and laboratory personnel involved with this field effort.
1.0 FIELD SAMPLING PLAN

This section of the SAP addendum, which is Appendix D to the Work Plan, is prepared in support of the decontamination and demolition of the Eielson Air Force Base (Eielson AFB) Area of Concern 32 (AOC 32), the abandoned indoor firing range, to be conducted under Contract DACA 85-95D-0018 for the USAED. Section 1.0 of this addendum is FSP addendum, and Section 2.0 is the QAPP addendum. Because both sections are interdependent, the entire SAP will be used in the field. Section 3.0 is the list of references used to prepare this document.

1.1 PROJECT DESCRIPTION

The FSP addendum describes the procedures and rationales for field sampling during the decontamination and demolition of the indoor firing range. The Work Plan provides additional information supporting the rationales.

1.1.1 Site History and Contaminants

The former Indoor Firing Range located on Eielson AFB is AOC 32 and is the focus of this FSP addendum. Some interior building materials and all range sands will be removed during the 1997 field season. A detailed history of this site is provided in Section 2.0 of the Work Plan.

1.1.2 Summary of Existing Site Data

Results of a treatability study performed by Brice Environmental Services Incorporated (BESCORP) are provided in the Technical Memorandum, Lead Characterization Work Plan (March 1997). Additionally, samples of range sands, building materials, exterior soils, and surface areas were collected during previous site visits. The results of the tests performed on these samples are summarized in Section 2.2 of the Work Plan.
1.1.3 Site-Specific Sampling and Analysis Problems

During previous investigations, a treatability study was performed to determine disposal options for the range floor and bullet trap sands that contain particles of lead as small as dust and as large as bullet fragments, potential asbestos-containing building materials were evaluated, and exterior soil and interior wipe samples were analyzed to determine pathways of potential range contamination. The results of these studies are discussed in Section 2.0 the Work Plan. Interferences created by high-lead levels in the sand samples elevated detection limits; however, data quality objectives (DQOs) were met.

1.2 PROJECT ORGANIZATION AND RESPONSIBILITIES

Project Chemist/Analytical Data Quality Assurance Manager. Gloria Beckman, Jacobs Project Chemist, is responsible for managing the subcontract laboratory and ensuring that analytical performance is in accordance with the QAPP. The Project Chemist coordinates between the field samplers and the laboratory during performance of the fieldwork. While onsite, field samplers and the Project Chemist are directly responsible to the Site Superintendent. In matters of data management and reporting, the Project Chemist reports to the Project Manager.

Field Sampler. This person is responsible for collecting samples, conducting field screening, and submitting samples to a fixed laboratory. The Field Sampler will be responsible to the Site Superintendent while working onsite and to the Project Chemist for following the SAP. The field sampler resumes will be provided when this person is identified. Additional responsibilities are described in the Work Plan.

1.3 SCOPE AND OBJECTIVES

The scope and objectives associated with the field sampling effort are summarized in this section of the FSP Addendum and in the Work Plan. Field screening and confirmation samples will be collected and analyzed to evaluate efficiency of the cleaning process and also to identify lead concentrations in soils and on the surfaces of materials remaining in the
building. Figure 1 of the FSP Addendum provides locations for wipe samples that will be collected after decontamination and demolition is complete. Additionally, Tables 3-1, 4-1, and 4-2 in the Work Plan provide pre-demolition and post-decontamination and demolition sample location information.

The following section summarizes the scope and objectives of the sampling effort:

1.3.1 Lead Testing

Bulk and wipe samples will be collected prior to demolition and, in some cases, after decontamination of the interior building materials with potential lead contamination to determine presence of contamination and to support future disposal decisions. All surface areas with lead concentrations greater than 100 micrograms per square foot ($\mu$g/ft$^2$) will require decontamination and all bulk samples with lead leachate concentrations greater than 5 milligrams per liter (mg/L) will require disposal in a Resource Conservation and Recovery Act (RCRA) landfill or decontamination to reduce the leachable lead concentration to levels less than 5 mg/L. All samples requiring additional decontamination will also require fixed laboratory confirmation. All demolished building materials and 20-mil high-density polyethylene liners shall be analyzed for toxicity characteristic leaching procedure (TCLP) lead to evaluate disposal options. The liners will be placed over the path that leads from the building to the containers placed outside the entrance for storage and transportation of the contaminated materials. These liners will protect the area in this pathway from contamination associated with the debris and sands removed during the demolition.

Soil samples will be collected after the bullet trap and range floor sands are removed from within the firing range area. These samples will be collected from the soils located directly below the removed sands. The soil samples will be evaluated for potential lead concentrations exceeding established clean-up criteria. The lead concentrations will determine if removal of the soil is necessary. If total lead concentrations are less than 400 milligrams per kilogram (mg/kg) (EPA/540/F-94/043 acceptance standard), the soils will remain in the building. If lead concentrations are greater than 400 mg/kg, additional sampling will be performed to
determine the extent of the contamination and contaminated soil will be removed. Remaining soils will then require sampling and analysis to confirm the effectiveness of the removal action.

Composite samples of various building materials will be collected and analyzed by the primary laboratory to determine TCLP lead concentration. All material having TCLP lead results greater than 5 mg/L will require disposal in a RCRA landfill.

Wipe samples will be collected from decontaminated surface areas to determine if the clean-up process effectively reduced contamination levels to less than 100 μg/ft² (U.S. Department of Housing and Urban Development acceptance limits) on materials remaining in the firing range.

1.3.2 Drum Sample

The contents of a drum containing materials from an unknown source stored inside a room of the firing range basement were visually inspected on 7 May 1997. This drum contained oil (assumed to be gun-cleaning oil) laden saw dust. The contents will be sampled for TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) and volatile organic compounds (VOCs) to determine disposal requirements. If the VOC and metals TCLP RCRA-regulatory criteria are met, the saw dust material will be disposed in a municipal landfill with the non-regulated building debris. If results fail TCLP RCRA criteria are not met the contents of this drum will be transported to the Eielson AFB CES Hazardous Waste Handling and Recycling Facility (CES HAZMAT) for disposal through the Defense Reutilization and Marketing Office (DRMO). CES HAZMAT will be provided a copy of the characterization results.

1.3.3 Field Screening

Grossly-contaminated surface areas may be screened before and after decontamination, using an X-ray fluorescence (XRF) analyzer, to estimate surface lead concentrations and evaluate
clean-up efficiency. The detection limitations associated with this field instrument are 1 mg/cm². Field screening results will not be used for clearance determination.

1.3.4 Personal Protective Equipment

Personal protective equipment (PPE) will be decontaminated in the field before field personnel remove the equipment at the end of each shift or before breaks in activities. PPE will not be sampled but will be disposed with appropriate waste stream.

1.3.5 Cloths Used for Decontamination

A composite sample of the cloths used during decontamination of surface contaminated areas will be tested using TCLP SW1311/6010 to determine if lead concentrations exceed 5 mg/L. If concentrations exceed this limit the material will be disposed in a RCRA landfill; otherwise, this material will be disposed in a municipal landfill.

1.3.6 Offsite Fixed-Analytical Testing

Samples will be analyzed by Columbia Analytical Services (CAS) Anchorage, Alaska. Sample collection procedures are defined in Section 4.0 of this FSP addendum and also in the Standard SAP.

Pre-demolition sampling and testing are summarized in Table 3-1 of the Work Plan. Requirements for those samples that require fixed laboratory analyses are summarized in the FSP Addendum, Table 1-1 and Table 1-2.

Pre-demolition samples will be collected to identify areas of potential contamination, confirm field screening results, determine bulking of similar contaminated/noncontaminated waste, and evaluate decontamination and disposal options. These samples are identified in the following table.
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<td>0</td>
</tr>
<tr>
<td>Range Floor Tiles</td>
<td>TCLP Lead/Solid</td>
<td>SW1311/6010</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Floor Tiles Rms 1, 2, 3, 4</td>
<td>TCLP Lead/Solid</td>
<td>SW1311/6010</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Range Boardwalk Plywood</td>
<td>TCLP Lead/Solid</td>
<td>SW1311/6010</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Lumber in Floor Sump</td>
<td>TCLP Lead/Solid</td>
<td>SW1311/6010</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Range Plywood Behind Wall Tiles</td>
<td>TCLP Lead/Solid</td>
<td>SW1311/6010</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Range Plywood Sound Baffle</td>
<td>TCLP Lead/Solid</td>
<td>SW1311/6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Unknown Drum, Containing Sawdust</td>
<td>TCLP RCRA metals</td>
<td>SW1311/SW6010/7000 series metals</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 32 7

Notes: 1 Samples of the floor tiles will be collected after the floor is decontaminated and before demolition. After building decontamination and demolition is complete, confirmation sampling will be performed to verify effectiveness of the decontamination procedures and evaluate additional decontamination and disposal options.
## Table 1-2
### Post-demolition Sample Location Identification

<table>
<thead>
<tr>
<th>Waste Description</th>
<th>Test/Matrix</th>
<th>Frequency</th>
<th>Analysis</th>
<th>No. of Samples</th>
<th>No. QA Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor of door-way Rm 1</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way Rm 2</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way between Rm 3 and Rm 5</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way between Rm 4 and Rm 5</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way vault</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Floor of door-way to main entrance</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Floor of doorway near sump</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 1</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 2</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 3</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>West wall of Rm 4&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>North wall of Rm 5</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>North wall of vault</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>East wall near access</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Entrance wall opposite door way to Rm 3 (West wall)</td>
<td>Total</td>
<td>1 Wipe</td>
<td>SW6010</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>North and south walls in firing range</td>
<td>Total</td>
<td>1 Wipe per wall</td>
<td>SW6010</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Concrete columns</td>
<td>Total</td>
<td>1 Wipe per column</td>
<td>SW6010</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Concrete ceiling in the range</td>
<td>Total</td>
<td>1 in each half of range</td>
<td>SW6010</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Soils</td>
<td>Total lead</td>
<td>5 composite</td>
<td>SW6010</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Liner</td>
<td>TCLP lead</td>
<td>1 per liner</td>
<td>SW1311/ SW6010</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Rags</td>
<td>TCLP lead</td>
<td>1 composite</td>
<td>SW1311/ SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Steel armor on columns</td>
<td>Total</td>
<td>1 per Column</td>
<td>SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>HVAC duct metal</td>
<td>Total</td>
<td>1 per Duct</td>
<td>SW5010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous office materials</td>
<td>TCLP lead</td>
<td>1 composite</td>
<td>SW1311/ SW6010</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td></td>
<td></td>
<td></td>
<td>33</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: 1 The wall in Room 4 will only be sampled if the wall remaining after demolition is concrete.
1.4 FIELD ACTIVITIES

The following section describes the procedures to be used for sample collection.

All sampling equipment shall be decontaminated using procedures described in the Standard FSP.

1.4.1 Sample Collection and Analysis

Sample handling, preservation techniques, and holding time requirements are defined in Table 1.4-1 of the Standard FSP.

The procedures described for sample collection and shipping for wipe and solid matrices shall be followed for the following analytical procedures:

- SW6010 total lead in wipe samples;
- SW1311/6010 TCLP for lead in solid bulk materials;
- SW6010 for total lead in soils; and
- SW1311 TCLP for RCRA metals (SW6010/7000) and VOCs (SW8260A).

1.4.1.1 Soil Sampling

Samples will be collected of the soils remaining in the indoor firing range after the sands are removed. Surface soil samples will be collected from five areas as defined in the Work Plan using a hand held disposable shovel. Each sample will be collected from a 0 to 3-inch below ground surface zone at each area as identified in Figure 2-4 of the Work Plan. Each sample will be a composite of three sample volumes that will be homogenized in a stainless steel bowl before sample containers are filled. The sample collection will be representative of the identified area and will be based upon the field samplers' professional judgment. One 8-ounce container will be provided to the offsite laboratory for each of the five sample locations. Surface soil sampling procedures are detailed in Section 1.5 of the Standard FSP.
1.4.1.2 **Wipe Sampling**

The wet wipe sampling procedure described in American Society for Testing and Materials (ASTM) Method ES 30-94 (ASTM 1994) will be followed. The ASTM document is provided as Attachment 1. An 1-square foot area will be measured off using a tape measure and masking tape. The field sampler will not allow the tape measure to touch the sample area. Masking tape will be placed over the sample area to provide a template for wiping the designated area. Sample collection will follow the ASTM ES 30-94 procedures. All results will be reported as µg/wipe but will be equivalent to µg/ft². Samples will be analyzed by the primary laboratory. Wipe samples will be collected as defined in Tables 1-1 and 1-2 and in Figure 1-1.

1.4.1.3 **Bulk Material Composite Sampling**

The acoustical tiles, floor tiles, sheet-rock, miscellaneous (chalk board, furniture, etc.) and wood material sampling will be performed according to the General Debris Sampling Procedure described in Section 1.5 of the Standard FSP. The materials will be collected from representative areas, as described in Table 3-1 of the Work Plan, prior to demolition using the appropriate equipment. Samples will be analyzed by the primary laboratory. Bulk sampling frequency is provided in Table 1-1. All samples will be collected so that results are representative of the entire waste stream under evaluation.

1.4.1.4 **Unknown Material Drum Sampling**

A sample of the saw dust and sand stored in one room of the firing range basement will be collected using a hand-held disposable shovel. Two 8-ounce containers will be filled and analyzed by the primary laboratory for TCLP metals and VOCs so that disposal options can be evaluated.
1.5 SAMPLE CHAIN-OF-CUSTODY/DOCUMENTATION

This section describes the site-specific sample custody requirements. Sample custody procedures defined in the Standard FSP will be followed by the field and laboratory personnel.

1.5.1 Sample Numbering System

BESCORP will represent the field sampling agency location identification in the sample numbers placed on the COC records.

The key for matrix designations are:

SW  wipe
BL  building material
SO  soil or saw dust mixed with sand

1.6 SAMPLE PACKAGING AND SHIPPING

This section identifies the site specific offsite laboratory subcontractor(s), Jacobs Project Chemist, and quality assurance (QA) laboratory and provides point of contact and shipping address information. Additional information can be found in Section 7.0 of the Standard FSP.

Jacobs Project Chemist
Gloria Beckman
4300 B Street, Suite 600
Anchorage, Alaska 99503-5922
(907)563-3322
(907)563-3320 Fax

QA Laboratory (To be Determined)

Primary Laboratory
Columbia Analytical Services (CAS)
4710 Business Park, Suite 24
Anchorage, Alaska 99503
CAS Project Manager: Earl Crapps
(907)563-0846
(907)563-2973 Fax
1.7 INVESTIGATION DERIVED WASTES

This section describes waste streams generated during field activities that may require characterization for disposal and handling.

Decontamination water generated during this field effort will not require characterization. All water used during this field effort will be mixed with the sands after they are removed from the indoor firing range.

Bulk samples of the two liners used to collect lead-contaminated sands that may be dropped during transportation of demolition materials from the building to the dump trucks will be collected. These samples will be collected after removal is complete and the liners are swept and wiped to remove materials adhering to the liner. These samples will be tested to determine TCLP metals and (non-TCLP) VOC concentrations. PPE will not be sampled but will be decontaminated and disposed with the non-hazardous waste stream. A composited sample of the cloth used to decontaminate various surfaces will be analyzed for TCLP lead to determine disposal requirements.

1.8 CONTRACTOR CHEMICAL QUALITY CONTROL

This section is described in the Standard FSP. Site-specific information is not appropriate for this addendum.

1.9 DAILY CHEMICAL QUALITY CONTROL REPORTS

The chemical quality control reports are discussed in the Standard FSP. No modifications to the standard procedures were made for this field effort.

1.10 CORRECTIVE ACTIONS

The corrective action program is discussed in the Standard QAPP. These requirements are defined for the program and do not vary between projects. Site-specific corrective actions were not required for this field effort.
1.11 PROJECT SCHEDULE

The project schedule is described in the Work Plan.

1.12 SAMPLING APPARATUS AND FIELD INSTRUMENTATION

Sampling apparatus and field instrument requirements for this field effort are minimal. Sampling apparatus associated with the field sample collection are described in the appropriate field sampling procedures, Section 1.5 of the Standard FSP.

Field screening will be performed using a Spectrace 9000 X-ray fluorescence (XRF) analyzer to determine surface lead concentrations. The manufacturer’s recommended procedures will be followed by the field personnel to ensure proper operation of this instrument (Attachment 2). This instrument will not be used for quantitative determinations. Surfaces will be screened using the XRF before decontamination is performed to identify heavily contaminated areas. After surfaces are decontaminated, the XRF will be used to evaluate effectiveness of the decontamination.

2.0 QUALITY ASSURANCE PROJECT PLAN

This section of the SAP Addendum describes the project-specific requirements that ensure the project and analytical DQOs are met. Program-established requirements are described in the Standard SAP and laboratory subcontract indefinite delivery/indefinite quantity (ID/IQ).

2.1 PROJECT DESCRIPTION

This QAPP addendum defines the DQOs and the QA/QC procedures that will be followed during the decontamination and demolition at Eielson AOC 32. The QA/QC procedures will ensure that data generated during the 1997 field effort are precise, accurate, representative, comparable, and complete. This section of the SAP Addendum supplements the field sampling requirements.
The objectives of this field effort are to identify potential contamination in soils, building debris, drum contents; confirm clean-up procedures; and evaluate disposal options. Chemical data will be of quality to support waste management, transportation, remediation, treatment, and disposal decisions. The data shall comply with USAED, Alaska Department of Environmental Conservation (ADEC), and contractor requirements and all project-specific DQOs as defined in Section 2.4.1 of this QAPP Addendum.

This QAPP addendum was prepared in accordance with applicable USAED (USACE 1994) and U.S. Environmental Protection Agency (EPA) guidance (1980). As appropriate, this document follows the outline proposed in contractor’s USAED contract DACA85-95-D-0018 and the EPA manual, *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (1988).

2.1.1 Quality Assurance Project Plan Addendum Purpose and Scope

This QAPP Addendum defines the site-specific QA/QC procedures that ensure data quality and identifies procedures and methods necessary to perform the field effort. In support of the QAPP addendum, the Laboratory Quality Assurance Project Plan (LQAPP; Attachment 3) and the TERC laboratory scope of work (SOW) define specific calibration, QC frequency, and acceptance criteria. Additional requirements that apply to all laboratory procedures performed in support of TERC are described in the Standard SAP. This QAPP Addendum provides guidance and specifications to ensure that the following are accomplished:

- Data quality goals are defined.
- Field measurements and laboratory analytical results are of known and acceptable quality and quantity (including precision and accuracy) through the use of standard methods; preventive maintenance; standardized calibration and analytical protocols; and QC measurements, review, and internal audits.
- Sample collection methods are appropriate to data quality targets and executed in accordance with written standard operating procedures that meet USAED contractual agreements (previously reviewed by the Corps of Engineers–Missouri River Division).
- Procedures are established for out-of-control conditions and implementation of corrective actions to ensure these conditions do not affect future data quality and do not recur.
• Procedures for record keeping, including sample tracking (from the field and throughout the laboratory) and chain-of-custody protocols are established and followed.

• A consistent framework is established for the generation of analytical data. Topics discussed in this section include project scope and objectives as they apply to the analytical DQOs that are site specific. This section identifies method/test requirements and associated QC requirements for all methods.

Topics discussed in this section include project scope and objectives as they apply to the analytical DQOs that are site specific. This section identifies method/test requirements and associated QC requirements for all methods.

2.2 PROJECT ORGANIZATION AND RESPONSIBILITY

The project organization and roles and responsibilities of key project personnel are described in the Work Plan. Organization charts for the fixed laboratories are provided in the LQAPP. Responsibilities of key QA/QC personnel are defined in the Standard QAPP; individuals filling these roles are:

• Jacobs
  — Gloria Beckman, Project Chemist
• CAS (primary analytical laboratory)
  — Earl Crapps, CAS Laboratory Project Manager
  — Lee Wolfe, CAS Quality Assurance Manager

The primary laboratory will perform chemical analysis to identify contamination concentrations and confirm results of field screening and decontamination procedures. The role of the fixed analytical laboratory is described in the following paragraphs.

The following chemical analyses will performed by CAS:
• TCLP lead, SW1311/SW6010;
• Total lead, SW6010;
• TCLP RCRA metals, SW1311/SW6010 (arsenic, barium, cadmium, chromium, lead, selenium, and silver) and SW7470/7471 (mercury); and
• VOC, SW8260A.

QA laboratory  A USAED designated or approved QA laboratory (to be determined) will analyze 10 percent of the soil and building confirmation samples. The sample results will be evaluated by a consultant (to be determined) to determine data quality. Additionally, the Jacobs Project Chemist will review the data evaluation report and generate a data quality assessment report that summarizes the usability of the data. Additional review procedures are provided in the Standard SAP.

2.3 DATA QUALITY OBJECTIVES

The project scope is described in detail in the Work Plan, and the objectives are described in Section 2.3.1 of the QAPP Addendum. Samples of soil, liner, and various solid matrices will be collected to determine the levels of potential contamination and verify decontamination procedures. These data will be used, as identified in the waste management sections of the Work Plan, to determine the disposition and treatment of hazardous materials.
2.3.1 Quality Assurance Objectives for Chemical Data Measurement

This section of the QAPP Addendum addresses regulatory issues for handling and disposal of lead-contaminated materials. The maximum concentration limits associated with the regulated analytes are provided in Table 2.2-1 of the Standard QAPP.

The DQOs for this project are as follows:

- **RCRA.** Identify concentration levels of lead in building debris to identify disposal and decontamination requirements. When concentrations of lead exceed the TCLP lead leachate concentration of 5 ppm, disposal will be at a RCRA treatment, storage, and disposal (TSD) facility; otherwise, disposal is by landfill. Samples will be analyzed for TCLP (SW1311/SW6010) lead to determine leachate concentration. Additional analytical testing for RCRA metals and VOCs will be required for the unknown drummed material sample.

- **354 CES/CEOVH_HAZMAT.** The 354 CES/CEOVH, HAZMAT division of the Air Force at Eielson AFB will receive the characterized barrel of saw dust. The drummed material will be manifested to DRMO if it is considered a RCRA waste. Copies of laboratory results will be provided with the drummed material.

2.3.2 Analytical DQOs

In general the primary constituent of concern for the Eielson AOC 32 is lead. The analytical DQOs for the removal action are defined in this section of the QAPP Addendum. The goals and rationales that support the analytical DQOs are also defined in this section.

The goals supported by the analytical DQOs are as follows:

- determine lead concentrations in potentially-contaminated soil;
- identify potential lead contamination in building debris prior to demolition;
- minimize waste streams and waste disposed in RCRA landfill;
- fill data gaps;
- minimize fixed laboratory analyses; and
- characterize building debris for treatment, disposal, and transportation after decontamination.

These goals can be achieved by the following approach:
• review historical data;
• collect fixed laboratory data; and
• compile and review data to determine usability.

The rationales in Table 2-1 justify the methods that will be used to support this investigation.

### Table 2-1
Analytical Data Quality Rationales

<table>
<thead>
<tr>
<th>METHOD</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW1311/SW6010 (TCLP Lead)</td>
<td>• Determine if contamination concentrations in building debris and liners exceed the 5.0 mg/L TCLP limit</td>
</tr>
<tr>
<td></td>
<td>• Characterize for RCRA or non-RCRA disposal</td>
</tr>
<tr>
<td>SW1311/SW6010/7000 (RCRA Metals) and SW8260A (VOCs)</td>
<td>• Potential characterization for handling and disposal according to RCRA requirements for TCLP (see Table 2.2-1 in Standard QAPP)</td>
</tr>
<tr>
<td></td>
<td>• Confirm decontamination procedures</td>
</tr>
<tr>
<td>SW6010 (lead)</td>
<td>• Evaluate remediation requirements</td>
</tr>
<tr>
<td></td>
<td>• Identify soil contamination as result of migration of lead from firing range and trap sands</td>
</tr>
</tbody>
</table>

**Notes:**
- The analytical method, reporting, matrix, and analyte requirements are defined in Table 2.7-1 of the Standard QAPP.
- RCRA - Any constituents failing TCLP maximum concentration limits.

Table 2-2 summarizes the sample type and associated analytical method that will be used to meet these goals.

### Table 2-2
Sample Type and Associated Methods

<table>
<thead>
<tr>
<th>SAMPLE TYPE</th>
<th>ANALYTICAL METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building debris (to include miscellaneous office materials)</td>
<td>SW1311/SW6010 (Lead)</td>
</tr>
<tr>
<td>Unknown drum contents</td>
<td>SW8260A (VOCs), SW1311/SW6010/7000 (RCRA Metals)</td>
</tr>
<tr>
<td>Liner</td>
<td>SW1311/SW6010 (Lead)</td>
</tr>
<tr>
<td>Soils under range and trap sands</td>
<td>SW8081 (PCBs)</td>
</tr>
<tr>
<td>Concrete wipe</td>
<td>SW8081 (PCBs)</td>
</tr>
</tbody>
</table>

**Notes:**
- The complete analyte list associated with each method is detailed in Section 2.7 of the Standard QAPP.
The data quality shall be of a level usable to support decisions made to meet regulatory requirements and field decisions. Analytical results reported from the above-mentioned methods will provide data meeting the goals and objectives of this investigation.

The analytical DQOs for this field investigation shall be met when the quality of the sample data meet precision, accuracy, representativeness, completeness, and comparability (PARCC) requirements as defined in the FSP, QAPP, LQAPP and analytical methods as defined in the Standard SAP.

3.0 REFERENCES


U.S. Environmental Protection Agency (EPA). 1995 (February 9) Region III Risk Based Concentration (RBC) Table Background Information February for soil ingestion.


U.S. Army Corps of Engineers (USACE). 1994 (September 3). Requirements for the Preparation of Sampling and Analysis Plans. EM 200-1-3.


ATTACHMENT 1

Emergency Standard Practice for Field Collection of Settled Dust Samples
Using Wipe Sampling Methods for Lead Determination by
Atomic Spectrometry Techniques

ASTM Method ES 30-94
Emergency Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques

This emergency standard is issued by ASTM in accordance with a special procedure to meet the demand for rapid issuance of specific documents.

1. Scope

1.1 This practice covers the collection of settled dusts on hard surfaces using the wipe sampling method. These samples are collected in a manner that will permit subsequent digestion and determination of lead using laboratory analysis techniques such as inductively coupled plasma atomic emission spectrometry (ICP-AES), flame atomic absorption spectrometry (FAAS), and graphite furnace atomic absorption spectrometry (GFAAS).

1.2 This practice is used to collect samples for subsequent determination of lead on a loading basis (micrograms of lead per area sampled). This practice cannot be used to collect samples for subsequent determination of lead on a concentration basis (micrograms of lead per gram of settled dust collected).

1.3 This practice may not be suitable for collection of settled dust samples from rough or porous surfaces such as upholstery and carpeting.

1.4 This practice does not address the sampling design criteria (that is, number and location of wipe samples) that are used for risk assessment and other purposes. However, it is generally recommended that sufficient numbers of samples be obtained so as to provide for valid conclusions.

1.5 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

1.6 The following safety hazards caveat pertains only to the procedure section of this practice: This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Terminology

2.1 Definitions:

2.1.1 batch—a group of field or quality control (QC) samples that are collected or processed together at the same site using the same reagents and equipment.

2.1.2 field blank—a wipe that is exposed to the same handling as field samples except that no sample is collected (no surface is actually wiped). Analysis results from field blanks provide information on the analyte background level in the wipe combined with the potential contamination experienced by samples collected within the batch resulting from handling.

2.1.3 sampling location—a specific area within a sampling site that is subjected to sample collection.

2.1.3.1 Discussion—Multiple sampling locations are commonly designated for a single sampling site. An example would be a windowsill in the northwest bedroom on the second floor of a specific building.

2.1.4 sampling site—a local geographical area that contains the sampling locations.

2.1.4.1 Discussion—A sampling site is generally limited to an area that can be easily covered by walking. An example would be the White House in Washington, DC.

2.1.5 Wipe—dispensable towelettes moistened with a wetting agent (see 2.1.5.1 and 2.1.5.2); these towelettes are used to collect the sample and to clean sampling equipment.

2.1.5.1 Discussion—Wipe brands or sources selected for use should contain insignificant background lead levels. Laboratory analysis on replicate blank wipes should be used to determine background lead levels prior to use in the field. Brands of wipes that contain aloe should be avoided due to increased potential of significant background lead in these wipes. Brands of wipes that contain lanolin should also be avoided due to potential increased laboratory processing difficulties that have been reported with such wipes. Background lead levels less than 5 µg per wipe are considered insignificant for most investigative purposes.

2.1.5.2 Discussion—Wipe brands or sources selected for use should be of adequate width and thickness to perform the collection procedure. A thin wipe having dimensions of approximately 15 by 15 cm² is recommended. Use of multiply or extra thick wipes can cause problems with laboratory analysis activities. Use of wipes with smaller dimensions may not be capable of holding settled dust contained within the sampling area.

2.1.6 wipe sampling kit—a sealable rigid-walled container with 50-mL minimum volume (sec 2.1.6.1); the kit must also include a separate container of clean uncontaminated wipes for use in collecting samples; one container of bulk packed wipes is typically used for multiple sets of rigid walled containers.

2.1.6.1 Discussion—Use of a resalable plastic bag for holding and transporting the settled dust wipe sample is not recommended due to the potential losses of settled dust within the plastic bag during laboratory handling. Quantitative removal and processing of the settled dust wipe sample by the laboratory is significantly improved through the use of sealable rigid-walled containers.
3. Summary of Practice

3.1 Wipe samples of settled dust are collected on hard surfaces from areas of known dimensions with moistened disposable towlettes using specified pattern of wiping.

4. Significance and Use

4.1 This practice is intended for the collection of settled dust samples in and around buildings and related structures for the subsequent determination of lead loading (micrograms of lead per area sampled) as described in the HUD guidelines.3

4.2 The sampling result can vary between operators performing collection from identical surfaces as a result of collection variables. Use of different pressures applied to the sampled surface along with use of different wiping patterns contributes to collection variability. Therefore, it is recommended that collection for any group of sampling locations at a given sampling site be limited to a single operator whenever possible.

4.3 The practice is limited to collection of settled dust samples from hard, relatively smooth nonporous surfaces. The practice is not recommended for collecting settled dust samples from surfaces with substantial texture such as rough concrete, brickwork, textured ceilings, and soft fibrous surfaces such as upholstery, to name a few.

5. Apparatus and Materials

5.1 Sampling Template—A 30 by 30 cm (approximately 1 ft²) reusable aluminum or plastic or disposable cardboard or plastic template (full square, square “U” shaped, and “L” shaped) or alternative area, of accurately known dimensions (see Note 1). Templates should be thin (less than 3 mm), and be capable of lying flat on a flat surface.

      NOTE 1—It is recommended to collect settled dust from a minimum of a 10 by 10 cm area* to provide sufficient material for laboratory analysis. Use of templates or collection areas larger than 30 by 30 cm may be appropriate for surfaces that have little or no visible settled dust. A smaller sampling area (for example, 10 by 10 cm) is desired for surfaces with high levels of visible settled dust.

5.2 Wipes—See 2.1.5 for definition.

5.3 Resealable Rigid Walled Containers, 50-mL minimum volume. Screw top plastic centrifuge tubes are an example of a suitable rigid walled container.

5.4 Steel or Plastic Measuring Tape.

5.5 Plastic Gloves, powderless.

5.6 Disposable Shoe Covers, optional.

6. Procedure

6.1 Don a pair of clean, powderless, plastic gloves (see Note 2).

   Change gloves frequently. Collection of each new sample must be conducted with a new pair of gloves. Powderless gloves are recommended to minimize contamination of the collected settled dust from powders used in "powdered" gloves.

   Clean sampling equipment and measuring tapes frequently with water. Do not open sampling kits (rigid walled containers and bulk packed wipes) until just prior to use.

   Use of disposable shoe covers between different buildings and removal of them prior to entering sampling vehicles can be useful to minimize inadvertent transfer of settled dust from one location to another.

6.2 At the beginning of a sampling period (or if a new bulk packed container of wipes is opened), remove a minimum of the top three wipes from the container (wipe off gloved fingers with each wipe as they are removed). Use the next wipe from the container to collect the sample (see Note 3).

   NOTE 3—This procedure will minimize the risk of inadvertent contamination from dust settling into the wipe container and eliminate the potential inadvertent use of partially dried out wipes.

6.3 Use one of the following two general procedures for collecting settled dust samples from each location. For wide flat locations, use the template assisted sampling procedure. For small locations (for example, a windowsill or door jam), use the confined area sampling procedure.

6.3.1 Template Assisted Sampling Procedure:

6.3.1.1 Carefully place a clean template on the surface in manner that minimizes disturbance of settled dust at the location. It is recommended to either tape or place a heavy object on the outside edge of the template to prevent the template from moving during sample collection.

6.3.1.2 Using an open flat hand with the fingers together, wipe the selected surface area, side to side, in an overlapping "S" pattern while applying pressure to the fingertips. Wipe so that the entire selected surface area is covered (see Notes 2, 3, 4, and 5).

   NOTE 4—The wiping procedure is performed using the fingers, not the palm of the hand.

   NOTE 5—Field blanks must be collected at a frequency of 5% (or one for every 20 field samples collected). The minimum number of field blanks to collect for each batch of wipes used (each new sampling kit opened) is three. The first wipe (after removal of a minimum of three wipes, see 6.2) and the last wipe must be designated as a field blank. In addition, a field blank must be designated during the course of collection at a given site (that is, from the middle of the wipes used to collect settled dust samples). These field blanks must be identified in a manner that correlates them with the samples collected using the same batch of wipes at the same site. Utilization of a previously used batch of wipes at a new sampling site must be handled in the same manner as a new batch of wipes that is, sample collection at each sampling site must include a minimum of three field blanks.

6.3.1.3 Fold the wipe in half with the sample side folded in and repeat the wiping procedure above within the selected surface area using an up and down overlapping "S" pattern (see Note 6).

   NOTE 6—Wipes are folded to envelope the settled dust within the wipe and avoid settled dust losses and to expose a clean wipe surface for further settled dust collection. For areas containing large amounts of settled dust, care must be taken during wiping to capture the settled dust within the wipe. Use of a bulldozer analogy during collection of settled dust can be instructive for field personnel unfamiliar with the wipe method.

6.3.1.4 Fold the wipe in half again with the sample side
folded in and repeat the wiping procedure one more time, concentrating on collecting settled dust from the corners within the selected surface area (see Note 6).

6.3.1.5 Fold the wipe again with the sample side folded in and insert the folded wipe into a rigid walled container.

6.3.1.6 Label the rigid walled container with sufficient information to uniquely identify the sample and record the dimensions (in cm) of the selected sampling area (the internal template dimensions). Discard the gloves in the trash bag.

6.3.2 Confined Area Sampling Procedure:

6.3.2.1 Holding the fingers together and flat against the selected surface area, wipe the measured surface in one direction (see Notes 2, 3, 4, and 5). Apply pressure to the fingertips while wiping the surface.

6.3.2.2 Fold the wipe in half with the sample side folded in and repeat the wiping procedure above using a reverse direction within the selected surface area on one side of the folded wipe (see Note 6).

6.3.2.3 Fold the wipe in half with the sample side folded in and repeat the wiping procedure one more time, concentrating on collecting settled dust from the corners within the selected surface area (see Note 6).

6.3.2.4 Fold the wipe again with the sample side folded in and insert the folded wipe into a rigid walled container.

6.3.2.5 Label the rigid walled container with sufficient information to uniquely identify the sample. Using a measuring tape, identify and record the dimensions (in cm) of the selected sampling area (the area actually wiped during sample collection). Discard the gloves in the trash bag.

7. Report

7.1 Field data related to sample collection must be documented. A sample log form or field notebook can be used to record field collection data (see Note 7). At a minimum, document the following information:

7.1.1 Project or client name, address, and city and state location.

7.1.2 General sampling site description.

7.1.3 Information as to what specific collection protocol was used.

7.1.4 Information as to what specific type or brand of wipes was used.

7.1.5 Information on QC samples, which samples are associated with what group of field blanks.

7.1.6 For each sample collected, an individual and unique sample identifier, area sampled and date of collection. This must be recorded on the sample container in addition to the field documentation.

7.1.7 For each sample collected, name of person collecting the each sample and specific sampling location information from which the sample was removed.

Note 7—Field notebooks are useful for recording field data even when preprinted sample data forms are used. Field notebooks should be bound with prenumbered pages. All entries on sample data forms and field notebooks must be made using ink with signatures and date of entry. Any entry errors must be corrected by using only a single line through the incorrect entry (no scratch outs) accompanied by the initials of the person making the correction and the date of correction. These procedures are important to properly document and trace field data.

8. Keywords

8.1 lead; sample collection; settled dust; wipe
ATTACHMENT 2

Spectrace 9000 X-ray Fluorescence Analyzer
Manufacturer's Operations Manual

(This manual will be available in the field.)
ATTACHMENT 3

Columbia Analytical Services Laboratory Quality Assurance Project Plan

(CAS LQAPP is on file in the Jacobs Anchorage office)
APPENDIX E

Contractor Quality Control Plan
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<td>Air Force Base</td>
</tr>
<tr>
<td>Air Force</td>
<td>United States Air Force</td>
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<td>AOC</td>
<td>Area of Concern</td>
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<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
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<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
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<td>BESCORP</td>
<td>Brice Environmental Services Corporation</td>
</tr>
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<td>C/V/R</td>
<td>Clarification/Verification Report</td>
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<td>decontamination and demolition</td>
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<td>FCR</td>
<td>Field Change Request</td>
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<tr>
<td>HDPE</td>
<td>High density polyethylene</td>
</tr>
<tr>
<td>Jacobs</td>
<td>Jacobs Engineering Group Inc.</td>
</tr>
<tr>
<td>NCR</td>
<td>Nonconformance Report</td>
</tr>
<tr>
<td>NDE</td>
<td>nondestructive examination</td>
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<tr>
<td>QA</td>
<td>quality assurance</td>
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<td>Quality Assurance Representative</td>
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<td>QC</td>
<td>quality control</td>
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<tr>
<td>SAP</td>
<td>Sampling and Analysis Plan</td>
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<tr>
<td>SOP</td>
<td>standard operating procedure</td>
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<td>SOW</td>
<td>Statement of Work</td>
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<td>Site Safety and Health Officer</td>
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<td>SSHP</td>
<td>Site Safety and Health Plan</td>
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<td>TERC</td>
<td>Total Environmental Restoration Contract</td>
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<td>USAED</td>
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<td>WMP</td>
<td>Waste Management Plan</td>
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EXECUTIVE SUMMARY

This Contractor Quality Control Plan (CQCP) has been prepared for the decontamination and demolition of a former indoor small-arms firing range in the basement of Building 2204 at Eielson Air Force Base (AFB), Alaska. The U.S. Army Engineer District, Alaska (USAED) contracted with Jacobs Engineering Group Inc. (Jacobs) to perform the work under Task Order 007 of the Total Environmental Restoration Contract (TERC), Contract No. DACA 85-95-D-0018. The CQCP constitutes one of the planning documents and it is a part of the Work Plan. The Work Plan also includes the Waste Management Plan (WMP), the Environmental Protection Plan (EPP), the Sampling and Analysis Plan (SAP), and the Project Technical Specifications.

The CQCP describes quality control procedures and reporting requirements to be used when performing the remedial action at the Eielson Small-Arms Firing Range.

Field activities scheduled for the Eielson decontamination and demolition (D & D) include mobilization of personnel and supplies to the site in July 1997, cleaning surfaces exposed to lead dust, removing and disposing of firing range sands and appurtenances, and demobilization of personnel, equipment, and materials from the site in July 1997.

The following items will be accomplished:

- Excavate approximately 70 cubic yards (yd$^3$) of sand from the indoor firing range;
- Excavate approximately 50 yds$^3$ of soil from the indoor firing range; and
- Decontaminate interior building surfaces and remove range appurtenances.

A treatability bench study was performed in March and April 1997. The treatability study was followed with an engineering evaluation of alternatives for sand treatment and disposal. Key elements and findings of each report can be found in Section 2.3 of the Work Plan.
1.0 INTRODUCTION

This CQCP is part of the Work Plan and has been prepared to document quality guidelines for construction as part of the remedial actions at the former indoor small-arms firing range in the basement of Building 2204 at Eielson AFB, Alaska.

The CQCP addresses the following six content elements:

- responsibility and authority;
- personnel qualifications;
- inspection activities;
- monitoring tests and observations;
- sampling requirements; and
- documentation.

This CQCP will be used by all contractors, subcontractors, and other project team participants to ensure compliance with material, fabrication, installation, inspection, and testing specifications and codes. Quality requirements will be maintained by all vendors and each project team participant from receipt of material through excavation, removal, sampling, and final inspection by USAED. In addition, USAED personnel will be an integral part of the entire process discussed in the CQCP, receive copies of the CQCP, be notified of quality control (QC) planning sessions, receive schedules of testing events, and be notified of changes in the CQCP and schedules.

In summary, the field team responsible for performing the work will provide and maintain a documented QC system that will ensure the end product (equipment, materials, and/or services), offered to the government, conforms to contract requirements, whether the product is manufactured, processed by Jacobs, or procured from subcontractors or vendors. This includes all definable features of construction-related activities to be performed during the project.
1.1 PURPOSE

The purpose of this CQCP is to implement a construction quality assurance (QA) program to ensure, with a reasonable degree of certainty, that completed remedial actions meet and/or exceed all plans and requirements. This CQCP addresses individual remedial action activities that will be deployed for the field work at the small-arms firing range and addresses the basic construction components for implementing these activities. Testing activities that ensure compliance with regulatory cleanup standards are addressed in the SAP, which is Appendix D of the Work Plan.

This CQCP was developed by the QC team with specific criteria derived from the project Statement of Work (SOW) and Definable Features of Work (DFW) and provides overall guidance for the project team to ensure QA/QC activities and reports are handled uniformly.

1.2 SITE DESCRIPTION AND BACKGROUND

A detailed site description, including Figures 1-1, 2-1, and 2-2, is provided in the Work Plan. Eielson AFB is located on the Richardson Highway near the town of North Pole and about 20 miles southeast of Fairbanks (Figure 2-1 of the Work Plan). The former indoor small-arms firing range is located in the basement of Building 2204 on Eielson AFB, which, for environmental programming purposes, has been designated Area of Concern (AOC) 32. The upper levels of the building are presently used for base housing. The building will be preserved and the firing range will be converted into usable space through these remedial activities. Figure 2-1 in the Work Plan presents the general location of Building 2204, while a detailed map of the firing range is presented in Figure 2-3 of the Work Plan.
2.0 ORGANIZATION

Various individuals are involved with the implementation of the CQCP. Figure 2-1 identifies the key people, lines of authority, and the subcontractors involved in the execution of this CQCP. Resumes of each key individual are included in Attachment 1. Resumes of other individuals involved in the project are on file with the USAED TERC Office.

2.1 ROLES AND RESPONSIBILITIES

The project management organization clearly identifies authority and responsibility for all aspects of project execution, including QA/QC. Each key project team member will receive a written description of his/her project responsibilities and authority and the chain of command.

Program Manager: Chris Williams. The Program Manager is responsible for and serves as a single point of contact with USAED for all work performed under the TERC. Principal duties of the Program Manager include ensuring that communications between project staff, subcontractors, and the USAED are clear and frequent; that technical performance meets or exceeds the customer’s expectations and withstands peer review; that project records are accurate and complete; and that administrative support and related services are accurate, timely, and efficient.

Project Manager: Chris Dillon, P.E. The Project Manager is the technical point of contact for this project. The position reports directly to the Program Manager and is responsible for providing the resources necessary for the QC System. The Quality Control Supervisor also reports directly to the Project Manager for assisting the Project Manager and QC System Manager in resolving differing interpretations of the QC System.
Figure 2-1  Project Organization
T.O. No. 07, D&D of the Indoor Firing Range, Eielson AOC 32, Alaska

Resident Engineer
USAED-Alaska
M. Redmond, PE

Program Manager
C. Williams

Task Order Team Leader
USAED-Alaska
D. Williams, PE.

Team Specialists
USAED-Alaska
P. Roth, EM
B. Walters - Chemist
S. Mills - QAR

Alaska District
Project Manager
C. Dillon, PE

Q.C. Supervisor
E. Evered, PE
(Acting)

S&H Manager
J.R. Dearholt

Contracts Administration
C. Nestor
G. Connolly

Project Controls
M. Ferri
N. Keswani, CM

Task Order Leader
K. Kearney

Remediation Work Plans
and Reports
K. Kearney
- Treatability Study
- Sand Remediation
- Blgd. Remediation

Treatability Study
BESCORP
- Lead Sand
- Lead Wash Water

Remediation
BESCORP
- Sand Remediation
- Building Remediation

CQC/Site Supervisor:
D. Burgess
Site Safety:
D. Burgess
Site Administrative Assistant:
TBD

Waste Transportation & Disposal
BESCORP
- Lead Sand
- Lead Recycling
- Lead Debris

Sampling and Analysis
G. Beckman
- Field Screening
- Confirmation Sampling
and Analysis
- Waste Characterization

Alaska TERC
Mission Statement
Together, jointly
manage projects to exceed our customers' expectations for safe, timely, and cost effective remediation.
Task Leader: Kim Kearney. The Task Leader is the principal point of contact between the Contractor and the project team. Together with the Site Superintendent, the Task Leader directs and approves all work performed, including that of subcontractors, and helps ensure that the work is performed in accordance with pre-approved plans and applicable laws and regulations.

QC Supervisor: Erich Evered. The QC Supervisor has the overall responsibility for maintaining project QC and reports directly to the PjM in matters of deficiencies in the QC system. The QC Supervisor will receive verbal and written reports from the CQC System Manager and will have the final authority (after consultation with the PjM) for deciding appropriate measures to deal with any QC deficiencies. The QC Supervisor may audit the QC System to determine the effectiveness of the system.

CQC System Manager: David Burgess. The CQC System Manager reports directly to the Task Leader in all matters of quality control for the project. This position reports indirectly to the QC Supervisor and is assisted by the QC Supervisor in resolving interpretations of the QC System between the Project Manager and the CQC System Manager. The CQC System Manager shall ensure, by inspection, that the specific quality of field work performed by the construction team is in compliance with approved contract and planning documents. Alternates to this position may be substituted upon approval by the USAED Quality Assurance Representative (QAR), and shall meet the following minimum qualifications.

The site CQC System Manager is assigned singular responsibility for ensuring all aspects of the CQCP are properly implemented and monitored. The individual in this role must possess sufficient practical, technical, and managerial experience to successfully oversee the implementation of QC activities. The individual shall have the oral and written communication skills necessary to implement the QC programs. In addition, the minimum qualifications of the CQC System Manager shall include:

- A graduate engineer or a graduate of construction management, with a minimum of four years environmental engineering experience; or an experienced construction person with a minimum of eight years experience in related work.
Nine semester hours, 12 continuing education units (or combination thereof), and two seasons experience in the specialized area identified in the delivery order (e.g., chemistry, geology, or engineering);

Working knowledge of applicable Federal, State, and local laws, regulations, and guidance; and

Successful completion of the course entitled “Construction Quality Management.” This course is periodically offered at the USAED office and the Alaska Associated General Contractors’ office in Anchorage.

The CQC System Manager shall perform the following:

- Ensure that site personnel assigned to the project are aware of and abide by the delivery order requirements;
- Monitor the work performed by the subcontractors and Jacobs employees to ensure contract items and conditions are fulfilled in accordance with work plans, specifications, and Standard Operating Procedures (SOPs);
- Provide continuing surveillance of specific craft disciplines to verify that high-quality standards of workmanship are performed and that they conform with approved engineering drawings and specifications;
- Perform or monitor tests, evaluations, or other measurements needed to meet quality requirements;
- Initiate action to prevent, stop, or correct the occurrence of QC deficiencies, defective work, or non-compliance through control and inspection using the three-phase approach;
- Exercise “stop work” authority when required to prevent performance inconsistent with contract documents;
- Investigate, research, define, and isolate quality problems and participate in their resolution;
- Implement required field reporting procedures as outlined in the work plans and as required in the delivery order;
- Keep a daily logbook (or daily activity report) of all significant project site events and submit a daily and weekly QC report to the Project Manager;
- Submit Daily Reports to the QAR by noon on the next work day;
- Initiate and maintain QC records and review procedures and documentation for completeness, accuracy, and compliance with contract requirements;
- Hold preparatory and initial phase meetings for each definable feature of work and perform follow-up inspections as appropriate;
- Monitor and update the Submittal Register and review submittals, as appropriate; and
- Keep as-built drawings current (redlines) and maintain accurate information to be used in the final report.

**Site Superintendent:** *David Burgess.* The Site Superintendent has overall responsibility for implementing the project work plan. The position reports directly to the Project Task Leader and due to the relatively small scope of the field effort for this project, he will also perform the roles of the CQC System Manager and the Site Safety and Health Officer.

**Site Safety and Health Officer:** *David Burgess.* The Site Safety and Health Officer is responsible for implementing the Site Safety and Health Plan for all personnel at the job, whether working or observing. The Site Safety and Health Officer has vested authority to stop work if unacceptable safety conditions or health threats arise or persist.

### 2.2 AUTHORITY

The Jacobs team, through its executive management, delegates the responsibility and authority to the CQC System Manager to adequately perform the functions of the position, including the authority to stop work that is not in compliance with the contract and project plan.

The appointment letter for this project that describes the CQC System Manager's authority is included in Attachment 1.

### 2.3 COORDINATION

The CQC System Manager must effectively communicate the content and purpose of the contract documents to all members of the team to ensure consistency of implementation.

The project coordination meeting will be the primary forum for disseminating the task order requirements to the field team and shall discuss the QC requirements and general terms. Relevant QC topics to be discussed in this meeting will include, but are not limited to, the following:
- QC documents and organizational roles related to the implementation of design criteria, plans, and specifications;
- The three-phase QC system;
- Procedures, responsibilities, authorities, and communication:
  - CQCP modifications;
  - observation, testing, and sampling; and
  - nonconformance identification, documentation, and resolution;
- document control; and
- construction schedule.

The coordination meeting, chaired by the QAR, will include all key team members, including USAED TERC and Resident Office representatives, Contractor, subcontractors, and appropriate vendors. Minutes of the meeting will be recorded and distributed to participants and a roll sheet will document attendance. The elements of the CQCP will guide the team toward delivery of a quality product and service.

Meetings, coordinating construction activities, and maintaining accurate field records are keys to an effective QC process. All members of the project team will be required to participate. The subcontractor will be required to participate in the QC program. Subcontractors will be required to complete appropriate QC forms for their work.

The field team, including the USAED QAR, Contractor, and subcontractors will meet weekly, or as work levels require, to discuss schedule progress, safety issues, required inspections, and any problems affecting quality of work. These meetings will identify present and future work activities so the QC Supervisor can better monitor work in progress and review upcoming work requirements with the subcontractor.

The Task Leader or Site Superintendent may call meetings to discuss special concerns such as changes in scope, work deficiencies, and corrective actions.
The Site Superintendent will notify appropriate subcontractor and USAED personnel on meetings, inspection, testing, and start-up activities at the job site. The Site Superintendent will ensure that required engineering and other support services are coordinated throughout the construction process, accurate test results are achieved and documented, and field reports are prepared.

3.0 QUALITY CONTROL PROCEDURES

The CQC system is implemented through three phases of control for all DFW: preparatory phase, initial phase, and follow-up phase.

The following sections outline the use of operational procedures to ensure QC from the preparatory stages of vendor material inspections and drawing reviews to delivery of a final product to the USAED. These sections also cover actual procedure selection, change, control, and application to potential remedial measures and construction activities.

3.1 DEFINABLE FEATURES OF WORK

Control of quality (meeting or exceeding requirements) is accomplished using a three-phase process for all DFWs. Table 3-1 shows the DFWs for the remedial action at the Eielson AFB small-arms firing range.

3.2 INSPECTION AND SURVEILLANCE

The CQC System Manager is responsible for executing a QC monitoring, observation, and surveillance system and coordinating construction operations and testing through implementation of the three-phased process using formal reports. The reports will be the daily reports and will include any forms or reports of information necessary to summarize and identify the pertinent information for the three-phase control process. This process includes the preparatory phase, the initial phase, and the follow-up phase.
The CQC System Manager will keep a daily logbook to document observations of construction techniques and to report the status of ongoing testing and analytical results and all other data relevant to the QC effort. The daily logbook will support the QC report and will be archived in the project records.
### Table 3-1
Definable Features of Work
Decontamination and Disposal
Eielson AFB
North Pole, Alaska

<table>
<thead>
<tr>
<th>Task Description</th>
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<tbody>
<tr>
<td>Premobilization Authorization and Preparation</td>
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<tr>
<td>Mobilization</td>
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<tr>
<td>Site Setup</td>
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<td>Utility Locates</td>
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<td>Sand and Soil Removal and Packaging</td>
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<tr>
<td>Bullet Strike Plate Decontamination and Removal</td>
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<tr>
<td>Protective Armor Decontamination and Demolition</td>
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<tr>
<td>Acoustical Tile Cleaning and Removal</td>
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<tr>
<td>HVAC Ducts Decontamination, Demolition, and Resealing</td>
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<tr>
<td>Boardwalk Decontamination and Removal</td>
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<tr>
<td>Floor Tile Decontamination and Demolition</td>
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<tr>
<td>Lighting Fixture Decontamination and Salvage</td>
</tr>
<tr>
<td>Bare Walls, Ceilings, and Floors Decontamination</td>
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<tr>
<td>Bare Walls, Ceilings, and Floors Confirmation Sampling</td>
</tr>
<tr>
<td>Waste Staging and Management</td>
</tr>
<tr>
<td>Site Cleanup and Revegetation</td>
</tr>
<tr>
<td>Final Inspection</td>
</tr>
<tr>
<td>Demobilization</td>
</tr>
</tbody>
</table>
The CQC System Manager will closely monitor the actual field testing, verifying proper procedure technique, sample handling, and chain of custody, if required. The CQC System Manager will report the testing results, thus providing timely authorization to proceed with work or initiate nonconformance action.

### 3.3 PERMITS

Permits will be obtained as required and in a timely manner. Any permit required for a DFW shall be presented and discussed at the preparatory phase meeting, documented in the preparatory phase checklist (Attachment 2), and reported as part of the CQC daily report (Attachment 4).

### 3.4 CERTIFICATIONS AND LICENSES

Certifications and licenses for personnel, equipment, materials, plans, and specifications will be identified in the preparatory phase checklist for the respective DFW. Each certificate and license shall be presented and discussed at the preparatory phase meeting and reported as part of the daily report.

### 3.5 TESTING

Testing requirements for the project are identified in the DFWs. Requirements for testing are discussed at the preparatory phase meeting for the respective DFW and shall be reported as part of the daily report.

### 3.6 PROJECT'S DEFINABLE FEATURES OF WORK

Table 3-1 is a list of the DFWs for this project.

### 3.7 CONTROL PHASE

Quality control (QC) is accomplished using a three-phase process for all DFWs, where a DFW is a task that is separate and distinct from all other tasks and has a specific set of control
requirements, such as excavation, backfilling, sampling, etc. Each QC phase (preparatory, initial, and follow-up) represents an opportunity to prevent deficiencies that could result in nonconformance. The three-phase control process outlined below helps achieve these objectives.

3.7.1 Preparatory Phase

The preparatory phase, as it applies to a DFW, includes actions prior to the start of actual field operations. During this phase, the qualifications of individuals are verified, testing controls are prepared, safety concerns are addressed, and any special permits, licenses, and certifications are reviewed. Attachment 2 is an example of the preparatory phase checklist for the DFWs. Each crew member associated with the particular DFW will attend the preparatory phase meeting, which is conducted by the CQC System Manager prior to starting work for each DFW. The QAR will be notified at least 48 hours in advance of any preparatory phase meeting. Included in the notice will be a completed preparatory phase checklist that will be the agenda for the meeting.

Preparatory phase actions include the following:

- review specific inspection and testing points based on construction tasks;
- review each paragraph of applicable sections in the planning documents and specifications;
- verify that all materials and supplies to be used as part of the removal action have been submitted, tested, and approved;
- verify that provisions have been made to provide required control inspection and testing as outlined in the DFW;
- examine the work area to verify that all required preliminary work has been completed and is in compliance with the contract;
- physically examine required materials, equipment, and sample work to verify conformance with USAED-approved shop drawings or submittal data and proper storage;
- review the appropriate activity hazard analysis to verify that all health and safety requirements have been properly addressed;
- discuss procedures for conducting the work, documenting the construction, and defining acceptable tolerances on workmanship standards for each phase of work;
• verify that the work to be performed has been approved by the USAED; and
• prepare a punchlist of incomplete items.

Minutes of the preparatory phase meeting will be included in the daily report as an attachment. The minutes will summarize the topics covered in the meeting and will include the preparatory phase checklist for each DFW.

3.7.2 Initial Phase

The initial phase occurs at the beginning of the construction period. The purpose of the initial phase is to ensure that the subcontractor and field team personnel understand, through dissemination and training, the contract and standards of workmanship desired. The initial inspection phase is a practical method of performing preventive inspection and resolving conflicts. Project personnel will acknowledge and document their understanding of contract standards, specifications, and requirements through the use of sign-off logs. The initial phase checklist is found in Attachment 3.

The initial phase meeting shall be attended by field personnel (Jacobs and subcontractors working on the DFW) and by those who worked on related DFWs that have been completed. Jacobs shall inform the QAR of the meeting at least 48 hours in advance. The initial phase shall be repeated for each crew that works onsite or at any time unacceptable quality standards are encountered. Initial phase actions will include the following:

• check preliminary work to verify that it is in compliance with the CQCP and contract requirements;
• complete review of the meeting minutes and action items identified during the preparatory phase;
• verify full contract compliance and the required control inspection and testing;
• establish a level of workmanship through training and certifications and verify that workmanship meets minimum acceptable standards;
• resolve all differences;
• verify compliance with the Site Safety and Health Plan (SSHP) and Work Plan, and modify if appropriate; and
• prepare a punchlist of incomplete items.

Minutes of this phase will be prepared by the CQC System Manager and attached to the QC Report.

3.7.3 Follow-up Phase

Follow-up inspection and testing verifies continued contract compliance and standards of workmanship that were established during the previous two phases. The follow-up phase is documented via the CQC Daily Report (Attachment 4). The Daily CQC Report for this project will be prepared and signed by Jacobs' CQC System Manager and then submitted to the QAR for approval. This form reports progress of work, problems encountered, tests performed, instructions (recorded and given), and general remarks.

At final inspections within a DFW, the USAED will be properly notified of an inspection and invited to witness the inspection or testing process.

Daily checks are performed (and documented by the QC Report) until the DFW task is successfully completed. Each check is a matter of record in the QC documentation. Final follow-up checks are conducted and all deficiencies corrected before the start of additional tasks that may be affected by the deficient work.

At any stage of the three-phase inspection process, materials may be rejected as a result of nonconformance. If nonconformance occurs, the Site Superintendent will document and implement strategies for resolving such. The resolution may require returning materials to vendors or reinstalling the item.

The follow-up phase will be complete upon final systems inspection and acceptance by the USAED. Every DFW is considered complete at the end of the project after final inspection and Contractor turnover occurs.
All documentation (e.g., test data, material data, inspection data, cost data, and warranties) will be collected, organized, and documented.

3.8 NONCONFORMANCE AND CORRECTIVE ACTION

It is important that any nonconforming material, assembly, or construction be corrected through systematic actions. Any time a condition exists that does not comply (a nonconformity) with the approved project plans or contract requirements the CQC System Manager will take the following actions.

- If, at any time, materials or workmanship are identified that do not comply with drawings, specifications, codes, or acceptable construction practices, the CQC System Manager will notify the Project Task Leader and initiate prompt corrective action.

- Notify the QAR of any nonconformance as soon as possible after it is identified. Notification will include information for the intended corrective action and schedule to alleviate the nonconformance.

- The discrepancies, if they cannot be corrected immediately, will be documented on a Nonconformance Report (NCR) form (Attachment 5). The NCR will contain a detailed description of the item or condition that has failed to meet drawing or specification requirements with an explanation of conditions at the time of failure and its probable cause. The NCR register will be updated daily and maintained during construction.

- The CQC System Manager will evaluate discrepancies to coordinate the resolution and determine methods of correction that may prevent recurrence of the problem.

- When corrective action is complete, the item will again be subject to final inspection.

- The Inspector will note on his Final Acceptance Report any retest required and performed, any nondestructive examination (NDE) required, or any change in identification of any replacement parts used in correcting the problem.

- A distribution list for discrepancy reports will be determined at the initial project planning meeting. At a minimum, distribution will include the USAED QAR, the Project Task Leader, and the Site Superintendent.

3.9 CHANGE CONTROL

A formal process will identify, document, and track the status of procedural and conditional changes in project design and remedial work. Changes requiring an "Approved for Construction" drawing or specification, changes in conditions, or conditions that affect the scope of the work will be documented by a Clarification/Verification Report (C/VR).
Proposed changes that have not physically occurred are also documented on a C/VR. In instances where the physical work has been completed, the C/VR is used to provide the as-built information and allow engineering the opportunity to review the impact of those changes on other components of the work and to accept or reject the change.

The C/VR is prepared by CQC System Manager, or any other individual initializing a change, and routed through the Site Superintendent to the Project Task Leader and Project Manager for review. A C/VR number will be assigned and a copy of the C/VR will be retained for the files. The Project Manager will discuss potential changes with the USAED. The C/VR is reviewed by the responsible engineer, the Site Superintendent, the Project Task Leader, and the USAED TERC Office Manager. Upon resolution, each signs the C/VR, thereby implementing the change.

4.0 CONSTRUCTION ACTIVITIES

This section presents the construction activities that will require ongoing QC monitoring, testing, and observation as a component of the follow-up phase. These activities will be performed per the approved project plans. Observations made during the execution of these activities will be noted on the applicable forms.

4.1 UTILITY CLEARANCE SURVEY

Utility and underground obstructions within the firing range area of Building 2204 will be identified and staked by the D&D subcontractor and a representative from Eielson AFB before excavation by the field team. The underground utilities will be located as part of the digging permit. If underground objects, such as artifacts or unidentifiable items, are found during excavation, the Site Superintendent QAR, and Air Force representative will be immediately notified. All utilities that are to remain in service during construction will be tagged. All utilities to be removed or that do not need to be functional during construction will be “locked out” and tagged.
4.2 SITE MOBILIZATION

Site mobilization involves the acquisition and siting of the field facilities (e.g., temporary field office, waste staging area) and the acquisition of field equipment, services, and supplies. Siting of facilities and service connections will be coordinated with Air Force and USAED personnel.

4.3 EQUIPMENT AND MATERIAL HANDLING, STORAGE, AND PROTECTION

Proper handling, storage, and protection of equipment and materials at the job site is critical to the project QC. The Site Superintendent will receive, inspect, unload, and store all equipment to be used at the job site. Periodic inspection and preventive maintenance will be conducted to ensure proper protection during storage.

4.4 SAFETY PRECAUTIONS

Because of potential impacts to human health caused by the inhalation of lead dust and environmental degradation associated with spreading of lead-contaminated sand fines, the Contractor will take steps to control and contain dusts during all remedial actions. These measures include:

- prohibiting the entry of any personnel into the range until all sand and debris are removed, or during the filling of "supersacks," unless wearing at least half-face respirators with particulate filters;
- sequencing the work activities to prevent the resuspension of sand fines or lead dusts;
- using a water mist to raise the sand moisture content, thereby controlling fugitive emissions; and
- prohibiting the burning or use of explosives in any part of the D&D activities.

4.5 WORK SEQUENCE

The activities performed during the decontamination and demolition of the Building 2204 indoor firing range are described in the following subsections. The general order of work is to:
1. Decontaminate, demolish, and remove the bullet strike plate, HVAC ducts and the plywood boardwalks.

2. Remove the firing range sands, containerize sands into supersacks and place the filled supersacks on truck trailers for transport.

3. Decontaminate, demolish, and remove the target retrieval system and other firing range appurtenances, steel protective armor, acoustical tiles and plywood backing, dimensional lumber, HVAC fans, office furnishings, gypsum sheetrock, and electrical heating and light fixtures.

4. Decontaminate all structural walls, ceilings and floors.

5. Collect and analyze confirmatory wipe tests to ensure D&D objectives have been met.

Removing the sands early allows the simultaneous D&D of the four rooms and ammunition vault near the entrance to the range. Removing the sands will also provide the D&D subcontractor greater mobility when hauling materials to the outside work zone, lessens sand “drag-out” on work boots and demolition debris, and reduces the resuspension of sand fines when decontaminating range appurtenances, demolishing structural materials, or decontaminating interior surfaces of the building.

4.5.1 Outside Work Zone Liner

A contractor’s work zone at the south end of the building will be marked and lined where firing range sands, demolition debris, and potentially hazardous materials will be containerized, stored, and loaded onto trucks. To prevent contamination of the ground surface, the D&D subcontractor will lay a fifty-foot (50 foot) square liner of heavy canvas or like material. An impermeable synthetic liner is not needed because there are no hazardous liquids to be handled and any spilled sands will not readily mobilize metals even during rainfall events. Liner edges will be secured with stakes, sand bags, or equivalent. The liner will be capable of withstanding multi-axle tractors and trailers driving across and being loaded with supersacks, steel or other recyclables, and D&D debris. Following any unexpected spill of sands, and again during demobilization, the liner will be swept or vacuumed and any sands will be placed into a supersack destined for smelting. The liner itself is not expected to require disposal as a regulated waste.
In one corner of the work zone liner, the D&D subcontractor will construct a Temporary Hazardous Material Storage Area. Measuring 10-feet squared, it will be lined using 20-mil high density polyethylene (HDPE). Bright flagging tape will mark this area to prevent the improper storage of materials or vehicle access. A double layer of sandbags will be placed around all sides, creating a berm 8- to 10-inches high. The HDPE liner will be placed over and then tucked beneath the sand bags to create a secondary containment cell with a capacity of approximately 500 gallons. It is expected that no hazardous wastes will be generated that will require temporary storage in this area. In the worst case, however, no more than four 55-gallon drums containing mostly non-liquid regulated hazardous wastes (e.g., air filters, personal protective equipment respirator cartridges, furniture upholstery) will ever be stored in this area.

4.5.2 Excavation and Containerization of Contaminated Sand and Soil

The types and approximate quantities of range sands to be excavated were previously determined by a preliminary site survey conducted by Brice Environmental Corporation (BESCORP), a subcontractor of Jacobs Engineering, in September 1996. Sampling and analysis confirmed that the firing range sands contain bullet fragments, lead particles, and lead-coated sand at concentrations which preclude local reuse or even disposing the sands in the Eielson AFB landfill. A bench-scale treatability test and engineering evaluation conducted in March 1997 proposed alternatives for the treatment or disposal of the range sands. This report concluded out-of-state smelting to be the preferred alternative. The Project Activities Work Plan provides a detailed description of the alternatives and reasoning behind this conclusion.

Excavated sand and soil will be hauled to the outside work zone liner (described in Section 4.5.1) to be containerized in 1 yd³ “supersacks,” stored, and loaded onto truck trailers for transport to the out-of-state smelter.

The CQC System Manager will assure that samples from the soil remaining in the firing range are obtained and analyzed according to the SAP.
4.5.3 Decontamination and Demolition of Interior Building Surfaces

The decontamination and demolition activities involve cleaning surfaces exposed to lead dust and removing and disposing of firing range appurtenances. After the protective armor and soundproofing that shield the inside surfaces of the building have been removed, all exposed surfaces and ducts will be cleaned. The type, volume, and disposition of waste streams will be kept to the very minimum by limiting the use of water or wetting agents. Steps will be taken to prevent the infiltration of wash water into the floor soils.

The QC Inspector will assure that samples are taken according to the SAP (Appendix D) to determine lead concentrations. The results of these tests will determine the waste classification and the method of disposal. All materials will be disposed of according to the Waste Management Plan (Appendix B).

4.5.4 Backfilling and Grading

Equipment may be operated on grassed areas; therefore, there may be a requirement for some minor regrading and reseeding. Grading will minimize erosion or ponding of water and match existing topography as much as practical.

4.5.5 Transportation of Waste Material

Controlling migration of potential contamination on and off the job site is of utmost importance during construction. The project team will make every effort to prevent any contaminant migration by thoroughly decontaminating vehicles and equipment, berms, dikes, and geomembranes and by properly handling excavated, stockpiled, and transported materials. All waste material will be disposed of in accordance with the Waste Management Plan (Appendix B).

4.5.6 Site Restoration

Site restoration will be required prior to demobilization. A walk-through with the USAED QAR and the Air Force representative will be made to identify any remaining site restoration
requirements. A punchlist of any requirement will serve as an acceptance document by having Air Force representative sign off on each item as completed.

4.5.7 Demobilization and Project Close-Out

QC will verify that project punchlists are complete, that equipment and materials are decontaminated as required before removal, the contaminated tools and equipment are decontaminated or properly stored onsite, and that final record drawings reflect as-built conditions. In addition, wastes generated from removal activities will be turned over for either treatment or disposal. The project team will compile records, reports, and pertinent construction data into a comprehensive project technical report detailing the chain of events, verifications, and certifications of a completed project.

4.6 SAMPLING REQUIREMENTS

Refer to the Sampling and Analysis Plan (Appendix D) for specific environmental sampling requirements.

4.7 TESTING

Before a particular field test is performed, the CQC System Manager will become familiar with the particular testing method required. The CQC System Manager will consult with field personnel performing the field test methods and note any variations or substitutions to the prescribed method. As the test is performed, any omissions will be noted, documented, and an explanation for the omission will be provided. The CQC System Manager will have the authority to stop any testing that does not conform to specifications and will notify the Project Manager of the violation.

All testing procedures will be based on the applicable accepted industry methods (e.g., American Society for Testing and Materials [ASTM] or American Society of Mechanical Engineers [ASME]). The CQC System Manager will verify that reporting forms for the various tests have been prepared and that the forms include all necessary information as...
required by the referenced standards. Any deviations or omissions will require an explanation by the testing organization. Copies of all test reporting forms will be retained in the job site files as controlled documents.

Offsite testing laboratories shall be USAED-certified and shall be inspected and audited by the QA Manager to verify that the facilities and testing equipment are available and that they comply with testing standards. The QA Manager will review all laboratory certifications (onsite and offsite), verify that instruments have been calibrated against certified standards, and secure copies of calibration records from the testing laboratory for the job site files.

5.0 DOCUMENTATION

This section outlines the procedures to be followed for the identification, use, handling, filing, storage, and disposition of QC records.

5.1 RESPONSIBILITY

The CQC System Manager will monitor proper implementation of the CQCP and verify that required records are prepared, protected, retained, readily retrievable, and turned over at project completion.

The CQC System Manager or his designee will verify that required records are prepared as work is performed to document evidence of the quality of materials, equipment, and installation. Inspection and test records will identify the inspector or data recorder, type of observation, results, and acceptability or action taken in connection with any deficiency.

5.2 REPORTS

Individual inspections, tests, and/or observations will be made in accordance with this CQCP. The proper documentation to record these activities will be compiled by the CQC System Manager and discussed with the testing personnel before execution. The CQC System Manager will monitor the testing process and document progress and observations in the QC
logbook. This information will be summarized in the CQC Daily Report (Attachment 4) provided to the Site Superintendent, the CQC System Manager, and the QAR.

The CQC System Manager will compile the Contractor's Summary Report and submit it to the Task Leader within 20 days of completing the final inspection. A Contractor's Summary Report will be submitted to USAED within 20 working days after completing demobilization. The Summary Report is separate from any final project report that may be required. The Summary Report will include copies of the daily reports, the photograph log (Attachment 5) and one copy of the project photographs.

5.3 RECORDS

The project QC team will identify the specific QC records required to ensure conformance to contract documents. QC records will adequately document the following:

- QC personnel training records, qualifications, and certifications;
- drawings, design reviews, and changes;
- construction nonconformance and corrective actions;
- testing procedures and results;
- standard construction procedures;
- surveillance and observations;
- engineering specifications;
- receipt inspection;
- CQC Report;
- schedules;
- samples;
- special permits;
- field change requests (FCRs);
- statements;
- warranties and guarantees; and
- as-built drawings.
5.4 FORMS

Construction QC forms will be used for recording visual observations, inspections, and testing and will represent the basis for acceptance of the work. The CQC System Manager will witness all required field testing and sign the appropriate forms for the work to be accepted. All forms will be completely filled out and signed and dated before submittal for review and approval. Responsible parties will complete appropriate forms and submit them upon completion of each task, rather than hold them until the end of the project. All required QC forms for this project are included as attachments to this CQC Plan.

Inspection and testing forms will identify the equipment, materials, or installations involved. Installation and maintenance checklists will be marked, where applicable. Locations, orientations, elevations, test parameters, test results, and other comments will be included on the forms, as appropriate. Forms will be dated and signed by the person performing the observation, inspection, or test. Forms will be signed and dated by the CQC System Manager and submitted to the Task Leader for approval. Critical items (e.g., any item that impacts cost and schedule, deficiencies and corrective actions) will be clearly and concisely stated.

5.5 DOCUMENT CONTROL

A standard records management and document control system will be used. The Task Leader will be responsible for implementing the system for the entire project. The Site Superintendent is responsible for carrying these practices to the field.

Elements of the records management system will include the following:

- master index system;
- logging and issuing document numbers;
- method for determining status of documents in progress;
- standardizing procedures/forms;
- proper storage of documents;
- retrieving;
• archiving; and
• retirement.

5.5.1 Document Numbering

Document numbers are required for all deliverables, project notes, letters, and contractual documents. The components of document numbers identify the program, originating Contractor's office, project number, document type, and a sequential identifier number. To assign document numbers, the following are required:

• a records management document listing that identifies document type;
• a records management document logbook to record sequential assignment of unique identifier numbers; and
• a document control logbook to record distribution of controlled documents.

A sample document number is described below:

AKT-J07-05M307-J14-0001, where:

AKT: designates project or program (AKT = Alaska TERC)
J07: designates office where project is managed (J07 = Anchorage, Alaska)
05M307: project number
J14: designates file matrix category
0001: unique, sequential number (e.g., 0001 would be the first CQCP developed for this project)

5.5.2 Document Retention

Project records will be maintained in a safe and retrievable manner until project close-out. Physical and electromagnetic protection will be provided until records are delivered to the client or archived. Upon project close-out, records/files will be transferred to the Jacobs Anchorage Office. Archived records will be protected from loss or damage as stipulated in Federal Acquisition Regulation (FAR 1994).
5.6 SCHEDULE

The construction schedule is shown in Figure 10-1 of the Work Plan. The construction schedule must be reviewed informally with the QAR and Site Superintendent on a daily basis. Major variances in the schedule must be reported in a C/VR by the Site Superintendent and attached to the Daily Report. Any anticipated change in the schedule shall be reported to the QAR and discussed with the USAED.

6.0 REFERENCES

FAR (Federal Acquisition Regulation). 1994 (January 1).

ATTACHMENT 1

- Letter of Authorization
- Resumes of Key CQC Personnel
  - Project Manager
    This resume is on file with the TERC office.
  - CQC System Supervisor
    This resume is on file with the TERC office.
  - Site Superintendent
    This resume is included in this attachment.
  - CQC System Manager
    This resume is included in this attachment.
  - Testing Specialists
    Not applicable for this project.
12 May 1997

Mr. David Burgess
Jacobs Engineering Group Inc.
4300 B Street, Suite 600
Anchorage, AK  99503-5922

Subject: Delegation of CQC Authorities
Eielson AFB Small-Arms Firing Range

Ref: Contract No. DACA 85-95-D-0018
Delivery Order No. 07

Dear Mr. Mihalow:

By this letter we establish your duties and responsibilities as the Contractor Quality Control/CQC System Manager for the site. You are responsible for the execution of the Quality Control Plan and all attachments. Your authority includes, but is not limited to, exercising “stop work” directives for Jacobs, its subcontractors, and its offsite vendors when it is anticipated or known that such work will be or is a detriment to the project. In addition, you are responsible for:

- Establishing and maintaining an effective site management structure and quality control system in compliance with the contract clause entitled “Contractor Quality Control.” The quality control system shall consist of plans, procedures, and organization necessary to produce an end product that complies with the requirements of the planning documents, including the Contractor Quality Control Plan;

- Developing and executing procedures for scheduling, certifying, and managing submittals, including those from subcontractors, offsite vendors, suppliers, and purchasing agents;

- Control, verification, and acceptance of the field work for each definable feature of work;

- Maintaining procedures for tracking/conducting preparatory, initial, and follow-up control phases, and control, verification, and acceptance tests, including documentation;

- Implementing procedures for tracking deficiencies from identification through acceptable corrective action;
Issuing appropriate reports as required by plans and specifications and in the Contractor Quality Control Plan; and

Maintaining appropriate records.

You have the authority to stop the work of Jacobs or any Jacobs subcontractors where the work is not in compliance with the contract, planning documents, or safe work practices.

Sincerely,

Chris Williams
TERC Program Manager

Erich Evered
Quality Control Supervisor (Acting)

cc: Contracts
Health and Safety
Quality Assurance
Project Manager

I hereby acknowledge my authorities and responsibilities in regard to implementing and overseeing quality control procedures on this project.

_________________________  _______________________
David Burgess                   Date
RESUMES

Site Superintendent/CQC System Manager/SSHO - David Burgess
Insert David Burgess Resume
ATTACHMENT 2

PREPARATORY PHASE CHECKLIST
JACOBS ENGINEERING GROUP INC.
PREPARATORY PHASE CHECKLIST
MEETING

Project Name: Eielson Small-Arms Firing Range
Project Number: 05M30701
Definable Feature of Work:
Date: __________

AGENDA:
1. Review of contract, work plan
2. Definable Feature of Work (DFW)
3. Location of Site Affected
4. Relationship to other DFW
5. Sequence of Work
6. Personnel/Other Certification
7. Safety Hazards List
8. Equipment Certification
9. Permits Required
10. Testing Requirements
11. Review of Submitted Approval
12. Other

NAMES OF THOSE PRESENT:

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</table>

Points of Discussion:

________________________________________________________________________
________________________________________________________________________

QAR Notified (Date): __________
Safety Features Reviewed by: ____________________________________________

REVIEW SIGNATURES:
CQC System Manager ___________________________________________ Date: __________
Site Manager __________________________________________ Date: __________
Site Safety and Health Officer __________________________________________ Date: __________

Submitted to Site Manager on __________
JACOBS ENGINEERING GROUP INC.
PREPARATORY PHASE CHECKLIST

Project Name: Eielson Small-Arms Firing Range
Project Number: 05M30701
Definable Feature of Work:

POINTS OF DISCUSSION

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
# JACOBS ENGINEERING GROUP INC.
## PREPARATORY PHASE CHECKLIST

**Project Name:** Eielson Small-Arms Firing Range  
**Project Number:** 05M30701  
**Definable Feature of Work:**

## SEQUENCE OF WORK

<table>
<thead>
<tr>
<th>CONTROL POINTS</th>
<th>CONTROL REFERENCE, LOCATION</th>
<th>TYPE OF INSPECTION</th>
<th>ACCEPTANCE CRITERIA, REFERENCE</th>
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**Notes:**
Initial Phase Checklist

Project Name: **Eielson Small-Arms Firing Range**  
Project Number: 05M30701  
Definable Feature  
QA Rep Notified: Yes: _____ No: _____

I. Personnel Present:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Company/Government</th>
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</table>

(List additional personnel on reverse side)

II. Identify full compliance with procedures identified during preparatory phase. Coordinate plans, specifications, and submittals, and ensure coordination with other definable features of work (DFWs).

III. Preliminary Work. Establish standard of workmanship and ensure preliminary work is complete and correct. If not, what action is taken?

IV. Check Safety. Review job conditions using EM 385-1-1 and job hazard analysis.

CQC System Manager
ATTACHMENT 4

FOLLOW-UP PHASE FORM

(DAILY CQC REPORT)
# Environmental Quality Control/Quality Assurance Report

<table>
<thead>
<tr>
<th>Contract Number / Task Order Number</th>
<th>UPC/Project Title</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Contract Number / Task Order Number</th>
<th>UPC/Project Title</th>
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<table>
<thead>
<tr>
<th>CQC Report Number</th>
<th>Date or Time Period</th>
<th>Location and Team</th>
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<tr>
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<thead>
<tr>
<th>Weather Conditions</th>
<th>Temp Low</th>
<th>Temp High</th>
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<table>
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<tr>
<th>Wind Speed</th>
<th>Conditions</th>
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<table>
<thead>
<tr>
<th>Quality Control Inspections Performed This Date</th>
<th>(Include inspections, results, deficiencies observed, and corrective action.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparatory</td>
<td>see attached checklist</td>
</tr>
<tr>
<td>Initial</td>
<td>see attached checklist</td>
</tr>
<tr>
<td>Follow-Up</td>
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<table>
<thead>
<tr>
<th>Was the construction deficiency tracking list updated this date?</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Field Sampling and Testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has field testing been performed this date?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Type of test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method/Matrix</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Results</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|Have Data Quality Objectives been achieved?                    | Yes  | No |
|Have Samples Been Collected for Laboratory Analysis?           |      |    |
|Type of Test                                                   |      |    |
|EPA Test Method/Matrix                                         |      |    |
|Quantity of Samples                                           |      |    |

|Have required amount of QC trip blanks and rinsates been achieved? | Yes  | No |
|Have appropriate QC laboratory tests been ordered? (matrix spikes, method blanks, surrogates, reference standards, etc.) | Yes  | No |
|Have QA and QC samples been collected in the specified quantity? | Yes  | No |
|Have samples been properly labeled and packaged?               | Yes  | No |

|Health and Safety|      |    |
|Worker protection levels this date:                            | Level A | Level B | Level C | Level D |
|Was any work activity conducted within a confined space?       | Yes | No |
|Was any work activity conducted within an area determined to be immediately dangerous to life and health? | Yes | No |
|Were approved decontamination procedures used on workers and equipment as required? | Yes | No |
|Was a Job Safety Meeting held this date?                       | Yes | No |
|Were there any lost time accidents this date? (If YES, attach copy of completed accident report) | Yes | No | |
|Was hazardous waste/material released into the environment?   | Yes | No |
|Safety Comments: (Include any infractions of approved safety plan, and include instructions from Government personnel. Specify corrective action taken.) | |    |

|Work Activities Performed This Date|      |    |
|Reference (NAS ID #/Tech Spec #)   |      |    |
|Activity & Location                |      |    |
|Quantity                          |      |    |
|Subcontractor                     |      |    |
## Environmental Quality Control/Quality Assurance Report

### Manpower and Equipment

<table>
<thead>
<tr>
<th>Labor Classification</th>
<th>Number</th>
<th>Hours</th>
<th>Equipment Type</th>
<th>Hours Used</th>
<th>Hours Idle</th>
<th>Hours Repair</th>
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</table>

<table>
<thead>
<tr>
<th>Total Hours</th>
<th>Total Hours</th>
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</table>

### Material Received to be Incorporated into Job

### Instructions Given by the Government to the Contractor

(Include names, reactions, and remarks.)

**Verbal** [ ] **Written** [ ]

### Work Progress

| Are there any Contractor caused delays or potential finding of fact? | Yes [ ] No [ ] |
| Are there any Government caused delays or potential finding of fact? | Yes [ ] No [ ] |
| Are there any unforeseeable or weather related delays? | Yes [ ] No [ ] |

### Rework Items Identified Today (Not corrected by COB)

### Rework Items Corrected Today (From Rework Items List)

### Remarks

(Include any visitors to project and miscellaneous remarks pertinent to work.)

### The above report is complete and correct, and all work reported is believed, to the best of my knowledge, to be in compliance with state and federal requirements, and the contract specifications.

**CQC System Manager Signature** ____________________________ **Date** ____________

**Government Quality Assurance Comments**

Concurs with the QC report? [ ] Yes [ ] No [ ]

Additional comments or exceptions:

**QAR Signature** ____________________________ **Date** ____________ **Supervisor’s Initial** ____________________________ **Date** ____________
ATTACHMENT 5

MISCELLANEOUS FIELD FORMS

- CLARIFICATION/VERIFICATION REPORT
- QUALITY CONTROL NON-CONFORMANCE REPORT
- QUALITY CONTROL NON-CONFORMANCE REPORT REGISTER
- PHOTOGRAPH LOG
Total Environmental Restoration Contract  
Contract No. DACA85-95-D-0018

CLARIFICATION / VERIFICATION REPORT

D.O. No.: 00
Project Name: 
Project Location: Alaska

Requested by: USAED

Schedule Impact: None
Priority: High w/$-ROM
Originator: Proj. Controls:
Signature: 
Date: 
JE Disposition: Implement
USAED Disposition: 

C/VR Type: #_
C/VR No.: 00
Date Prepared: 1/1/97
DCS No: AKT-J07-05M30-B4-00

<table>
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<th>C/VR Type:</th>
<th>1 No cost CVR, no WAD/WIP impact</th>
<th>2 No cost CVR, WAD/WIP impact</th>
<th>3 Cost CVR, non-fee bearing</th>
<th>4 Cost CVR, fee bearing</th>
<th>C/VR Status:</th>
<th>A. CVR as requested by Jacobs</th>
<th>B. Reply/Modification as per USAED</th>
<th>C. Concurrence - JE/USAED</th>
<th>D. Deny - Cancel - Withdraw</th>
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<th>Description, Justification, and Benefits or Effects</th>
<th>REQUESTED AMOUNT ($)</th>
<th>NEGOTIATED AMOUNT ($)</th>
<th>OBLIGATED AMOUNT ($)</th>
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CLAIRIFICATION / VERIFICATION REPORT

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Contracting Officer's Representative: 
Date: 

I:EEELSON05M30701/WWP-APPE.DOC
DRAFT/Rev. 0
7/3/97
# QUALITY CONTROL
## NON-CONFORMANCE REPORT

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### NONCONFORMANCE

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<th>QC INSPECTOR</th>
<th>DATE</th>
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### DISPOSITION
- REPLACE
- REWORK
- REPAIR
- USE AS IS

<table>
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<th>QC INSPECTOR/DATE</th>
<th>AUTH. INSPECTOR/DATE</th>
<th>CLIENT REP./DATE</th>
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### FINAL STATUS
- ACCEPT
- REJECT
- REMARKS

## FINAL ACCEPTANCE

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QUALITY CONTROL
NON-CONFORMANCE REPORT REGISTER

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<th>NCR NO.: SITE</th>
<th>REFERENCE DAILY INSPECTION REPORT NO.</th>
<th>NONCONFORMANCE REPORT DESCRIPTION</th>
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CLIENT: __________________________  PROJECT NO.: __________________________
RECORD OF PHOTOGRAPHS
PROJECT NUMBER:

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Photographer Name
APPENDIX F

Floor, Ceiling and Wall Asbestos Survey Results
### SECTION I - TO BE COMPLETED BY ORIGINATOR

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<tr>
<th>CLASSIFICATION</th>
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<th>PAGES</th>
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<td>FOR OFFICIAL USE ONLY</td>
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<th>FAX NO.</th>
<th>DSN</th>
<th>COMMERCIAL</th>
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<tbody>
<tr>
<td>Gary Barnhart</td>
<td></td>
<td></td>
<td>(907) 563 3320</td>
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<table>
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<tr>
<td>Ted Davies</td>
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<td>(907) 377 1414</td>
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| REMARKS | |
|---------| |

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<td>26 June 97</td>
<td>10:00 AM</td>
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| SECTION II - TO BE COMPLETED BY ELECTRO MAIL OPERATOR | |
|-------------------------------------------------------| |
| DATE TRANSMITTED | TIME TRANSMITTED | TRANSMITTER'S SIGNATURE |

<table>
<thead>
<tr>
<th>DATE ADDRESSEE CONTACTED</th>
<th>TIME ADDRESSEE CONTACTED</th>
<th>CONTACTOR'S SIGNATURE</th>
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343 CES INSULATION SHOP
EIELSON AFB BLDG 3420
PHONE 377-7047

BULK MATERIAL SAMPLE DATA

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<tr>
<th>Date in:</th>
<th>Date requested</th>
<th>Contact person</th>
<th>Project:</th>
<th>Assoc. air sample</th>
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Comments:

EAFR FORM 0-039, MAY 91
Insulation Shop
354 CES/CEOMI
2258 Central Avenue; Ste 1
Eielson AFB AK 99702-2225

Attn: Gary Corle
Our Lab #: F158096
Location/Project: Bldg 220#
Your Sample ID: 966950
Sample Matrix: Bulk

Report Date: 02/20/96
Date Arrived: 02/14/96
Date Sampled: 02/09/96
Time Sampled: -
Collected By: Vern Sam

Flag Definition
U = Below Detection Limit
DL Stated in Result
NVLAP Lab. Code # 1463

Comments Key:
1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.

Comments: F6550391A0002; P00003

<table>
<thead>
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<th>Method Parameter</th>
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<th>Result</th>
<th>Flag</th>
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<tr>
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Reported by: Dennis E. Witmer
Environmental Analyst
Insulation Shop Report Date: 02/20/96
Date Arrived: 02/14/96
Date Sampled: 02/05/96
Time Sampled: -
Collected By: Vern Sam

Location/Project: Bldg 220q
Your Sample ID: 966951
Sample Matrix: Bulk

Comments Key: 1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.
Comments: F6550391A0002; P000003

Method Parameter Units Result Flag Comments
40CFRPart763 Description Vinyl
Color Chrysotile % ND -
Amosite % ND -
Other Fibers-A % 25 Cellulose
Other Fibers-B % ND -
Non-Fibrous % 75 2,1

Reported by: Dennis E. Witmer
Environmental Analyst
Insulation Shop Report

Date: 02/20/96

Report Date: 02/20/96

Date Arrived: 02/14/96

Date Sampled: 02/09/96

Time Sampled: -

Collected By: Vern Sam

Attn: Gary Corle

Our Lab #: F158098

Location/Project: Bldg 2204

Your Sample ID: 966952

Sample Matrix: Bulk

Flag Definition

DL Stated in Result

U = Below Detection Limit

Comments Key:

1 = Composite of granular minerals (quartz, mica, carbonate)

2 = Filler, binders, tar or plaster

3 = Paint

4 = Sample ashed for 20 minutes @ 475 deg. C.

5 = Sample ground with mortar and pestle

6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.

Comments: FGSS0391AO002; P00003

Method Parameter Units Result Flag Comments

40CPRPart763 Description Adhesive

Color

Chrysotile % NS -

Amosite % NS -

Other Fibers-A % 3 Cellulose

Other Fibers-B % NS -

Non-Fibrous % 97 2.1

Reported by: Dennie E. Witmer
Environmental Analyst
Insulation Shop 354 CES/CEOMI 2258 Central Avenue; Ste 1 Eielson AFB AK 99702-2225

Attn: Gary Corle

Our Lab #: F158099
Location/Project: Bldg 22O1
Your Sample ID: 966953
Sample Matrix: Bulk

Report Date: 02/20/96
Date Arrived: 02/14/96
Date Sampled: 02/09/96
Time Sampled: -
Collected By: Vern Sam

Flag Definition

U = Below Detection Limit
DL Stated in Result
NVLAP Lab. Code # 1463

Comments Key:
1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.

Comments: F6550391A0002; P00003

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<td>ND</td>
<td>-</td>
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<tr>
<td>Amosite</td>
<td>%</td>
<td>ND</td>
<td>-</td>
<td></td>
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<tr>
<td>Other Fibers-A</td>
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<td>Cellulose</td>
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<td>Other Fibers-B</td>
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Reported by: Dennis E. Witmer
Environmental Analyst
Insulation Shop
354 CES/CEOMI
2258 Central Avenue; Ste 1
Eielson AFB AK 99702-2225

Attn: Gary Corle

Our Lab #: F158100
Location/Project: Bldg 220*
Your Sample ID: 966954
Sample Matrix: Bulk

Report Date: 02/20/96
Date Arrived: 02/14/96
Date Sampled: 02/09/96
Time Sampled: -

Collected By: Vcrn Sam

Flag Definition
U = Below Detection Limit
DL Stated in Result
NVLAP Lab. Code # 1463

Comments Key: 1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.

Comments: F6550391A0002; P00003

Method Parameter Units Result Flag Comments
40CFRPart763 Description Vinyl
Color Gray
Chrysotile % ND -
Amosite % ND -
Other Fibers-A % 20 Cellulose
Other Fibers-B % Nd -
Non-Fibrous % 80 1,2

Reported by: Dennis E. Witmer
Environmental Analyst
343 CES INSULATION SHOP
EIELSON AFB BLDG 3420
PHONE 377-7047

BULK MATERIAL SAMPLE DATA

Date in: 04-02-86 Date requested: C.R.C.

Project: BLDG 2284

Description: ACOUSTICAL TILE MASTIC

Sampling Data Sampled by: C.R.C.

Sample 967071 Type: 4 Apr 96

Remarks: acoustic tile/mastic front entry

Comments:

EAFB FORM O-039, MAY 91
# BULK MATERIAL SAMPLE DATA

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<td>Acoustical tile/mastic gunnery range</td>
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Comments:

EAFB FORM O-039, MAY 91
## PRELIMINARY RESULTS REPORT

**April 10, 1994**

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<td>L Mastil, Gunner Range</td>
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<td>224 Acoustical Tile</td>
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<td>L Mastil, Gunner Range</td>
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<tr>
<td>Insulation Shop</td>
<td>White/brown</td>
<td>ND.</td>
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<td>L Mastil, Gunner Range</td>
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### Method
- 45CBRPart103

### Parameters
- Chrysotile
- Amosite
- Other Fibers-A
- Other Fibers-B
- Non-Fibrous

### Description
- Ceiling tile
- Mastic

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**Post-It® brand fax transmittal memo 7671**

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204 Acoustical Tile
+ Mastic
+ Gunner
Range 2

204 Acoustical Tile
+ Mastic
+ Gunner
Range 2

204 Acoustical Tile
+ Mastic
+ Gunner
Range 2
## Preliminary Results Report

**Material:** Acoustical Tile + Mastic

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<th>Laboratory</th>
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<td>102(F763)</td>
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<td>Other Fibers-A</td>
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<td>Color - Layer 2</td>
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### Notes:
- Layer 2
- Results vary by material type:
  - Mastic: Brown
  - Ceiling tile: White/Brown
**Insulation Shop Report**

**Insulation Shop**
354 CES/CEOMI
2258 Central Avenue; Ste 1
Eielson AFB AK 99702-2225

Attn: Gary Corle

- **Report Date:** 04/11/96
- **Date Arrived:** 04/05/96
- **Date Sampled:** 04/04/96
- **Time Sampled:** -
- **Collected By:** Corle

**Location/Project:** Bldg 2204
**Your Sample ID:** 967072
**Sample Matrix:** Bulk

---

**Comments Key:**
1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

**Flag Definition:**
U = Below Detection Limit
DL Stated in Result.

**NVLAP Lab. Code # 1463**

---

**Method:** 40CFRPart763

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<tr>
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<td>%</td>
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<tr>
<td>Amosite</td>
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**Reported by:** Dennis E. Witmer
**Environmental Analyst**
Insulation Shop
354 CES/CEOMI
2258 Central Avenue; Ste 1
Eielson AFB AK 99702-2225
Attn: Gary Corle

Our Lab #: P159526
Location/Project: Bldg 2204
Your Sample ID: 967071
Sample Matrix: Bulk

Report Date: 04/11/96
Date Arrived: 04/05/96
Date Sampled: 04/04/96
Time Sampled: -
Collected By: Corle
Flag Definition
U = Below Detection Limit
DL Stated in Result
NVLAP Lab. Code # 1463

Comments Key:
1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.
Comments: P5550391A0002; P00003

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Atmospheric Tile & Mastic

Currey Range Front Entrance

Reported by: Dennis E. Witmer
Environmental Analyst
Insulation Shop Report Date: 04/11/96

Location/Project: Bldg 2204
Sample Matrix: Bulk

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<td>Amosite</td>
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<tr>
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<td>Chrysotile - Layer 2</td>
<td>%</td>
<td>ND</td>
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<tr>
<td></td>
<td>Amosite - Layer 2</td>
<td>%</td>
<td>ND</td>
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</table>

Analytical results apply only to the items tested.

Comments: F6550391A0002; P00503

Reported by: Dennis E. Witmer
Environmental Analyst
Insulation Shop
354 CES/CEOMI
2258 Central Avenue; Ste 1
Eielson AFB AK 99702-2225
Attm: Gary Corle

Our Lab #: Fl59524
Location/Project: Bldg 2204
Your Sample ID: 967069
Sample Matrix: Bulk

Report Date: 04/11/96
Date Arrived: 04/05/96
Date Sampled: 04/04/96
Time Sampled:
Collected By: Corle

Flag Definition
U = Below Detection Limit
DL Stated in Result
NVLAP Lab. Code # 1463

Comments Key:
1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.
Comments: R6550391A0002; P00003

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<td></td>
</tr>
<tr>
<td>Amosite</td>
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<td>ND</td>
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<td>-</td>
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</tr>
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Acoustical Tile & Mastic

Convery Range

Reported by: Dennis E. Witmer
Environmental Analyst
Insulation Shop Report Date: 04/11/96
354 CES/CERMI
2255 Central Avenue Ste 1
Eielson AFB AK 99702-2225

Attn: Gary Corle

Our Lab #: F159523
Location/Project: Bldg 2204
Your Sample ID: 967068
Sample Matrix: Bulk

Date Sampled: 04/04/96
Time Sampled: 

Date Arrived: 04/05/96

Collected By: Corle

Flag Definition
U = Below Detection Limit
DL Stated in Result

Sample Matrix: Bulk

Comments Key: 1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.

Comments: R6550391A0002; P00003

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Reported by: Dennis E. Witmer
Environmental Analyst
**NORTHERN TESTING LABORATORIES, INC.**

Insulation Shop
354 CES/CEOMI
2258 Central Avenue; Ste 1
Eielson AFB AK 99702-2225

Attn: Gary Corle

Our Lab #: F159522
Location/Project: Bldg 2204
Your Sample ID: 967067
Sample Matrix: Bulk

Report Date: 04/11/96
Date Arrived: 04/05/96
Date Sampled: 04/04/96
Time Sampled: -
Collected By: Corle

Flag Definition
- U = Below detection limit
- DL stated in result

NVLAP Lab. Code # 1463

Comments Key:
1 = Composite of granular minerals (quartz, mica, carbonate)
2 = Filler, binders, tar or plaster
3 = Paint
4 = Sample ashed for 20 minutes @ 475 deg. C.
5 = Sample ground with mortar and pestle
6 = Chemical dissolution to release fibers from matrix

Note: Analytical results apply only to the items tested.

Comments: B6550391A0002; P00003

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<td>Ceiling tile</td>
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<td>%</td>
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<td></td>
<td></td>
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<td>Other Fibers-A</td>
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<td>Other Fibers-B</td>
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Reported by: Dennis E. Witmer
Environmental Analyst
**Insulation Shop Report**

**Date:** 04/11/96

**Report Date:** 04/11/96

**Date Arrived:** 04/05/96

**Date Sampled:** 04/04/96

**Time Sampled:**

**Collected By:** Corle

**Sampled By:** Corle

**Sample ID:** 967066

**Sample Matrix:** Bulk

**Comments Key:**
1. Composite of granular minerals (quartz, mica, carbonate)
2. Filler, binders, tar or plaster
3. Paint
4. Sample ashed for 20 minutes @ 475 deg. C.
5. Sample ground with mortar and pestle
6. Chemical dissolution to release fibers from matrix

**Method Parameter | Units | Result | Flag | Comments**

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<td>Amosite</td>
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**Acoustic Tile & Mastic**

**Gunnery Range**

**Reported by:** Dennis E. Witmer

**Environmental Analyst**