

EXECUTIVE SUMMARY

The Department of Defense (DoD) has established the Military Munitions Response Program (MMRP) under the Defense Environmental Response Program to address DoD sites suspected of containing munitions and explosives of concern (MEC) or munitions constituents (MC). Under the MMRP, the U.S. Army Corps of Engineers (USACE) is conducting environmental response activities at Formerly Used Defense Sites (FUDS) for the Army, DoD's Executive Agent for the FUDS program. Shaw Environmental, Inc. (Shaw) is responsible for conducting Site Inspections (SIs) at FUDS in the northwest region managed by the Omaha District Military Munitions Design Center.

SI Objectives and Scope

The primary objective of the MMRP SI is to determine whether a FUDS project warrants further response action under the Comprehensive Environmental Response, Compensation, and Liability Act. The SI collects the minimum amount of information necessary to make this determination, as well as it (i) determines the potential need for a removal action; (ii) collects or develops additional data, as appropriate, for Hazard Ranking System scoring by the Environmental Protection Agency; and (iii) collects data, as appropriate, to characterize the release for effective and rapid initiation of the Remedial Investigation and Feasibility Study. An additional objective of the MMRP SI is to collect the additional data necessary to complete the Munitions Response Site Prioritization Protocol (MRSPP).

The scope of the SI reported herein is restricted to evaluation of the presence of MEC or MC related to historical use of the FUDS prior to transfer. Potential releases of hazardous, toxic, or radioactive wastes are not addressed within the current scope. The intent of the SI is to confirm the presence or absence of MEC and/or associated MC contamination.

Camp Adair

This report presents the results of an SI conducted at Camp Adair/Adair Air Force Station (Camp Adair), FUDS identification number F10OR0029, located approximately 9 miles north of Corvallis, Oregon, in Polk, Benton, and Linn Counties. Camp Adair was commissioned in 1942 and was used primarily for training of triangular (three-regiment) infantry divisions until 1945. Other uses of the camp from 1944 to 1946 included bombing and gunnery practice for Navy/Marine pilots, a storage facility, a prisoner of war camp, and a Navy hospital. Camp Adair included a cantonment area east of Highway 99 and a live fire and maneuver area to the west. During the last two years of training, an estimated 265,000 rounds of high explosive ammunition (37-millimeter [mm] or larger) were fired. Camp Adair was declared surplus and assigned for disposition in April 1946. A War Department letter of August 1946 stated that Camp Adair had been

“dedudded so as to make it reasonably safe for any use” (War Department, 1946). A Certificate of Clearance was issued in March 1947. Between 1958 and 1969, after several years of inactivity, the cantonment area was used as Adair Air Force Station. Related munitions training activity was limited to use of Skeet Range No. 580 in the cantonment area (between 1955 and 1964). In 1970, the Adair Air Force Station lands were determined excess and reported to the General Services Administration for disposal.

Technical Project Planning

The approach for the SI was developed by Shaw in consultation with site stakeholders. A Technical Project Planning meeting conducted in April 2006 was attended by representatives from the USACE Omaha Design Center, USACE Hazardous, Toxic, and Radioactive Waste Center of Expertise, and USACE – Seattle District; Oregon Department of Environmental Quality (ODEQ); Oregon National Guard; U.S. Forest Service; Benton County; Oregon Department of Fish and Wildlife; Polk County; Oregon State University Forestry Department; Allied Waste; and Shaw. The stakeholders agreed to the approach and identified 21 areas of concern (AOCs), that can be divided into five types of AOCs: small arms ranges, explosive munitions ranges, live hand grenade courts, practice grenade courts, and the Chemical Identification Area (Table 1-1).

SI Field Activities

SI field activities, conducted between August 21 and September 20, 2006, included a site reconnaissance to look for evidence of MEC and to avoid MEC during sampling. Samples were collected from surface soil, sediment, and groundwater.

SI Recommendations

Results of the SI provide the basis for conclusions and/or recommendations for further actions at each of the AOCs.

Small Arms Ranges

Based on historical evidence and results from the SI field activities, there is no evidence of MEC at any of the five small arms ranges. Sampling results show that concentrations of potential contaminants are below human health and ecological screening levels agreed by the stakeholders at Range Complex No. 5 and Range Complex No. 6. These two ranges are recommended for NDAI.

The Infiltration Range No. 143 is currently used as a landfill and the soil at the range has been completely excavated. In 1994 a small amount of soil containing white phosphorus was discovered and was subsequently allowed to burn thus eliminating the risk. No soil sampling was conducted during the SI field activities. Based on these findings, the Infiltration Range No. 143 is recommended for NDAI.

Soil from Range Complex No. 4 and Skeet Range No. 580 had lead concentrations that were above the background soil concentration and the ecological screening level. However, at the Skeet Range No. 580, the maximum lead concentration (58.4 mg/kg) was less than 2 times the background concentration (29.5 mg/kg) and 3.7 times the ecological risk screening value (16 mg/kg). In addition, while the Camp Adair FUDS in general does qualify as an Important Ecological Place (Section 2.4.6), Skeet Range No. 580 is currently a county park with baseball fields, tennis courts, and playgrounds and does not in itself contain any criteria that would identify it as an Important Ecological Place. Therefore, while the Skeet Range does have elevated lead concentrations relative to background and ecological screening values, it is not recommended for Remedial Investigation and Feasibility Study (RI/FS).

Based on the above discussions, Range Complex No. 4 is recommended for RI/FS.

Explosive Munitions Ranges

Based on historical evidence, MEC and munitions debris have been identified in five of the six explosive munitions ranges. No MEC or munitions debris have been reported at Range Complex No. 5. Field activities conducted during the SI did not find any MEC or munitions debris at the explosive munitions ranges.

SI sampling results show that concentrations of metals and explosives in groundwater, sediment, and soil are very low and, with few exceptions, below human health and ecological screening values. Exceptions to this are:

- Human Health – manganese in sediment at the Moving Target Range No. 75.
- Ecological – chromium, manganese, and nickel in sediment at the Mortar Range; manganese in sediment at the Moving Target Range No. 75; chromium in soil at the Mortar Range; and barium in soil at the Moving Target Range No. 75.

Based on these findings, the explosive munitions ranges are recommended for RI/FS due to evidence of MEC. The Mortar Range and Moving Target Range No. 75 are also recommended for RI/FS due to exceeding human health and/or ecological screening values.

Live Hand Grenade Courts

Historical evidence indicates that MEC has been reported at the Live Hand Grenade Court No. 129 and the West Live Hand Grenade Court. No MEC has been reported at the East Live Hand Grenade Court. Field activities conducted during the SI did not identify any MEC or munitions debris. However, based on similar historical uses, there is potential for MEC at the East Live Hand Grenade Court.

SI sampling results show that concentrations of metals and explosives in sediment and soil are very low and, with one exception, below human health and ecological screening values. At the East Live Hand Grenade Court, manganese was above the ecological screening level in the sediment sample. Based on these findings, the three live hand grenade courts are recommended for RI/FS due to evidence of MEC. The East Live Hand Grenade Court is also recommended for RI/FS due to exceeding ecological screening values.

Practice Grenade Courts

Based on historical evidence and results from the SI field activities, training hand grenades have been found at Practice Grenade Court Nos. 125, 126, and 127. These training grenades may contain a small black powder spotting charge. The risk of injury from these training grenades is considered low. No sampling was conducted at the practice grenade courts. However, potential contaminants are limited to a few common metals (iron, and small quantities of manganese and nickel). The spotting charges were comprised of black powder, which does not contain hazardous substances. Therefore, a recommendation for NDAI is made for the practice grenade courts.

Chemical Identification Area

Based on historical evidence, no MEC has been found at the Chemical Identification Area No. 182. The area is currently tilled farm land. No sampling was completed at this range. Only a small quantity of explosive material may have been used in this area and MEC does not pose a significant risk. Any chemical warfare materiel (CWM) agents that may have been released in this area would not be expected to have persisted or were released in quantities that would not pose a significant risk of environmental contamination. Therefore, a recommendation for NDAI is made for the Chemical Identification Area No. 182.