The site is a Formerly Used Defense Sites (FUDS) property, hence, environmental restoration action is being pursued by the U.S. Army Corps of Engineers (**Corps**) to comply with the Defense Environmental Restoration Program statute (10 **USC** § 2701 et seq.) and the **Comprehensive Environmental Response, Compensation, and Liability Act** (42 USC § 9601 et seq.) (**CERCLA**).

The Corps is issuing this Proposed Plan as part of its public participation responsibilities required under Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (**NCP**). This Proposed Plan summarizes information that can be found in greater detail in the site specific Remedial Investigation/Feasibility Study (**RI/FS**) Report and other documents contained in the **Administrative Record** files. These files can be accessed on the Corps' website from the following link:

http://www.nwk.usace.army.mil/Missions/Environmental/EnvironmentalProjects.aspx

The Corps, Washington Department of Ecology (WDOE), City of Port Angeles, and Clallam, County encourage the public to review these documents to gain a more comprehensive understanding of the site and FUDS activities that have been conducted at the site.

Public Comment Period

Month Day through Month Day, 2016
The Corps accept written comments (via mail or e-mail) as well as verbal comments on the Proposed Plan during the public comment period. If requested, the Corps will hold a public meeting to explain the Proposed Plan and the alternatives presented in the RI/FS Report. Requests for a public meeting will be accepted through **Month Day, 2016)**

What's Inside

US Army Corps of Engineers®
Omaha District

DRAFT FINAL PROPOSED PLAN
January 2016
Former Port Angeles Combat Range, Washington
Port Angeles Range Complex No. 1 MRS
FUDS Property No.: F10WA0033

Introduction

The United States Army Corps of Engineers (Corps), on behalf of the Department of Defense's (DoD's) Executive Agent for the Formerly Used Defense Sites (FUDS) program, the United States Army (Army), is issuing this Proposed Plan for the former Port Angeles Combat Range (PACR) (**Figure 1**), Range Complex No. 1 Munitions Response Site (MRS). This Proposed Plan serves the following purposes: it provides basic background information; identifies the Preferred Alternative for the final remedial action at the site and explains the reasons for the preference; describes other remedial alternatives considered before the proposed selection was made; solicits public review and comment on all alternatives described; and provides information on how the public can be involved in the remedy selection process. The Range Complex No. 1 MRS originally occupied 2,629 acres in Clallam County, approximately seven miles southeast of Port Angeles, Washington. At the conclusion of the Remedial Investigation (RI), 105.7 acres of the original 2,629 acres were identified as having an unacceptable munitions and explosives of concern (MEC) hazard, which this Proposed Plan addresses.

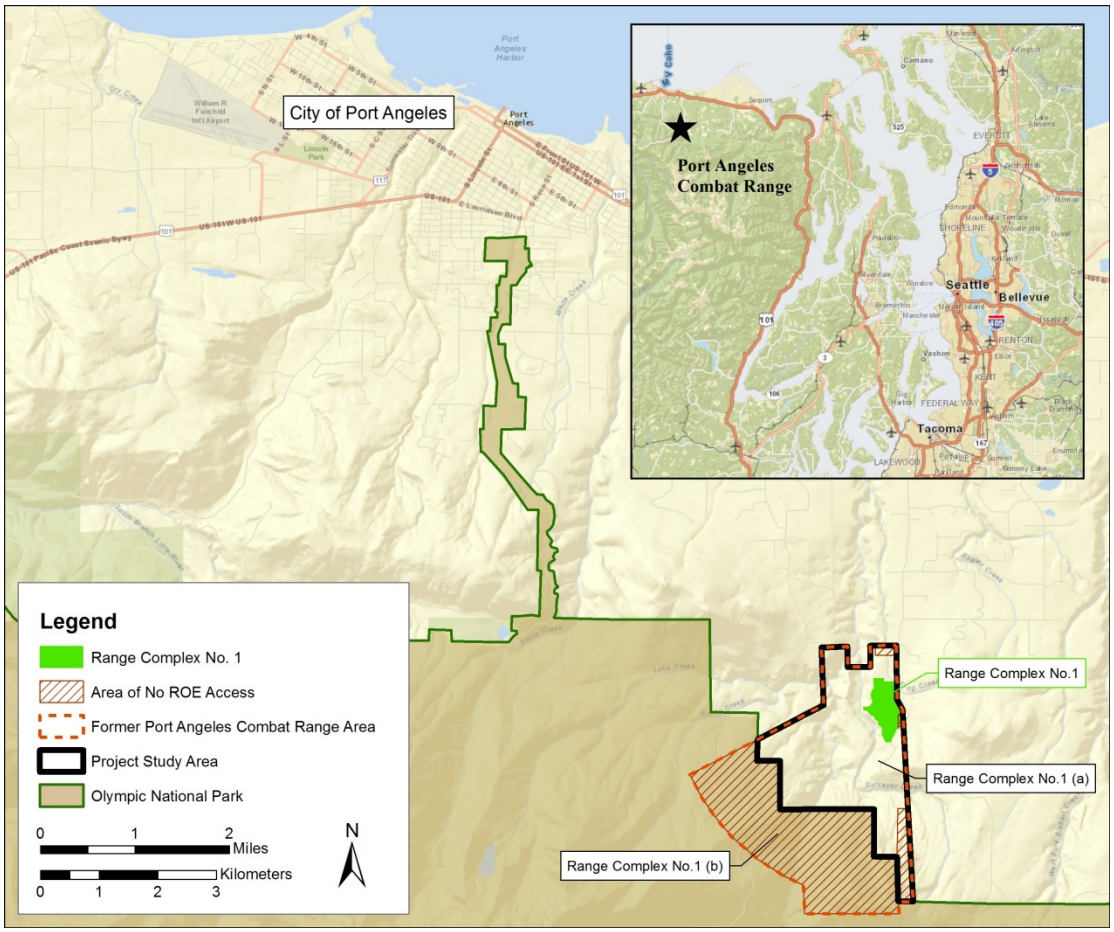

Figure 1: Former Port Angeles Combat Range Location

Introduction (continued)

The Corps has conducted environmental activities at the former PACR on behalf of the Army, as part of the Military Munitions Response Program (MMRP) under FUDS and the Defense Environmental Restoration Program (DERP). This Proposed Plan was developed by the Corps with support from the Washington Department of Ecology (WDOE), the City of Port Angeles, and Clallam County. The FUDS Program follows the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

The 2,629 acres of the PACR "parent" MRS as shown on **Figure 1**, was divided into three informal MRSs during the RI and is comprised of the following:

- Range Complex No. 1 MRS (105.7 acres)
- Range Complex No. 1 (a) MRS (1,286.5 acres)
- Range Complex No. 1 (b) MRS (located on Olympic National Park property) (1,238.5 acres)

This division is based on the different levels of risk as determined by the types and distribution of potential MEC and munitions debris (MD) within each area.

MEC and MD items were found in a 105.7 acre area historically associated with a target range and impact areas and included the following:

- MEC – five M63 37 millimeter (mm) High Explosive (HE) projectiles.
- MD – 147 items, consisting primarily of 81mm mortars, 75mm projectiles, and 37mm projectiles, and associated fragments.

An unacceptable risk to current and future users of the property exists because additional MEC may be present; thereby creating a potential explosive hazard.

This area, highlighted on **Figure 1**, retained the Range Complex No. 1 MRS designation and comprises 4% of the original PACR "parent" MRS. Range Complex No. 1 MRS is recommended for further action. Range Complex No. 1 (a) MRS is recommended for No Action, and the Range Complex No. 1 (b) MRS, located on Olympic National Park, may be evaluated as a new project a later date.

The Preferred Alternative proposed by the Corps to protect human health and the environment from potential harmful effects of MEC contamination due to past DoD activities at the 105.7 acre Range Complex No. 1 MRS (**Figure 2**) is **Remedial Action Alternative 4.** This recommended remedial action includes surface clearance, subsurface clearance, and educational land use controls (LUCs).

The list of all Remedial Action Alternatives considered for the Range Complex No. 1 MRS include the following:

- **Remedial Action Alternative 1**
  - ◊ No Action alternative
- **Remedial Action Alternative 2**
  - ◊ Educational LUCs for site visitors and site workers
- **Remedial Action Alternative 3**
  - ◊ Surface Clearance
  - ◊ Educational LUCs
- **Remedial Action Alternative 4**
  - ◊ Surface Clearance
  - ◊ Subsurface Clearance
  - ◊ Educational LUCs
- **Remedial Action Alternative 5**
  - ◊ Surface Clearance
  - ◊ Subsurface Clearance
  - ◊ Tree Survey and Clearance

Details of each remedial action alternative are described in the Remedial Action Alternatives section of this Proposed Plan.

The Preferred Alternative of surface clearance, subsurface clearance, and Educational LUCs (Remedial Action Alternative 4) for Range Complex No. 1 MRS is proposed because this action provides the most feasible method that meets the Remedial Action Objective (RAO).

This Proposed Plan presents a summary of the site background and characteristics; the risks to human health and the environment at the Range Complex No. 1 MRS; past response actions taken at the MRS; the objective of actions taken at the MRS; the remedial alternatives considered; and the Preferred Alternative for the MRS. This document is part of the Decision Document process. This Proposed Plan summarizes information found in detailed in documents available as part of the Administrative Record (AR) for the Former Port Angeles Combat Range and can be obtained from the Corps' website from the following link:

http://www.nwk.usace.army.mil/Missions/Environmental/EnvironmentalProjects.aspx

The lead agency will select a final response action for the Range Complex No. 1 MRS after the public comment period has ended and all comments received have been reviewed and considered. The Preferred Alternative may be modified based on new information or public comments received during the public comment period. Therefore, the public is encouraged to review and comment on the

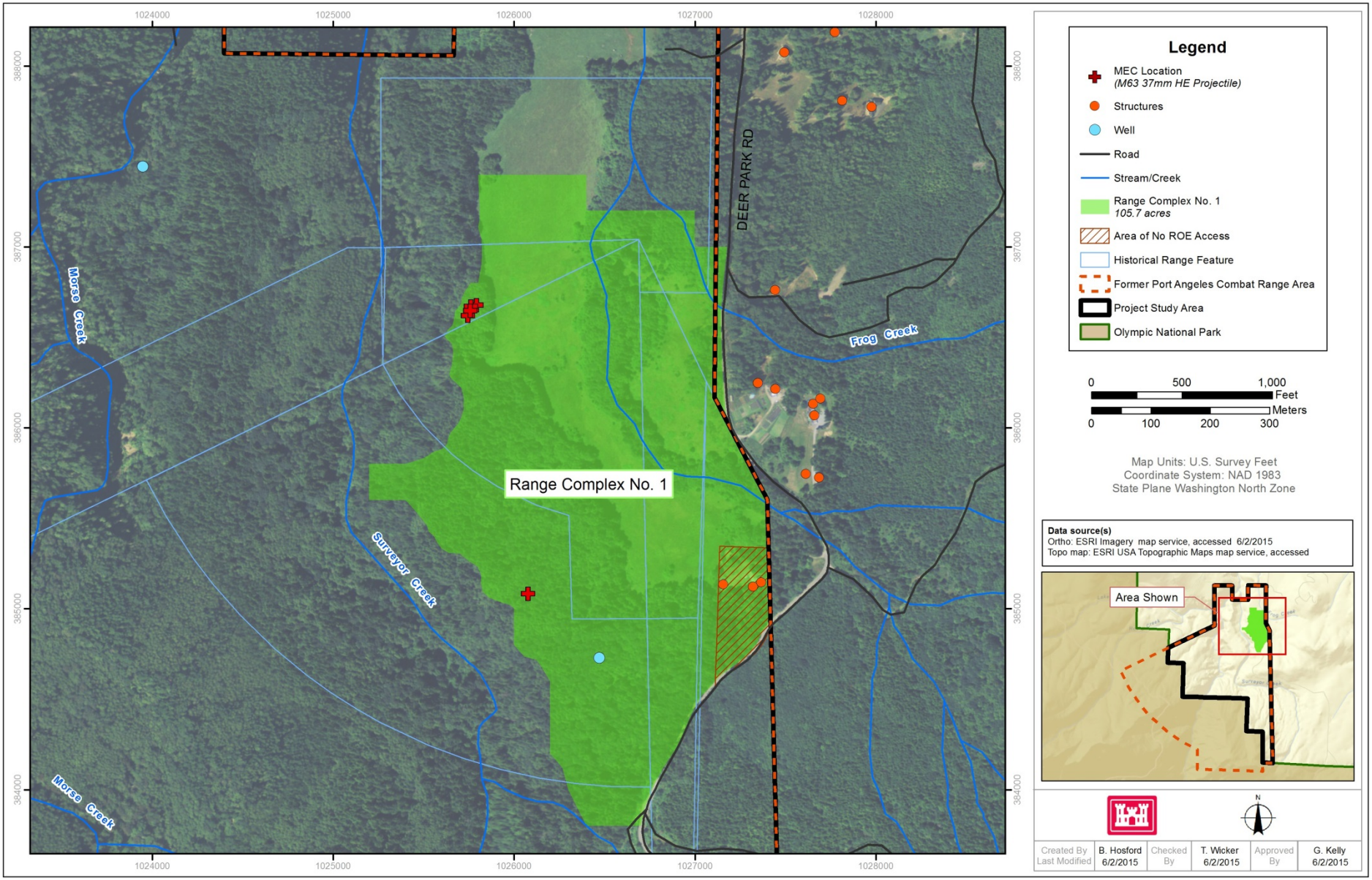

Figure 2. PACR Range Complex No. 1 MRS

Introduction (continued)

alternatives presented in this Proposed Plan. The final response action will be selected to ensure adequate protection of human health and the environment and will be detailed in a Decision Document for the site. The Proposed Plan and the Decision Document will be published as a permanent part of the AR for PACR.

Site Background

The PACR was used from 1943 through 1944 to train troops in various types of weapons use. The range was intended to be used for tactical firing problems and short-range known distance firing (200 to 300 yards). Through leases and use permits, approximately 1,600 acres were obtained within Sections 5, 8, and 17 within Township 29 North, Range 5 West of the Willamette Meridian for use as the PACR. The range was used for weapons practice with 37mm and 75mm projectiles; 60mm and 81mm mortars; and various small arms. A spotting tower was the only improvement constructed at PACR. In April and May 1944, the range was declared excess and all leases and permits were canceled. There is no information indicating any range clearance activities were performed prior to returning the range lands to private ownership. In addition, no information could be found indicating landowners were informed of the previous use of the range and potential hazards that could remain.

Two youths perished in August 1948, when a 37mm shell exploded while they were cutting downed timber within the former PACR. The 37mm shell was embedded in a log they were sawing. Immediately after the death of the two youths, the Army initiated the dedudding of the area expected to be impacted.

Previous investigations and clearances conducted within the PACR "parent" Range Complex No. 1 MRS have identified MEC and MD items, including 81mm mortars, 75mm projectiles, and 37mm projectiles.

There have been multiple range clearances on the PACR since World War II. On May 7, 1949, a Certificate of Clearance was issued noting that approximately 775 acres had been cleared of dangerous/explosive material. Subsequent clearances of the PACR occurred in 1952 (10 acres), 1955 (1,600 acres), 1956 (0.71 acres), and 1957 (776 acres). However, specific details regarding the number and types of munitions removed and the areas where the removals were conducted were not well documented.

The historical activities documented munitions use. The investigation findings indicated there was potential for remaining surface and subsurface MEC and associated munitions constituents (MC) contamination in the Range Complex No. 1 MRS. Areas potentially impacted by munitions-related activities were identified through a phased investigation process under the MMRP. These areas were investigated and the boundaries refined, and the terminology used to designate these areas changed as they moved through the process. The designations of sites or areas under investigation at the PACR were developed as follows:

- Initial areas or ranges where munitions-related activities may have been conducted were identified based on historical records and limited site visits as documented in the 1996 Archive Search Report (ASR). Initial boundaries for these ranges were drawn using historical maps, aerial photos, and other documentation as available. Initially the ranges and other areas were designated as Areas of Interest (AOIs).
- These AOIs, or potentially impacted areas and ranges, were further evaluated in the 2004 ASR Supplement. The range boundary and sub-ranges were developed considering munitions types, exposure potential, and other considerations from the conceptual site model (CSM) for each AOI. The supplemental ASR identified one range (Range Complex No. 1) and seven sub-ranges (Direct Fire Impact Area, Direct Fire and Combat Training Area, Indirect Fire Impact Area, Buffer Zone, Buffer Zone and Combat Training, Combat Training Area, and Impact/Buffer Area).
- The PACR was designated in the MMRP inventory in the Defense Environmental Programs' Annual Report to Congress as early as Fiscal Year 2007. The MMRP inventory was prepared to document the status, progress, and projected costs of environmental restoration programs.
- The 2009 Site Inspection (SI) collected information needed to determine the following: determine if any areas qualify for No Action because they pose no significant health threat or explosive hazard; determine whether immediate removal action is needed; and to collect data to better characterize the site for more effective initiation of the RI/Feasibility Study (FS). At the conclusion of the SI, because MC concentrations were below agreed upon screening values, the stakeholders agreed that MC sampling would not be required for subsequent investigations. Based on historical evidence of MEC, Range Complex No. 1 at the PACR was recommended for additional investigation for potential MEC hazards. Based on the SI, the location and size of the Range Complex No. 1 MRS at the PACR were correct as provided in the MMRP Inventory. The Range Complex No. 1 Munitions Response Area (MRA) and sub-ranges were

Site Background (continued)

further investigated through site walks and sampling during the SI. The MRA was determined to require additional investigation in an RI and was retained as an MRS.

An RI was conducted at PACR in 2013 to characterize the nature and extent of areas impacted by munitions-related activities and assess the risk to human health and the environment from MC and MEC. Based on the results of soil sampling conducted in the SI and the lack of MEC requiring MC sampling during the RI, sampling of soil, soil vapor, and water was not performed during the RI. Data collected during the RI were used to determine whether further action is required under the FUDS MMRP and CERCLA at the Range Complex No. 1 MRS.

In the RI report, the PACR "parent" MRS was discussed as three informal MRSs based on the different levels of risk as determined by the types and distribution of potential MEC and MD within each area. The three areas consist of the following:

Range Complex No. 1 – This MRS comprises 4% of the original PACR "parent" MRS and was recommended to be carried forward into the FS phase of the project and retain the Range Complex No. 1 MRS designation. Five MEC items and 147 MD items were found in the 105.7 acre area and encompasses an area historically associated with a target range and impact areas (**Figure 2**).

Range Complex No. 1 (a) – This informal MRS was designated Range Complex No. 1 (a) MRS. This area comprises 1,286.5 acres of the original 2,629 acre PACR "parent" Range Complex No. 1 MRS. It includes the areas adjacent to the delineated impact areas of the Range Complex No. 1 MRS. There was no evidence of military activity, MEC, MD, or MC contamination during the investigation of Range Complex No. 1 (a). Based on the RI results, this area is not believed to be associated with a target range and is recommended for No Action in this Proposed Plan.

Range Complex No. 1 (b) – This informal MRS was designated Range Complex No. 1 (b). This 1,238.5 acre area, located in the Olympic National Park, was not investigated in the RI because a programmatic agreement does not exist between the National Park Service (NPS) and the DoD to conduct investigation and remedial actions. An Inventory Project Report (INPR) has been prepared by the Corps for the Range Complex No. 1 (b) MRS to identify the area as a separate FUDS eligible site. This area may be evaluated as a new project at a later date.

Only Range Complex No. 1 MRS was recommended for further action in the RI; therefore, this Proposed Plan only addresses the Range Complex No. 1 MRS in the remainder of this document.

Based on the results of the RI, Range Complex No. 1 MRS was moved forward into the FS. The FS serves as a mechanism for the development, screening, and detailed evaluation of remedial action alternatives based on site characterization data obtained during the RI and all applicable or relevant and appropriate requirements (ARARs). During the FS, a list of remedial alternatives which may reduce the MEC hazard was developed. The RI/FS was finalized in 2015.

In addition to the investigations described above, the following actions have taken place at PACR:

- The Naval Explosives Ordnance Disposal Facility Center conducted a range clearance technology assessment in 1986, and concluded that the PACR not be considered for mechanical clearance in the foreseeable future; that an investigation be conducted to determine the effect of natural processes on unexploded munitions; and that restrictions placed on the use of the land remain in force.
- In 1993, an Inventory Project Report determined that PACR was eligible for DERP—FUDS and proposed that further evaluation of the site be completed to better determine the hazards posed by the presence of unexploded ordnance (UXO).
- In 2011, digital geophysical mapping data were collected over an area at the PACR in an effort to characterize the site for future Environmental Security Technology Certification Program demonstrations. On September 29, 2011, a UXO technician found a 37mm projectile on the site. The UXO technician immediately notified the Clallam County Sheriff's office. A Washington State Police bomb technician disposed of the item explosively on September 29, 2011.

In an effort to keep the public informed and involved in the FUDS process, meetings relating to the SI and RI/FS for the PACR were conducted. During the SI phase, an advertisement for a public meeting was published and a meeting was held. There was limited interest from the community at that time. A series of Technical Project Planning (TPP) meetings were conducted by the Corps during the RI/FS phase. The TPP1 meeting identified the current project and was held in December 2012; the TPP2 meeting determined data needs and developed data collection options and was held in October 2013; and, the TPP3 meeting presented the findings of the RI/FS and was held October 2014.

Site Characteristics

The PACR is primarily maintained as a protected watershed for the City of Port Angeles, for timber production, as a National Park, and also contains private residences. Evidence of hunting and target shooting (e.g., improvised targets) were documented in the RI/FS. The PACR is primarily maintained as a protected watershed for the City of Port Angeles. There are a number of land owners and leaseholders within the PACR boundary and include the City of Port Angeles, Clallam County, WDOE, Olympic National Park, private individuals, and corporations (timber production). The City of Port Angeles also permits cattle grazing in some areas. During the RI/FS, there was evidence of hunting and target shooting (e.g., improvised targets) in within the PACR. Locations of roads, structures, and drainage features in the vicinity of Range Complex No. 1 MRS are illustrated on **Figure 2**.

The closest population center is the City of Port Angeles, WA located approximately seven miles to the northwest of the PACR. The 2010 census lists the population for the City of Port Angeles as 19,038 individuals. The 2010 population density for Clallam County is 40.4 persons per square mile.

The land is hilly to mountainous. The northern portion of the Range Complex No. 1 MRS contains areas of meadowland/grassland and areas of dense forest. Three creeks (Surveyor Creek, Frog Creek, and Morse Creek) flowing from south to north towards the City of Port Angeles, transect the PACR.

Soils present at the PACR are Elwha gravelly sandy loam, Neilton very gravelly sandy loam, Puget silt loam, and Terbies very gravelly sandy loam. Vegetation consists of primarily second growth fir and alder with some cedar trees. In forested areas, the PACR has very dense undergrowth that makes access difficult. Recently logged areas have very dense growth of small trees and shrubs that makes these areas nearly inaccessible.

Geology of the area is controlled by the converging of two tectonic plates (Juan de Fuca and North American plates). Underlying the PACR are accreted Tertiary sediments and pillow basalt rocks that were once on the floor of the Pacific Ocean. Shallow groundwater in the region occurs in gravelly units within the glacial outwash deposits. Groundwater occurs within sand and gravel units that overlie the bedrock. Based on well logs, groundwater occurs in these units at depths ranging from 50 to 120 feet.

The future use of the Range Complex No. 1 MRS is anticipated to be the same or very similar to the current use. The majority of the area is public land and will continue to be maintained as a protected watershed for the City of Port Angeles. A portion of the Range Complex No. 1 MRS is privately owned or held by the timber industry. Additional residential development in privately owned portions of the site could occur as well as timber harvesting. Future plans for the 105.7 acre Range Complex No. 1 MRS and adjoining areas will likely include the continuation of forest management, hunting, and possibly fish and wildlife conservation.

The PACR contains varied habitat that supports a range of wildlife. The United States Fish and Wildlife Service (USFWS) identifies the following Threatened and Endangered species that may be present on or near the Range Complex No. 1 MRS:

- Bull Trout – Coastal Puget Sound distinct population segment – Threatened
- Marbled Murrelet – Threatened
- Streaked Horned Lark – Threatened
- Yellow-billed Cuckoo - Threatened
- Northern Spotted Owl – Threatened
- Short-tailed albatross (outer coast) - Endangered

There is no designated critical habitat located on the PACR; however, there is federally designated critical habitat located within one-mile. Recovery Plans have been published by the USFWS for the Marbled Murrelet and the Northern Spotted Owl. The Washington Department of Fish and Wildlife Conservation Division provides a website (http://ecos.fws.gov/ipac/) that lists Federal and State Threatened and Endangered, and candidate species.

The Range Complex No. 1 MRS contains abundant natural resources. The area contains forests, rangeland, streams, and wetlands. The Olympic National Park borders the southern boundary of the MRS.

The Range Complex No. 1 MRS, as described in the RI/FS includes the Direct Impact Fire Area and the adjacent Buffer Zones that were confirmed to be impact areas based on the results of the investigation and the distribution of MEC/MD.

Five MEC items (M63 37mm HE projectiles) were recovered from the ground surface during the RI. Recovered identifiable MD included:

- Thirteen M51 37mm Armor Piercing projectiles
- One M48 75mm projectile point detonating fuze (expended)
- One M44 81mm practice mortar
- Three A1 81mm HE mortar pieces
- Three M57 81mm White Phosphorus mortar bodies
- Four 81mm mortar tail fin pieces

Site Characteristics (continued)

- One 81mm mortar tail fin
- One 75mm practice projectile
- Half of a 75mm projectile (empty)

The amount and distribution of MD at the Range Complex No. 1 MRS indicates that additional MEC may be present in the 105.7 acre MRS.

During the RI at the Range Complex No. 1 MRS, all five of the MEC found were intact. MC sampling for energetics was not performed because a MC release would not have occurred. In-situ XRF screening was conducted to analyze for lead in soils where natural features (e.g., natural berm feature) or small arms debris was identified. All of the XRF results were either below the limit of detection or significantly below regulatory screening levels.

Scope of Response Action

During investigative activities at the site, MEC was identified in the Range Complex No. 1 MRS. It is the intent of the Corps to perform an appropriate level of remedial activity to prevent or minimize the potential interaction with MEC so that it does not cause substantial danger to present or future public health or welfare of the environment.

General response actions for MEC sites include LUCs and applicable clearance alternatives. General response action combinations, such as clearance and LUCs, may be applicable. Clearance responses may include a combination of surface, subsurface, and timber removal alternatives as appropriate to the site. MEC clearance alternatives may include well-established and innovative detection technologies, as well as recovery and disposal of any MEC items found. Evaluation of innovative technologies is encouraged as described in the CERCLA guidance.

The RI concluded that MEC is present in surface soil at the Range Complex No. 1 MRS. The presence of surface MEC and MD, as well as MD found buried up to 1.5 feet below ground surface, indicated that MEC was also likely to be buried in subsurface soils. The results of the RI indicated that further action was needed to identify, select, and implement remedial actions to address the MEC hazard.

There were no areas impacted by MC identified during the RI; therefore, alternatives addressing MC were not evaluated. General response actions applicable to the PACR Range Complex No. 1 MRS include NA, Educational LUCs, surface clearance, and subsurface clearance.

For purposes of the detailed analysis of alternatives, magnetometer and dig (mag and dig) was selected and used as a representative technology applicable for the subsurface clearance alternatives. The specific technology best suited for each clearance area will be selected during the remedial design.

Summary of Site Risks

Evaluating risk to human health and safety at the MRSs requires knowledge of the source of risk (i.e., MEC, MD, and/or MC), current and future potentially exposed populations (i.e., receptors), and potential exposure pathways by which a source may reach these populations. These are all factors taken into consideration while assessing the potential risk at the Range Complex No. 1 MRS.

There is the potential for human and ecological receptors to access MEC at the Range Complex No. 1 MRS in surface and subsurface soil. Five MEC items were found on the ground surface at the Range Complex No. 1 MRS during the RI field activities; consequently, all soil exposure pathways for access and exposure to MEC are complete for all receptors. Based on the recovery of MEC items, surface soil exposure pathways to MEC remain complete. All recovered MEC items were located in shallow surface soil (0-6 inches below ground surface). MD was present in many areas on the surface and in the subsurface which suggests that other MEC may be present but not visible.

No environmental sampling for MC analysis was performed during the RI because the conditions that would have warranted the collection of samples for laboratory analysis were not observed during the field investigation. Based on the SI analytical laboratory results, and the amount and types of MD observed during the RI, it is unlikely that MC is a concern. If damaged or leaking munitions items are found during future remedial actions, MC sampling may need to be evaluated. Risks at the Range Complex No. 1 MRS are related to MEC and not MC; therefore, neither a baseline human health risk assessment, nor a baseline ecological risk assessment for MC was performed for the RI.

Human receptors for MEC at the Range Complex No. 1 MRS include current and future recreational users, current and future outdoor workers, current and future trespassers, and current and future residents. Ecological receptors are not assessed for explosive hazards due to MEC; however, consideration must be given to Threatened and Endangered species since loss of an individual animal or plant is considered a “taking” under the U.S. Endangered Species Act of 1973, Prohibited Acts 16 USC § 1538(a).

In general, the potential for MEC migration from one location to another is based on the amount of precipitation, stabilization in soil, the steepness of the slope, and weight

Summary of Site Risks (continued)

of the item. In areas that have steep, open slopes, MEC could migrate via frost heave and erosion or possibly by mudslides depending on the slope and cover. There are surface water features in the Range Complex No. 1 MRS; therefore, MEC migration from initial source locations to surface water or sediment and other areas within this MRS is possible although unlikely. Over time, soils, rocks, and organic debris tend to accumulate around stationary items thereby inhibiting movement.

It is the lead agency's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of MEC into the environment.

Remedial Action Objectives

RAOs are medium-specific goals developed for the overall purpose of protecting human health and the environment. These objectives are based on the assessment of risk and the identification of ARARs (see **Table 1**). RAOs provide the basis upon which formulation and development of response actions are achieved.

The RAO for Range Complex No. 1 MRS is to reduce the unacceptable hazard probability of encountering MEC such as 37mm and 75mm projectiles, 60mm and 81mm mortars, and other munitions within the 105.7 acre area, to a depth below the ground surface of the detection limit of analog geophysical equipment to address the likelihood of exposure to MEC in surface and subsurface soil by current and future recreational users, workers, and residents such that a low probability hazard determination and response complete (RC) can be supported.

The RAO may be achieved by reducing the probability of human interaction with intact MEC at Range Complex No. 1 MRS through remedial actions to eliminate, mitigate or control the pathways to exposure to MEC on the ground surface and subsurface to a depth of the limit of detection capable of the hand-held analog geophysical equipment (magnetometer) employed to locate buried munitions.

Table 1. ARARs, Range Complex No. 1 MRS

Standard, Requirement, Criteria or Limitation	Citations	Description	ARAR Type	Applicability to Site
Endangered Species Act	Endangered Species Act, 16 USC § 1538(a)(1)(B)	Prohibits the unlawful taking of any endangered species.	Location	Applicable to any action that could jeopardize the continued existence of a listed or proposed threatened or endangered species or destroy critical habitat for such a species at the site.

Summary of Remedial Action Alternatives

An FS was performed to identify and evaluate remedial action alternatives that will meet the RAO. The advantages and limitations of each alternative were identified, and alternatives that might apply to the Range Complex No. 1 MRS were retained for further evaluation. The detailed screening of alternatives can be found in the RI/FS Report.

Five remedial action alternatives were considered for MEC contamination at Range Complex No. 1 MRS, including:

- **Alternative 1:** No Action
- **Alternative 2:** Educational LUCs
- **Alternative 3:** Surface Clearance and Educational LUCs
- **Alternative 4:** Surface Clearance, Subsurface Clearance, and Educational LUCs
- **Alternative 5:** Surface clearance, Subsurface clearance, and Tree survey and clearance

The preferred alternative for the Range Complex No. 1 MRS is Alternative 4: surface clearance, subsurface clearance, and Educational LUCs. This remedial action alternative was determined to represent the most feasible remedial action alternative meeting the RAO.

Remedial Action Alternative 1 – No Action
Estimated Capital Cost: $0
Estimated Annual Operations and Maintenance Cost: $0
Estimated Present Worth Cost: $0
Estimated time to achieve RAO: Not Achievable

The NA alternative is required by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and CERCLA to provide a baseline for comparison with all other remedial action alternatives. This alternative does not achieve the RAO as the risk from MEC contamination would remain for all receptors.

Summary of Remedial Action Alternatives (Continued)

Remedial Action Alternative 2 – Educational LUCs for Site Visitors, Site Workers, and Residents

Estimated Capital Cost: $146,600
Estimated Annual Operations and Maintenance, and 5-Year Review Cost: $5,900
Estimated Net Present Value Cost: *$290,300*
Estimated time to achieve RAO: Indefinite

NOTE: Educational LUCs would be required for many years beyond the 30-year period used for cost estimation because there would be no reduction of MEC over time.

The recommended Educational LUCs for the Range Complex No. 1 MRS consist of educational material and signage to minimize potential exposure to MEC. Educational LUCs (pamphlets, website information, and posted warning signs) help to minimize the potential for exposure to MEC and are designed to work by providing information that helps modify or guide human behavior at the Range Complex No. 1 MRS.

The advantages of this alternative are:

- Direct exposure through inadvertent site access is reduced.
- The costs are lower than other response actions.
- Time to implement the action (i.e., response time) is short.
- Sensitive infrastructure and ecological resources are protected.

The limitations of this alternative are:

- There is no removal of MEC.

The Educational LUCs developed for the Range Complex No. 1 MRS include the following:

- Posting signs in the Range Complex No. 1 MRS area warning visitors, workers, or trespassers of the potential MEC danger in mature trees.
- Provide informational/educational brochures to be made available in the City of Port Angeles and to landowners and visitors at entry points.
- Develop a website to provide information about the site and the potential residual MEC hazard that could exist in mature trees at the Range Complex No. 1 MRS.

Any Educational LUCs would need to be implemented and monitored according to a Land Use Control Implementation Plan (LUCIP). The LUCIP is a brief summary of the major issues and objectives that the LUCs have been designed to address.

Remedial Action Alternative 3 – Surface Clearance and Educational LUCs

Estimated Capital Cost: $702,100
Estimated Annual Operations and Maintenance, and 5-Year Review Cost: $5,900
Estimated Net Present Value Cost: $845,800
Estimated time to achieve RAO: 1 year

This alternative includes a surface clearance of MEC and Educational LUCs (as described in Alternative 2 above). The surface clearance consists of a visual survey covering 100% of the accessible areas to locate (approximately 6.5 percent of the area is unsurveyable), identify, and remove any MEC found on the ground surface. During the visual survey, MD found on the ground surface may be used as an indicator to locate and aid in the goal of responding to MEC that may be present. All recovered MEC will be detonated on site.

Advantages of this alternative are:

- All MEC on the ground surface in the surveyable area would be removed.
- The overall hazard from MEC would be reduced.
- The costs are moderate in comparison to other alternatives.
- Time to implement the action is moderate in comparison to other alternatives.

The limitations of this alternative are:

- Costs are higher relative to a LUCs only alternative.
- Surface clearance would not remove subsurface MEC; therefore, it is possible that subsurface MEC, if present, could be exposed by natural processes such as erosion or frost heave over time.
- The explosive hazard would be reduced but not eliminated.

Remedial Alternative 4 – Surface Clearance, Subsurface Clearance, and Educational LUCs (Preferred Alternative)

Estimated Capital Cost: $2,127,400
Estimated Annual Operations and Maintenance, and 5-Year Review Cost: $5,900
Estimated Net Present Value Cost: *$2,271,200*
Estimated time to achieve RAO: 1 year

This alternative includes surface clearance, subsurface clearance of MEC using hand held analog geophysical equipment and Educational LUCs (as described in Alternative 2). Analog geophysics was selected as a representative subsurface technology. The subsurface investigation performed during the RI indicated that the extent of MD within the impact areas is shallow and nearly all items were found within 18 inches of the surface,

Summary of Remedial Action Alternatives (continued)

indicating the potential for the presence of MEC is likely limited to this depth. The analog geophysical sensors are capable of detecting the suspected MEC items to this depth and deeper.

For this alternative, the surface clearance and subsurface clearance would happen concurrently. Surface and subsurface MEC located within the surveyable area of the Range Complex No. 1 MRS will be removed. All recovered MEC will be detonated on site.

Advantages of this alternative are:

- MEC on the ground surface and in the subsurface will be removed to a depth of the detection limit of the hand-held analog geophysical equipment.
- The overall hazard from MEC would be reduced further than surface clearance only.

The limitations of this alternative are:

- The cost is relatively high (second highest cost) in comparison to other alternatives.
- Time to implement the action is significantly longer than performing a surface clearance only.
- Some vegetation removal may be required in order to deploy analog sensing equipment thereby having a greater impact on the ecology of the area.
- The explosive hazard would be reduced but not entirely eliminated because potential MEC could remain embedded in the trunks of trees; therefore, Educational LUCs will be required following the removal action.

Remedial Alternative 5 – Surface Clearance, Subsurface Clearance, and Tree Survey and Clearance

Estimated Capital Cost: $3,294,600
Estimated Annual Operations and Maintenance, and 5-Year Review Cost: $0
Estimated Net Present Value Cost: 3,294,600
Estimated time to achieve RAO: 1 year

This alternative includes surface and subsurface clearance using analog geophysics (as described in Alternative 4), with the additional action of surveying and clearing any trees that were believed to be present in the late 1940s when the Range Complex No. 1 MRS was operational. MEC would be removed from all of Range Complex No. 1 MRS in this action, including the areas that were unsurveyable during the RI. LUCs would not be required and would allow the site to be designated as Unlimited Use/Unlimited Exposure (UU/UE). The surface and subsurface clearance would be performed as described above in Alternative 4 with the addition of clearing the unsurveyable areas (approximately 6.5 percent of the total area). For this alternative, a professional consulting forester would be employed to assist in determining the age of the trees. Trees that are considered to be of the optimum age would be evaluated by UXO Technicians. Any metallic anomalies identified by the UXO technicians would be addressed by either inspection or disposal to certify the tree as free from explosive hazards. All recovered MEC will be detonated on site.

Advantages of this alternative are:

- All MEC on the ground surface, in the subsurface to a depth of the limit of detection of the hand-held analog geophysical equipment, and MEC in trees would be removed.
- The overall hazard from MEC would be reduced to the extent that the Range Complex No. 1 MRS would be recommended for UU/UE status.

The limitations of this alternative are:

- This alternative has the highest cost to implement.
- Time to implement the action is the longest of all alternatives.
- Some vegetation removal may be required in order to deploy analog sensing equipment thereby having a greater impact on the environment and ecology of the area
- Removal of trees identified as potentially containing MEC would be required. These disturbances create the greatest environmental impact of all the alternatives.

Evaluation of Remedial Action Alternatives

The following is an overview of the evaluation criteria used to analyze remedial action alternatives and select the preferred alternative for Range Complex No. 1 MRS at PACR. The alternatives were evaluated against nine criteria falling into three groups to determine the alternative's overall suitability: Threshold Criteria, Primary Balancing Criteria, and Modifying Criteria. Threshold Criteria are requirements that each alternative must meet in order to be eligible for selection. Primary Balancing Criteria are used to weigh major trade-offs among alternatives. Modifying Criteria can be fully considered only after public comment is received on the Proposed Plan and are of equal importance to Balancing Criteria in the final balancing of trade-offs between alternatives upon which the final remedy selection is based. The Nine Evaluation Criteria are as follows:

Evaluation of Remedial Action Alternatives (continued)

Threshold Criteria

- *Overall Protection of Human Health and the Environment.* Under this criterion, the adequacy of the protection afforded by a remedial action must be addressed. This includes how specific site remedial actions achieve protection over time, how site risks are reduced, and how sources of contamination are to be eliminated, reduced, or controlled.
- *Compliance with ARARs.* Under this criterion, compliance with the ARARs must be attained by the alternative to be considered as a remedy.

Primary Balancing Criteria

- *Long-Term Effectiveness and Permanence.* Under this criterion, the effectiveness and permanence of the remedial action is established in terms of risk remaining at the site after the RAOs have been met.
- *Reduction of Toxicity, Mobility, or Volume through Treatment.* Under this criterion, each MEC remedial alternative is assessed by evaluating the degree to which the MEC hazard is eliminated or reduced by treatment on the site. When assessing remedial alternatives, the evaluation will focus on the reduction of contaminant toxicity, mobility, and/or volume through treatment on site.
- *Short-Term Effectiveness.* Under this criterion, impacts during the construction and implementation phase of the remedial action are evaluated, including potential adverse impacts to site workers and the environment. The time required to implement the proposed alternative is also considered.
- *Implementability.* Under this criterion, the technical and administrative feasibility of implementing the proposed alternative is evaluated. The availability of needed materials and services is also considered.
- *Cost.* Under this criterion, estimates are made of capital costs, engineering expenses, and the present value of future operations and maintenance and periodic costs. Present value analysis allows remedial actions to be compared on the basis of a single cost representing an amount that, if invested in the base year and disbursed as needed, would be sufficient to cover all costs associated with the remedial action over its planned life. The present value analysis uses constant dollars, also called "real dollars," which are not affected by general price inflation.

Modifying Criteria (to be considered after receipt of public comments on the proposed remedy

- *Regulatory Acceptance.* The state's (or other regulatory agency's) preference among or concerns about alternatives.
- *Community Acceptance.* The community's apparent preferences among or concerns about alternatives.

These evaluation criterion are provided under NCP §300.430(e)(9)(iii).

This comparative analysis provides the basis for proposing Alternative 4, Surface Clearance, Subsurface Clearance, and Educational LUCs as the Preferred Alternative for Range Complex No. 1 MRS.

Alternative 1, No Action, was determined to have no cost and no associated ARARs, as well as a low level of agreement with all of the criteria, except Implementability. This alternative has a high level of Implementability because there is no work or site modification associated with this alternative. The No Action alternative will not attain the RAO for the Range Complex No. 1 MRS.

Alternative 2 is protective and relies on behavior modification of individuals when accessing the Range Complex No. 1 MRS to avoid human contact with MEC and directs individuals as to the appropriate action to take in the event MEC is encountered (i.e., do not handle suspected item and contact authorities). Alternative 2 can be executed in a manner to meet applicable ARARs identified at the Range Complex No. 1 MRS. Although Alternative 2 can deter inappropriate interaction with MEC, it cannot prevent it. Alternative 2 includes five-year reviews to verify that the remedy remains protective. This alternative offers no reduction in toxicity, mobility, or volume of contaminants through treatment because no destruction of MEC is conducted. However, implementation of Alternative 2 is assumed to reduce receptor hours by encouraging individuals to avoid contact with MEC within the Range Complex No. 1 MRS through education. Alternative 2 presents no short-term impacts or adverse impacts on workers and the community. Alternative 2 was determined to be the easiest to implement (with the exception of Alternative 1). Alternative 2 is also both technically and administratively feasible, with fact sheets, signage, and a website readily available. Alternative 2 requires relatively low costs compared to Alternatives 3, 4, and 5 which are the most costly to implement.

In summary, Alternative 2 – LUCs, would reduce potential exposure to MEC by modifying behavior, but a low- to-moderate probability to exposure would remain because

Evaluation of Remedial Action Alternatives (continued)

land users such as hunters, hikers, workers, and nearby residents would be able to access the site and may not comply with the instructions and directly contact MEC that presents an explosive hazard. Educational LUCs are protective and meet the RAO by managing the potential for exposure to MEC hazards through increased awareness and education.

Alternative 3 provides protection by removing MEC if it remains on the surface at Range Complex No. 1 MRS. Alternative 3 has a low potential for accidental detonation as part of the investigative or removal process because all removal actions are performed by trained UXO technicians in accordance with an approved Health and Safety Plan. The alternative can be executed in a manner to meet the applicable ARAR identified at the Range Complex No. 1 MRS. Prior to executing the surface clearance, a ground survey would be executed to determine whether any endangered species and active nesting areas are located within the Range Complex No. 1. Alternative 3 removes MEC from the surface and relies on educational awareness for long-term effectiveness to manage a potential explosive hazard in the subsurface and mature trees. This alternative includes five-year reviews to verify that the remedies remain protective. The alternative provides reduction of risk to MEC remaining on the surface in conjunction with reducing potential receptor contact with MEC through education. Alternative 3 would have low short-term effects due to minor risk to workers conducting the MEC removal and potentially challenging terrain conditions. Alternative 3 is technically and administratively feasible but requires specialized personnel and equipment to implement and requires the development of detailed work plans. Alternatives 3 is significantly more costly than Alternative 2 alone, but significantly less than Alternatives 4 and 5, which are the most costly to implement. .

In summary, Alternative 3 – Surface Clearance and Educational LUCs, would reduce potential exposure to MEC by removing the threat of exposure from the ground surface. The probability of exposure would be low for most land users, and low potential threat to workers performing intrusive activities at the site. Based on the current and future land use, Alternative 3 is protective and meets the RAO through a combination of MEC removal and managing the risk of exposure to MEC hazards by implementing Educational LUCs.

Alternative 4 provides protection by removing surface and subsurface MEC throughout the Range Complex No. 1 MRS. Alternatives 4 has a low potential for accidental detonation as part of the investigative or removal process. The alternative can be executed in a manner to meet the applicable ARAR identified at the Range Complex No. 1 MRS. Prior to executing the surface and subsurface clearance, a ground survey would be executed to determine whether any endangered species and active nesting areas are located within the Range Complex No. 1 MRS. Alternative 4 was determined to provide long-term effectiveness and permanence based on the ability to significantly reduce the risk due to possible MEC on the surface and in the subsurface. It also relies on educational awareness for long-term effectiveness to manage potential encounters with an explosive hazard that potentially remain in mature trees. Alternative 4 includes five-year reviews to verify that the remedies remain protective. Alternative 4 provides a high level of reduction of toxicity, mobility, or volume through treatment as a result of surface and subsurface MEC removal and destruction on site and reduces potential receptor contact with MEC through education. Alternative 4 would have low short-term effects due to minor risk to workers conducting the MEC removal and potentially challenging terrain conditions. Personal protection safety measures implemented by trained UXO professionals during the removal action greatly reduces potential risk to workers. The long-term effectiveness of the remedy is high because MEC is removed from the surface and subsurface in conjunction with increased educational awareness to manage potential encounters with an explosive hazard. Alternative 4 is technically and administratively feasible but require specialized personnel and equipment to implement and requires the development of detailed work plans. Alternative 4 has the second highest implementation cost. State and community acceptance of Alternative 4 as the preferred alternative will be evaluated and assessed after the public comment period ends and will be described in the Decision Document for the Range Complex No. 1 MRS.

In summary, Alternative 4 – Surface Clearance, Subsurface Clearance, and Educational LUCs would reduce potential exposure to MEC by removing the threat of exposure from the ground surface and the subsurface to a depth of the limit of detection capable of the hand-held analog geophysical equipment employed to locate buried munitions. The probability of exposure would be low for all land users because all MEC would be eliminated from the ground surface and subsurface. The only potentially remaining MEC hazard would be limited to mature trees. Based on the current and future land use, Alternative 4 is protective and will achieve the RAO to reduce the unacceptable probability of encountering MEC such that a low probability hazard determination and response complete can be supported.

Evaluation of Remedial Action Alternatives (continued)

Alternative 5 provides protection by removing surface and subsurface MEC as well as MEC embedded in mature trees throughout the Range Complex No. 1 MRS. The alternative can be executed in a manner to meet the applicable ARAR identified at the Range Complex No. 1 MRS. Prior to executing the surface and subsurface clearance, and tree clearance, a ground survey would be executed to determine whether any endangered species and active nesting areas are located within the Range Complex No. 1 MRS. Alternative 5 was determined to provide the best long-term effectiveness and permanence based on the ability to remove the risk due to MEC on the surface, subsurface, and in trees. Alternative 5 provides the greatest reduction of toxicity, mobility, or volume through treatment as a result of surface and subsurface MEC removal and removal of MEC from mature trees and destruction on site. Alternative 5 would have low-to-moderate short-term effects due to some risk to workers conducting the MEC removal due to the extremely challenging terrain conditions within previously defined unsurveyable areas. The long-term effectiveness of the remedy is high because MEC is removed from the surface, subsurface, and impacted trees. Alternative 5 is technically and administratively feasible but requires specialized personnel and equipment to implement and requires the development of detailed work plans. Alternative 5 is the most costly of all of the all alternatives and represents the UU/UE alternative. However, the additional costs and the considerable effort and potential hazards that would be associated with the clearance of trees and clearance in unsurveyable areas would provide only a minimal overall reduction of risk over Alternative 4; thereby making Alternative 5 an impractical remedial alternative.

In summary, Alternative 5 – Surface Clearance, Subsurface Clearance, and Tree Survey and Clearance would remove potential exposure to MEC by removing the threat of exposure from the ground surface, the subsurface to a depth of the limit of detection capable of the hand-held analog geophysical equipment employed to locate buried munitions, and any MEC embedded in mature trees. The probability of exposure would be eliminated for all land users. Based on the current and future land use, Alternative 5 will achieve the RAO to reduce the unacceptable probability of encountering MEC such that a low probability hazard determination and response complete can be supported.

For the complete comparative analysis of Alternatives for Range Complex No. 1 MRS, see the Detailed Analyses of Alternatives in the Final Remedial Investigation/ Feasibility Study (USACE 2015).

Preferred Alternative

The information presented within the RI/FS report was intended to assist stakeholders with selecting the most appropriate alternative and to proceed with the next steps of the CERCLA and FUDS process. The Preferred Alternative can change in response to public comments or new information. The Corps did not receive WDOE concurrence with the findings of the RI/FS; therefore, this Proposed Plan is being moved forward and the Corps will engage the agencies and public again during the Proposed Plan review and comment period for their input.

Based on the results of the RI/FS, the Corps is proposing Alternative 4, Surface Clearance, Subsurface Clearance, and Educational LUCs as the Preferred Alternative for a final remedy at Range Complex No. 1 MRS. This action provides a high level of protectiveness by removing both surface and subsurface MEC that may pose an unacceptable risk to human health or the environment.

Alternative 4 meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The Corps expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element.

Alternative 4 will be protective of human health and the environment by removing MEC, and will mitigate residual MEC hazards at the ground surface and subsurface by reducing the potential for interaction with receptors. Alternative 4 is in compliance with ARARs and provides long-term effectiveness by removing MEC from surface and subsurface soil, and implements Educational LUCs. These actions reduce the MEC Hazard; as described in the FS portion of the RI/FS report. Alternative 4 provides a reduction of toxicity, mobility, and/or volume of MEC in contaminated areas through treatment by detonation of any recovered MEC on site. Alternative 4 is readily implementable but clearance requires qualified UXO technicians and specific equipment. With this alternative, it is possible that some MEC would be missed during surface and subsurface clearances and any MEC potentially embedded in tree trunks would remain; therefore, exposure pathways and MEC hazards cannot not be assumed to be completely eliminated. Educational LUCs would be

Preferred Alternative (continued)

implemented to further reduce the potential for receptor interaction with any potential remaining MEC.

This alternative meets the CERCLA/NCP criteria and was selected as the Preferred Alternative because it provides the most feasible method that meets the RAO to reduce the unacceptable hazard probability of encountering MEC in surface and subsurface soil by current and future recreational users, workers, and residents through a combination of removal/remedial actions and through public education such that a low probability hazard determination and response complete can be supported.

Community Participation

A public notice was placed in the Peninsula Daily News on August 8, 2013 to inform the public of the RI field investigation being performed at PACR. Documents pertaining to the PACR are available to the public by accessing the Corps' website from the following link:

http://www.nwk.usace.army.mil/Missions/Environmental/EnvironmentalProjects.aspx

The Corps encourages comments from the public on this Proposed Plan. Comments can be submitted using the enclosed form.

Public comments on the Proposed Plan will be accepted during a public review and comment period from **Month Day, 2016 through Month Day, 2016**. Comments received will be summarized and responses provided in the Responsiveness Summary section of the Decision Document.

The comment period also includes an opportunity for the public to request a public meeting where the Corps would present the Proposed Plan and field questions.

The Corps, in coordination with WDOE and landowners, will consider public comments received during the comment period and will make a final decision concerning future action to be taken at the former PACR Range Complex No. 1 MRS. The final decision will be presented in the Decision Document, currently scheduled for completion by **Month 2016.**

If you need additional information, would like to comment on the proposed remedy, or would like to request a public meeting, please contact:

Matt Ward, P.E.
Project Manager
US Army Corps of Engineers - Kansas City District
Environmental Programs Branch, Room 463
601 E. 12th Street
Kansas City, MO 64106
(816) 389-2382
Matthew.J.Ward@usace.army.mil

Glossary (commonly used terms and acronyms)

Administrative Record (AR): A compilation of all documents relied upon to select a remedial action pertaining to the investigation and remediation of the project site.

Applicable or Relevant and Appropriate Requirements (ARARs) – 40 CFR 300

- Applicable requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.
- Relevant and appropriate requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): a Federal law enacted in 1980 and modified in 1986. CERCLA provides authority and a process to evaluate and respond to releases of hazardous substances, pollutants or contaminants that may pose a threat to human health or the environment.

Decision Document: A document that demonstrates the decision by USACE for DoD on the selection of the remedial response for a DERP site after the lead agency has evaluated the prescribed remedy selection criteria and considered all comments from both the support agency and the public.

Feasibility Study (FS): The study evaluates possible remedial alternatives using the information generated from the Remedial Investigation. The FS becomes the basis for selection of a remedy that effectively mitigates the threat posed by MEC at the site.

Formerly Used Defense Sites (FUDS) – facility or site which was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances, for which the Secretary of Defense is authorized to carry out all response actions with respect to releases of hazardous substances that are attributable to DoD from that facility or site. 10 USC 2701

Information Repository (IR): a public file containing technical reports, reference documents, and other materials relevant to the site cleanup.

Land Use Controls (LUCs): Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, contaminated property to reduce risk to human health and the environment. Institutional Controls (IC) are a subset of LUCs and may include education and outreach to minimize the impact if MEC is encountered.

Munitions and Explosives of Concern (MEC): This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks means: (a) unexploded ordnance (UXO); (b) discarded military munitions (DMM); or (c) munitions constituents (MC) (e.g. explosives such as TNT, RDX) present in high enough concentrations to pose an explosive hazard.

Munitions Constituents (MC): Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Military Munitions Response Program (MMRP): program established by the Department of Defense to manage and address environmental impacts and health and safety concerns at former defense sites where MEC has been released to the environment.

Munitions Response Site (MRS): a specific location within a defense site that is known or suspected to contain a munitions hazard.

National Oil and Hazardous Substance Pollution Contingency Plan (NCP): The NCP provides the regulatory framework for hazardous substance response actions under CERCLA. The NCP designates the DoD as the Federal removal response authority for explosive hazards associated with military munitions.

Nine Criteria for Remedial Alternatives Evaluation:

1) overall protection of human health and the environment
2) compliance with ARARs
3) long-term effectiveness and permanence

Glossary (commonly used terms and acronyms) (continued)

4) reduction of toxicity, mobility, or volume through treatment
5) short-term effectiveness
6) implementability
7) cost
8) state acceptance
9) community acceptance

Preliminary Assessment (PA): the initial investigation phase to gather information about a site and its surrounding area, used to determine if a site should be recommended for further investigation.

Proposed Plan: a public participation document detailing the preferred remedial response action at a site.

Public Comment Period: a legally required opportunity for the community to provide written and oral comments on a proposed environmental action at a CERCLA site.

Remedial Action: the actual construction or cleanup phase following the selection of cleanup alternatives.

Remedial Action Objectives (RAOs): Remedial Action Objectives are media-specific (MEC) cleanup goals for a selected remedial action.

Remedial Investigation (RI): A process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The RI emphasizes data collection and site characterization, and is generally performed concurrently and in an interactive fashion with the feasibility study. The RI includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives. 40 CFR 300

Risk Assessment: a study estimating the potential risk from MEC to human health and the environment.

Site Inspection (SI): An investigation phase where readily available information is collected and analyzed to assess the extent and severity of contamination.

United States Army (Army): The United States Military Department which is the land force for the United States. The Army is designated as the DoD lead agent for the FUDS program.

Public Comments

If you have comments or questions on the Port Angeles Combat Range Complex No. 1 MRS Proposed Plan, please provide them in the space below (use a separate sheet of paper, if needed). Include your name, address, and telephone number so we can contact you, if necessary. All comments will be considered in the final response decision for the Port Angeles Combat Range Complex No. 1 MRS. Comments must be mailed (postmarked) by **Month Day, 2016**.

Name: _____

Address: _____

_____

_____

_____

Telephone: _____

Mailing List Update

If you would like to be added or removed from the Port Angeles Combat Range environmental mailing list, please check the appropriate box and fill in the correct address information to your left.

- ☐ Address change
- ☐ Add to mailing list
- ☐ Delete from mailing list

Comments:

_____

_____

_____

_____

_____

_____

_____

Return to:

Matt Ward, P.E.
Project Manager
USACE - Kansas City District
Environmental Programs Branch, Room 463
601 E. 12th Street
Kansas City, MO 64106

(816) 389-2382
Matthew.J.Ward@usace.army.mil

_____

_____