

## Superfund Proposed Plan

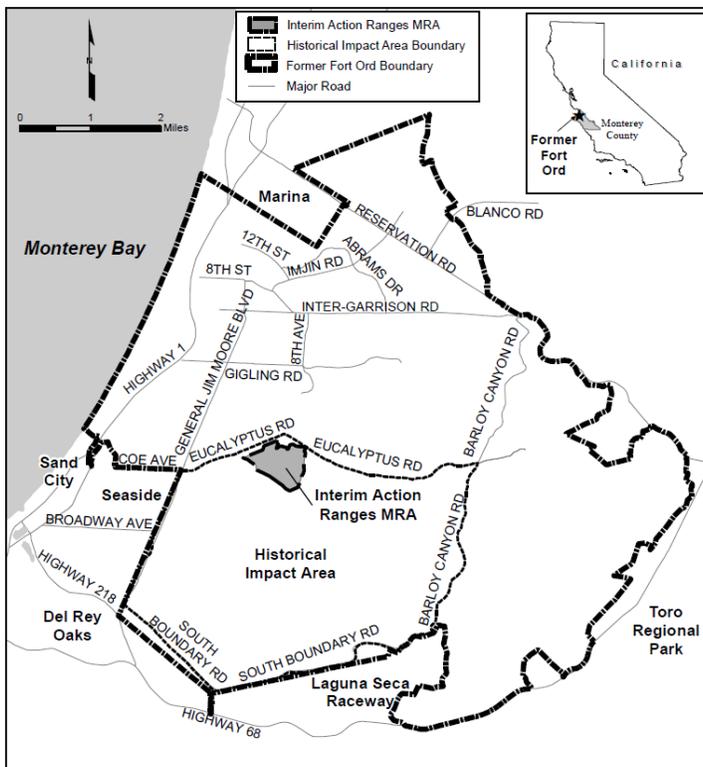
### Final Remedial Action is Proposed for Interim Action Ranges Munitions Response Area, Focused Feasibility Study, Former Fort Ord, Monterey County, California

United States Department of the Army

March 14, 2016

## INTRODUCTION

The United States Department of the Army (Army) is presenting this **Proposed Plan\*** to the public for review and comment regarding the proposed final cleanup decision for the Interim Action Ranges **Munitions Response Area (MRA)** located at the former Fort Ord Army base in Monterey County, California (**Figure 1**). Specifically, this Proposed Plan identifies the **Preferred Remedial Alternative of Land Use Controls (LUCs)** for managing the risk to future land users from **Munitions and Explosives of Concern (MEC)** that potentially remain in the Interim Action Ranges MRA where MEC interim remedial action has been completed. The Army selected surface and subsurface MEC removal as an interim remedy for the **Munitions Response Site (MRS)** Ranges 43-48, which encompasses the Interim Action Ranges MRA, in the *Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California* (“Interim Action ROD”) (Army 2002). Interim remedial action was conducted by the Army in 2003-2005 and by the Fort Ord Reuse Authority (FORA) under the Environmental Services Cooperative Agreement (ESCA) in 2011-2013 (Parsons 2007 and ESCA RP Team 2015a, respectively). The *Focused Feasibility Study, Interim Action Ranges Munitions*



**Figure 1. Interim Action Ranges MRA and Fort Ord Location Map**

Dates to remember:  
**MARK YOUR CALENDAR**  
**PUBLIC COMMENT PERIOD:**  
**March 16 to April 14, 2016**

Comments on the Proposed Plan:

**PUBLIC MEETING:**  
**March 30, 2016**  
**6:00 pm to 8:00 pm**  
**Carpenters Union Hall, 910 2<sup>nd</sup> Avenue,**  
**Marina, California**

The Army will hold a public meeting to explain the Proposed Plan, receive comments, and answer questions. Oral and written comments will also be accepted at the meeting.

Written comments may be sent to:  
 Department of the Army, Fort Ord Base Realignment and Closure (BRAC) Office  
 Attn: William K. Collins  
 BRAC Environmental Coordinator  
 P.O. Box 5008, Monterey, CA 93944-5008

\* This Proposed Plan contains terms adopted by the Army for the overall Fort Ord Military Munitions Response Program (MMRP). The terminology used in this Proposed Plan that first appears in **bold letters** is defined in the **Glossary** found at the back of this document on **pages 15 through 17**. References to **Figures, Tables, and page numbers** also appear in **bold letters**.

Response Area, Former Fort Ord, Monterey County, California (“Interim Action Ranges MRA FFS”) (ESCA RP Team 2015b) was prepared as part of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** or **Superfund** process for the site to evaluate results of the interim remedial action, assess post-interim action risks and evaluate final remedial action alternatives.

The potential presence of hazardous and toxic waste chemicals of concern in soil is being addressed under the Army Basewide Range Assessment Program (Shaw 2012).

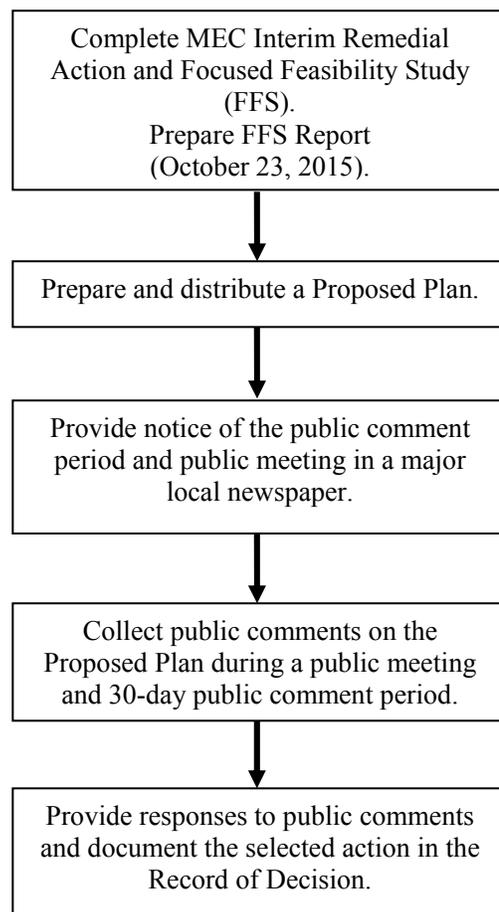
This Proposed Plan is based on information presented in the Interim Action Ranges MRA **Focused Feasibility Study (FFS)**; ESCA RP Team 2015b), as well as other documents in the Fort Ord **Administrative Record**. The Administrative Record contains documents used in making decisions for environmental cleanup projects at the former Fort Ord. The Army encourages members of the local community and other interested parties to review these documents and make comments on this Proposed Plan.

Public comments will be considered before any action is selected. Information on how to comment on this document and the location of the Administrative Record is provided on **pages 12 and 13** of this Proposed Plan.

## THE DECISION MAKING PROCESS

**Remedial Alternatives** have been evaluated to address the post-interim remedial action risk to future land users from potentially remaining MEC at the Interim Action Ranges MRA. The purposes of this Proposed Plan are to:

- Provide background information
- Describe the final remedial options considered
- Identify the Preferred Alternative for final remedial action and explain the reasons for the preference
- Solicit public review of and comment on the alternatives described
- Provide information on how the public can be involved in the remedy selection process.



**Figure 2. Interim Action Ranges MRA Record of Decision Process**

The flow chart shown in **Figure 2** summarizes the Interim Action Ranges MRA decision-making process that includes public and regulatory agency involvement on remedy selection.

In March 2007, the Army and FORA entered into an ESCA, which allows FORA to complete munitions response on approximately 3,300 acres of the former Fort Ord property with funding provided by the Army. The property was transferred to FORA in May 2009 with restrictions prohibiting use for any purposes other than activities associated with the investigation and remediation of MEC and installation of utilities and roadways until the completion of remedial action. These restrictions are documented in the federal deed. Similar restrictions were also documented in Covenant to Restrict the Use of Property (CRUP), a California state land use covenant. This Proposed Plan is based on the Interim Action Ranges MRA FFS that was prepared by FORA under the ESCA. The Army is the lead agency for the former Fort Ord site, including the ESCA property, under CERCLA.

The Army is the responsible party and lead agency for investigating, reporting, making cleanup decisions, and taking cleanup actions at the former Fort Ord. Under the ESCA, FORA is investigating, reporting, and implementing cleanup actions within the ESCA areas on behalf of the Army. However, the Army is ultimately responsible for the integrity of the remedy. This Proposed Plan is part of the Army's community relations program, a component of the requirements of Section 117(a) of CERCLA or Superfund, and follows U.S. Environmental Protection Agency (EPA) guidance (EPA 1999).

## BACKGROUND

The former Fort Ord is located in northwestern Monterey County, California, approximately 80 miles south of San Francisco (**Figure 1**). The former Army base is made up of approximately 28,000 acres of land next to Monterey Bay and the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. Laguna Seca Recreation Area, Toro Park, and Highway 68 border former Fort Ord to the south and southeast.

Since it was established in 1917, Fort Ord served primarily as a training and staging facility for infantry and cavalry troops. From 1947 to 1975, Fort Ord was a basic training center. After 1975, the 7th Infantry Division was based at Fort Ord. Fort Ord was selected for closure in 1991. The majority of the soldiers were reassigned to other Army posts in 1993. The Army has retained a portion of former Fort Ord property as the Ord Military Community and U.S. Army Reserve Center. The remainder of Fort Ord was identified for transfer to federal, state, and local government agencies and other organizations for reuse.

Cavalry, field artillery, and infantry units used portions of the former Fort Ord for maneuvers, target ranges, and other purposes. **Military munitions** were fired into, fired upon, or used on the facility. As a result, a wide variety of conventional munitions and explosives of concern (MEC), both **unexploded ordnance (UXO)** and **discarded military munitions (DMM)** items, have been encountered at sites throughout the former Fort Ord.

Fort Ord was placed on the National Priorities List (NPL) of Superfund sites by the EPA on February 21, 1990, due to evidence of contaminated soil and groundwater. A Federal Facility Agreement (FFA) was signed in July 1990 by representatives of the Army, EPA, and the DTSC and Regional Water Quality Control Board (RWQCB) — agencies that are part of Cal/EPA. The FFA established schedules for conducting investigations and requires the cleanup process be conducted as expeditiously as possible. In 1991, the basewide Remedial Investigation / Feasibility Study (RI/FS) for soil and groundwater contamination (hazardous and toxic waste or HTW) began, and Fort Ord was placed on the Base Realignment and Closure (BRAC) List. Since 1993, MEC-related field investigations, sampling, and removal activities have been conducted at many former Fort Ord sites by the Army. This investigation and removal work was focused on addressing explosive hazards. In 1998, the Army agreed to evaluate MEC at the former Fort Ord in a Munitions Response RI/FS consistent with CERCLA, and the Munitions Response RI/FS work plan was issued in 1999.

Public comments on this Proposed Plan will be accepted during a public meeting and during the 30-day public review and comment period. The Army and/or the EPA, in consultation with the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC), will consider public comments

and make a final decision in a **Record of Decision (ROD)**. The selected remedy for the Interim Action Ranges MRA will be implemented by FORA, and its successor, although part of such responsibility may be transferred to another party (e.g., future landowner) with the approval of the Army, the EPA and in consultation with Cal/EPA DTSC. However, the Army is ultimately responsible for remedy integrity. Army responses to public comments on this Proposed Plan will appear in the "Responsiveness Summary" section of the ROD. The flow chart shown in **Figure 2** summarizes the development and approval process for the Interim Action Ranges MRA ROD.

## **SUMMARY OF INTERIM ACTION RANGES MRA SITE CHARACTERISTICS**

The Interim Action Ranges MRA FFS summarizes the previous munitions response actions, including interim remedial actions, and evaluates post-interim action MEC risks (ESCA RP Team 2015b). Originally, the Interim Action Ranges MRA was identified for inclusion in the Group 3 **Remedial Investigation/Feasibility Study (RI/FS)** along with other MRAs; however, it was removed from the group for independent evaluation, as agreed upon by FORA, the EPA, Cal/EPA DTSC, and the Army.

The Interim Action Ranges MRA is located within the Army MRS Ranges 43-48 (**Figure 3**). The Interim Action ROD was produced by the Army in August 2002 for Interim Action Sites at the former Fort Ord, including MRS Ranges 43-48 (Army 2002). The remedial action selected for the Interim Action Sites included surface and subsurface MEC removal. Interim remedial action was conducted by the Army on MRS Ranges 43-48 (approximately 500 acres) from November 2003 to December 2005 (Parsons 2007). Interim remedial action was completed by FORA for the remaining portions of MRS Ranges 43-48 within the Interim Action Ranges MRA in March 2013 (ESCA RP Team 2015a).

The *Record of Decision, Impact Area MRA, Track 3 Munitions Response Site* ("Track 3 ROD"; Army 2008) presented the final remedial action for the portion of MRS Ranges 43-48 located within the boundary of the Impact Area MRA, outside the Interim Action Ranges MRA (**Figure 3**). The Track 3 ROD presented a selected remedy for the Impact Area MRA which includes technology-aided surface MEC remediation, subsurface MEC remediation in selected areas, and LUCs.

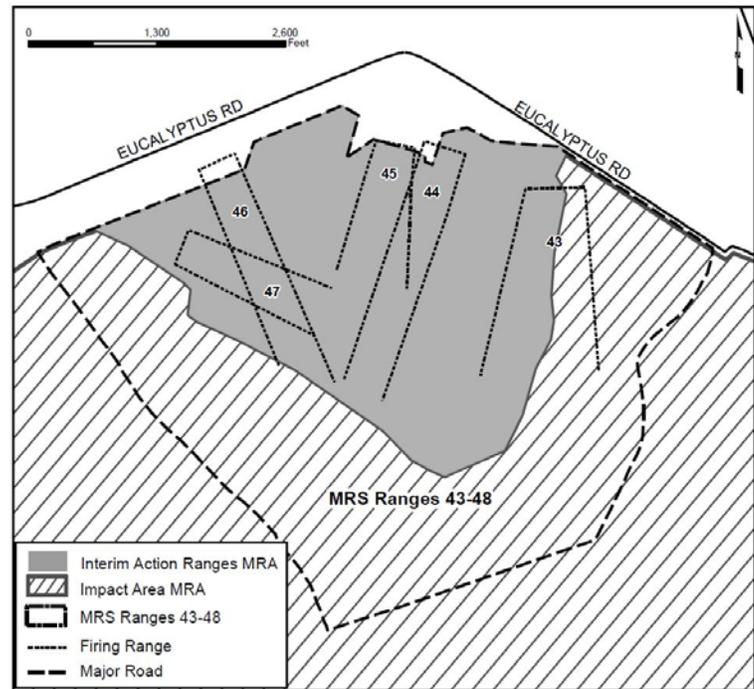
The interim remedial action conducted by the FORA was presented in the *Final Interim Remedial Action Completion Report, Interim Action Ranges Munitions Response Area, Phase II, Former Fort Ord, Monterey County, California* ("Final IAR IRACR"; ESCA RP Team 2015a). The Final IAR IRACR was used to support the completion of the Interim Action Ranges MRA FFS and the identification of a preferred final remedial alternative to mitigate potentially remaining post-interim action MEC risks.

**Interim Action Ranges MRA**

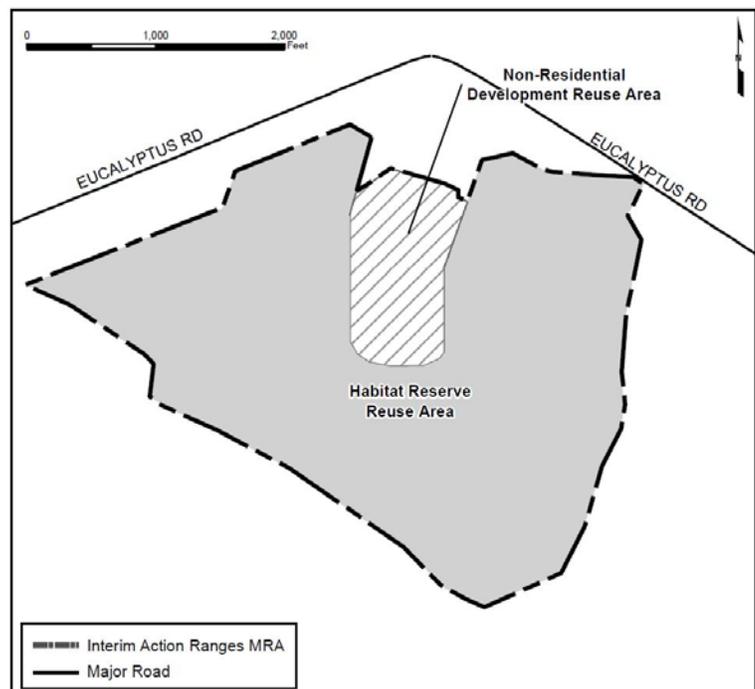
The Interim Action Ranges MRA is located in the north-central portion of the former Fort Ord (Figure 1). The Interim Action Ranges MRA encompasses approximately 227 acres located within the Army MRS Ranges 43-48 (Figure 3). The Interim Action Ranges MRA includes two planned reuses: approximately 24 acres for non-residential development (Monterey Peninsula College District pistol range and small arms firing range) and approximately 203 acres for a habitat reserve area (Figure 4).

Historical records and recovered MEC and munitions debris (MD) indicate that the Interim Action Ranges MRA was used for military training since the initial 1917 government purchase and designation of the land as an artillery range. Cavalry and artillery troops conducted training activities within the historical impact area. The Interim Action Ranges MRA contains all or portions of five firing ranges used for a variety of training purposes from the 1950s through the 1990s. The usage of each range included: mortar training and subsequently platoon live fire course at the time of base closure (Range 43); antitank weapons range at the time of base closure (Range 44); grenade launcher range at the time of base closure (Range 45); small arms range from the late 1950s to the time of base closure (Range 46); and 40mm grenade range in the 1960s (Range 47).

Several munitions response actions were completed prior to interim remedial action at the Interim Action Ranges MRA. These munitions response actions included grid sampling, visual surface MEC removal in accessible areas, and subsurface MEC removal on roads and fuel breaks.



**Figure 3. Interim Action Ranges MRA**



**Figure 4. Interim Action Ranges MRA Planned Reuses**

As the remedial action selected in the Interim Action ROD, surface removal and subsurface removal operations were conducted by the Army on MRS Ranges 43–48. The interim remedial action in MRS Ranges 43-48 was started in 2002 and completed in 2005 and encompassed the Interim Action Ranges MRA.

The Army designated approximately 235 acres within MRS Ranges 43-48 where the interim remedial action was not completed as Special Case Areas (SCAs) or Non-completed Areas (NCAs). An additional surface removal was conducted in a portion of the Range 44 SCA in 2007.

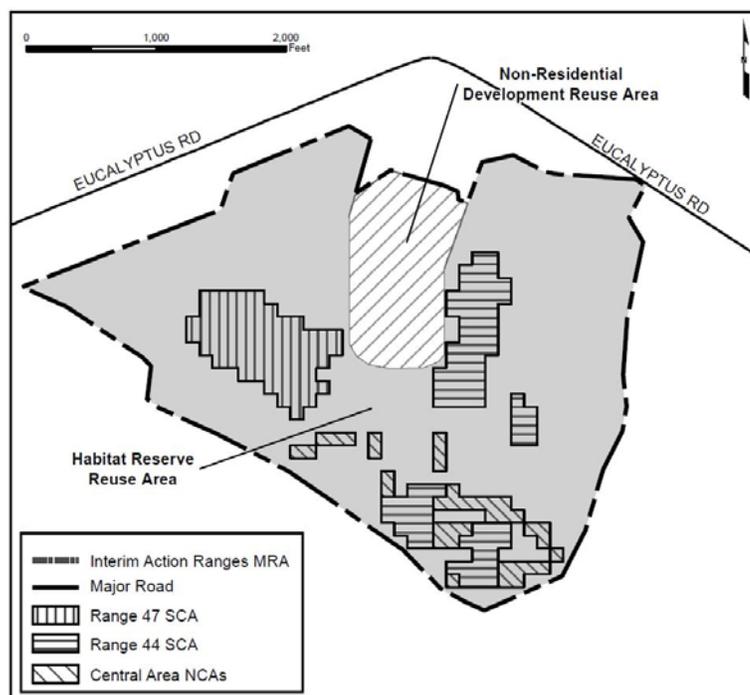
FORA completed interim remedial action in the SCAs and NCAs located within the Interim Action Ranges MRA. To determine areas where interim remedial action was warranted, a design study was conducted in the Range 44 SCA, Range 47 SCA, and Central Area NCAs (**Figure 5**). Based on the results of the design study, a remedial action was conducted by FORA in the Range 47 SCA. The MEC and MD encountered within the Interim Action Ranges MRA were consistent with the documented historical uses. The types of MEC and MD removed from the MRA included: blasting caps, bulk explosives, bombs, hand grenades and hand grenade fuzes, rifle grenades, mines and mine fuzes, flares and signals, smoke generating items, firing devices, missiles, rockets and rocket motors, mortars, various projectiles and projectile fuzes, and simulators.

### SUMMARY OF SITE RISKS

Although MEC investigations and removal actions have been completed at the Interim Action Ranges MRA, there is still a potential risk to human health and the environment from previous military munitions-related activities. The *Fort Ord Ordnance and Explosives Risk Assessment Protocol* (Malcolm Pirnie 2002) was developed to estimate the risk to future land users of the property from any potentially remaining MEC in terms of an “Overall MEC Risk Score.” The Overall MEC Risk Scores are expressed in letters A through E, with A being the lowest risk and E being the highest risk.

The representative future land users of the property (i.e., receptors) identified for analysis in the MEC risk assessment for the Interim Action Ranges MRA included:

- maintenance worker, construction worker, law enforcement personnel, and trespasser for the non-residential development reuse area
- maintenance worker, habitat monitor, and trespasser for the habitat reserve reuse area



**Figure 5. Range 47 SCA, Range 44 SCA and the Central Area NCAs**

A summary of the Overall MEC Risk Scores for each receptor for the two reuse areas within the Interim Action Ranges MRA is provided below.

| Reuse Area                  | Receptor                  | Overall MEC Risk Score |          |             |           |              |
|-----------------------------|---------------------------|------------------------|----------|-------------|-----------|--------------|
|                             |                           | A<br>Lowest            | B<br>Low | C<br>Medium | D<br>High | E<br>Highest |
| Non-Residential Development | Maintenance Worker        | ✓                      | ✓        | ✓           |           |              |
|                             | Construction Worker       | ✓                      |          |             | ✓         | ✓            |
|                             | Law Enforcement Personnel | ✓                      | ✓        |             |           |              |
|                             | Trespasser                | ✓                      | ✓        |             |           |              |
| Habitat Reserve             | Maintenance Worker        | ✓                      |          |             | ✓         | ✓            |
|                             | Habitat Monitor           | ✓                      | ✓        | ✓           |           |              |
|                             | Trespasser                | ✓                      |          |             | ✓         | ✓            |

The risk assessment (ESCA RP Team 2015b) indicated that intrusive receptors (those who may dig below the ground surface), such as the maintenance worker and construction worker, were found to have a higher potential risk from MEC that may remain at the Interim Action Ranges MRA. Although previous MEC removal actions have been completed on the MRA, the potential exists for MEC to remain in the subsurface. Therefore, the risks associated with intrusive receptors (people who engage in intrusive activities) are assumed to remain at a level that requires mitigation.

## REMEDIAL ACTION OBJECTIVES

The **remedial action objectives (RAOs)** for the Interim Action Ranges MRA is based upon the risk assessment results and on EPA’s RI/FS Guidance (EPA 1988) to achieve the EPA’s threshold criteria of “Overall Protection of Human Health and the Environment” and “Compliance with **Applicable or Relevant and Appropriate Requirements (ARARs)**.”

The RAO developed for the protection of human health and the environment for the Interim Action Ranges MRA is to prevent or reduce the potential for the Interim Action Ranges MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil and minimize potential impacts from such exposures. In order to achieve this RAO, remedial alternatives for the Interim Action Ranges MRA reuse areas were evaluated to (1) mitigate potentially remaining MEC risks, and (2) comply with ARARs and other guidelines as summarized in the following section.

Although the Army determined that there are no potential Federal or State ARARs that relate to LUCs at the Interim Action Ranges MRA, LUCs will be implemented in a manner consistent with Federal and State guidance. While the Army does not consider California laws and regulations concerning CRUPs to be potential ARARs, the Army entered into a CRUP with the DTSC at the time the property was transferred to FORA. The DTSC will modify the existing CRUP, if appropriate, to document the land use restrictions included in the identified remedy, if selected. Although the DTSC and the EPA Region IX disagree with the Army’s determination that California laws and regulations concerning CRUPs are not potential ARARs, they will agree-to-disagree on this issue since the Army executed the CRUP and the DTSC will modify the CRUP, if appropriate, to be consistent with the identified remedy.

## SUMMARY OF REMEDIAL ACTION ALTERNATIVES

Four remedial alternatives were evaluated for the Interim Action Ranges MRA as identified below (ESCA RP Team 2015b):

### **Alternative 1 – No Further Action**

This alternative assumes no further action would be taken at the Interim Action Ranges MRA to address potential MEC risks for those receptors identified in the risk assessment. This alternative is provided as a baseline for comparison to the other remedial alternatives, as required under CERCLA and the National Contingency Plan (NCP).

### **Alternative 2 – Land Use Controls**

This alternative assumes that LUCs, without additional MEC remediation on any portion of the Interim Action Ranges MRA, would be implemented to address potential MEC risks for intrusive reuse. The LUCs alternative consists of requirements for: 1) MEC recognition and safety training for people involved in intrusive activities prior to the start of such activities to increase their awareness of and ability to recognize MEC items; 2) **construction support** by unexploded ordnance (**UXO**)-**qualified personnel** during intrusive activities; and 3) continuation of the existing residential use restriction. Construction support would be arranged during the planning stages of the project prior to the start of any intrusive activities. The level of construction support will be determined on a case-by-case basis depending on the type and location of planned intrusive activities. Two levels of construction support have been identified: on-call construction support and on-site construction support. For on-call construction support, UXO-qualified personnel must be contacted prior to the start of intrusive activities to ensure their availability, advised about the project, and placed “on-call” to assist if suspected MEC are encountered during intrusive activities. If evidence of MEC is found during construction support activities, the intrusive and ground-disturbing work will immediately cease, no attempt will be made to disturb, remove, or destroy the MEC, and the local law enforcement agency will be immediately notified so that appropriate explosive ordnance disposal personnel can be dispatched to address the MEC, as required under applicable laws and regulations. For on-site construction support, UXO-qualified personnel must attempt to identify and remove any explosive hazard in the construction footprint prior to any intrusive construction activities. In support of the designated future reuse of the property, on-call construction support is generally expected, but on-site construction support may be appropriate depending on the type and location of planned intrusive activities.

### **Alternative 3 – Additional Subsurface MEC Remediation**

This alternative assumes that subsurface MEC remediation would be conducted throughout the entire footprint of the Interim Action Ranges MRA, including excavation and sifting in the Range 44 SCA and Central Area NCAs (**Figure 5**). Additional subsurface MEC remediation would involve detection and removal of subsurface MEC to the depth of detection using best available and appropriate detection technology and procedures and Department of Defense Explosives Safety Board-approved MEC detonation procedures in areas where explosive MEC items are identified during remedial activities and require disposal. Vegetation clearance would be conducted via prescribed burning. The specific details of the vegetation clearance methods and the MEC detection equipment used would be presented in the Remedial Design/Remedial Action Work Plan, or similar document. Post-remediation habitat restoration and monitoring would be required within the habitat reserve area.

#### **Alternative 4 – Additional Subsurface MEC Remediation in Selected Areas and Land Use Controls**

This alternative assumes that subsurface MEC remediation would be conducted throughout selected portions of the Interim Action Ranges MRA. This alternative would consist of implementation of the LUCs described in Alternative 2 plus performing subsurface MEC remediation within the Range 44 SCA and Central Area NCAs, consisting of approximately 28.1 acres in the southern and eastern portions of the MRA, to address specific risk and/or reuse needs.

Additional MEC remediation in this selected area would include sifting the top 2-ft layer of soil within the Range 44 SCA and Central Area NCAs followed by additional subsurface MEC remediation in the excavated footprints. Additional subsurface MEC remediation would involve detection and removal of subsurface MEC to the depth of detection using best available and appropriate detection technology and procedures and Department of Defense Explosives Safety Board-approved MEC detonation procedures in areas where explosive MEC items are identified during remedial activities and require disposal. Vegetation clearance would be accomplished by mechanical methods. The specific details of the vegetation clearance methods and the MEC detection equipment used would be presented in the Remedial Design/Remedial Action Work Plan, or similar document. Post-remediation habitat restoration and monitoring would be required because the Range 44 SCA and Central Area NCAs are within the habitat reserve reuse area.

The residential use restriction would continue to apply. Intrusive activities would be conducted with construction support by UXO-qualified personnel, and MEC recognition and safety training would be provided for workers conducting intrusive activities.

#### **EVALUATION AND COMPARISON OF ALTERNATIVES**

Remedial alternatives for the Interim Action Ranges MRA were evaluated based on EPA's nine evaluation criteria specified in EPA's Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA (EPA 1988). The evaluation and comparison of the alternatives based on these nine criteria is summarized below and in **Table 1** at the back of this Proposed Plan.

- **Overall Protectiveness of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment. Alternative 1 would not mitigate potentially remaining MEC risks, therefore, would not be protective of human health. Alternative 3 may be protective of human health and the environment. Alternatives 2 and 4 would be protective to human health and the environment, with Alternative 2 providing the greatest level of protection.
- **Compliance with ARARs** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified. Potential ARARs are listed in Appendix E of the FFS (ESCA RP Team 2015b). Alternatives 3 and 4 would be implemented in compliance with the potential ARARs. No ARARs were identified that relate to Alternative 1 or 2.
- **Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation. Alternative 1 would not be effective in the short term because no further action would be taken to mitigate potentially

remaining MEC risks. Alternative 2 and 4 would be protective in the short term by implementing LUCs. Alternative 3 may be effective in the short term. Workers and the community would be protected during implementation of vegetation removal and MEC removal.

- **Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time. Alternative 1 would not provide long-term protection. Alternative 3 may provide long-term effectiveness and permanence. Alternatives 2 and 4 would provide long-term effectiveness.
- **Reduction of Toxicity, Mobility, or Volume through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants (in this case MEC), their ability to move in the environment, and the amount of contamination present. MEC removals have already been conducted in the MRA; Alternative 1 and 2 would not provide further reduction of these parameters. Alternatives 3 and 4 may provide varying degrees of reduction of these parameters if MEC is discovered and removed during additional MEC remediation.
- **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services. Alternative 1 would not be administratively feasible to implement because the necessary approvals to take no further action are not expected. Alternatives 2, 3 and 4 would be administratively and technically feasible to implement. Alternative 3 would require the highest level of effort to implement from the technical perspective.
- **Cost** includes estimated capital and long-term implementation costs. Net present value cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent. Table 1 shows the cost of each alternative evaluated. Alternative 1 has minimal cost. Alternative 2 has the lowest total estimated cost, Alternative 3 has the highest total estimated cost, and Alternative 4 has a total estimated cost in between Alternatives 2 and 3.
- **State Acceptance** evaluates technical and administrative issues and concerns that the state may have regarding each alternative. State acceptance will be addressed in the resulting ROD once comments on this Proposed Plan have been received.
- **Community Acceptance** evaluates technical and administrative issues and concerns that the public may have regarding each alternative. Community acceptance will be addressed in the resulting ROD once comments on this Proposed Plan have been received.

## PREFERRED ALTERNATIVE

Based on the evaluation and comparison of the four remedial alternatives described above, the Army proposes Alternative 2, LUCs, as the preferred alternative for implementation at the Interim Action Ranges MRA because it best meets the nine evaluation criteria specified in the EPA’s RI/FS Guidance (EPA 1988).

LUCs would be protective of human health for the future land users, and would be effective in the short- and long-term at mitigating the risk to future workers conducting intrusive activities from potentially remaining MEC.

This remedial alternative would require a low level of effort to implement, a moderate level of effort to administer over time, and would be cost effective. No ARARs were identified for this alternative; however, LUCs would be implemented in a manner consistent with Federal and State guidance. The preferred

remedial alternative will include requirements to protect people conducting intrusive activities at the reuse areas during both development and long-term reuse: (1) MEC Recognition and Safety Training and (2) Construction Support. Residential use would be prohibited.

In addition to the requirements for MEC recognition and safety training, construction support, and residential use restriction, Long-Term Management Measures comprised of a deed notice, annual monitoring and reporting, and five-year review reporting will also be instituted. The deed notice will (1) inform future property owners that MEC was found and removed at the reuse area; (2) inform future property owners about the selected remedy; and (3) outline appropriate procedures to be followed in the event that MEC is encountered. FORA or FORA's successor will collect and submit information for the Interim Action Ranges MRA regarding MEC finds and changes in site conditions that could increase the possibility of finding MEC at the site. The results of the monitoring activities will be reported to the Army and regulatory agencies annually. The Army will conduct a review of the former Fort Ord Superfund site every five years to determine whether the selected remedy continues to be protective of human health and the environment. It will include a review of any LUCs. The next five-year review will occur in 2017.

The preferred alternative identified in this Proposed Plan may be modified in response to public comments or new information.

After the Interim Action Ranges MRA ROD is signed, a Remedial Design/Remedial Action Work Plan will be developed. This work plan will outline the process for implementing the land use restrictions selected as part of the remedy. This work plan will also include procedures for responding to and coordinating unexpected circumstances such as a future discovery of significant number of MEC in the Interim Action Ranges MRA. A process has been developed for reporting any discovery of MEC to an appropriate local law enforcement agency.

### The Preferred Alternative:

#### *Alternative 2: Land Use Controls*

The preferred alternative includes:

- MEC Recognition and Safety Training
- Construction support by UXO-qualified personnel
- Restrictions prohibiting residential use on the MRA

Based on information currently available, the lead agency believes the Preferred Alternative meets the threshold criteria and provides the best approach among the remedial alternatives with respect to the balancing and modifying criteria. The lead agency 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 (or justify a waiver); 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 (or justify not meeting the preference). MEC removal actions (“treatment”) that have already been completed were considered in the development of alternatives and remedy selection. Therefore, the Land Use Controls alternative is selected “post-treatment” as the Preferred Alternative to address the potential risk that any remaining MEC presents to future users of the property.

The local law enforcement agency will promptly request response by EOD personnel or UXO-qualified personnel. Any MEC finds or incidents will be reported immediately to the regulatory agencies and will be documented in the annual reports. This information will be reviewed at the time of subsequent five year reviews. If selected, LUCs may be modified in the future based on the five-year review process.

## **HOW TO MAKE COMMENTS**

The Army is the responsible party and lead agency for investigating, reporting, making cleanup decisions, and taking cleanup actions at the former Fort Ord. The Army, as lead agency, is soliciting public comments on the Preferred Alternative of LUCs, as well as other remedial action alternatives described in this Proposed Plan to manage the risk from MEC at the Interim Action Ranges MRA. The Interim Action Ranges MRA FFS (ESCA RP Team 2015b) provides a detailed site report that describes the information gathered during the literature review and site investigations, as well as a more detailed description of the reasons for the Army's proposed remedial alternative of LUCs. This and other reports referenced herein are available for review at the Administrative Record.

Public comments will be considered before any action is selected and approved. Written and oral comments on this Interim Action Ranges MRA Proposed Plan will be accepted at the public meeting scheduled on March 30, 2016, from 6:00 p.m. to 8:00 p.m. at the Carpenters Union Hall, 910 2<sup>nd</sup> Avenue, Marina, California. Representatives from the Army, EPA, and DTSC will be present at this meeting to explain the Proposed Plan, listen to concerns, answer questions, and accept public comments. Representatives from FORA will also be present to answer questions on the Proposed Plan.

Written comments will be accepted at the public meeting and throughout the 30-day public comment period from March 16 to April 14, 2016. Correspondence should be postmarked no later than April 14, 2016 and sent to the attention of the U.S. Army representative at the following address (*Please reference the Interim Action Ranges MRA Proposed Plan in your correspondence*):

**Department of the Army  
Fort Ord Base Realignment and Closure (BRAC) Office  
ATTN: William K. Collins  
BRAC Environmental Coordinator  
P.O. Box 5008  
Monterey, California 93944-5008**

## **INFORMATION ACCESS**

### **U.S. Army Representative**

#### Department of the Army

Fort Ord Base Realignment and Closure (BRAC) Office  
P.O. Box 5008  
Monterey, California 93944-5008  
Contact: William K. Collins, BRAC Environmental Coordinator  
(831) 393-1284 FAX: (831) 393-9188 email: William.K.Collins.civ@mail.mil  
Hours: 8:00 am - 5:00 pm

### **Regulatory Representatives**

#### U.S. Environmental Protection Agency, Region IX

Superfund Federal Facilities Cleanup Branch  
75 Hawthorne Street, Mail Code SFD-8-3  
San Francisco, California 94105  
Contact: Judy Huang, Remedial Project Manager  
(415) 972-3681 email: Huang.Judy@epa.gov  
Hours: 8:00 am - 5:00 pm

#### California EPA Department of Toxic Substances Control, Region 2

Brownfields and Environmental Restoration Program  
8800 Cal Center Drive  
Sacramento, California 95826  
Contact: Ed Walker, Remedial Project Manager  
(916) 255-4988 email: Ed.Walker@dtsc.ca.gov  
Hours: 8:00 am - 5:00 pm

### **Administrative Record**

Fort Ord Administrative Record ([www.fortordcleanup.com](http://www.fortordcleanup.com))  
Building 4463 Gigling Road, Room 101  
Ord Military Community, California 93944-5008  
(831) 393-9693 FAX: (831) 393-9188  
Hours: Mon-Fri 9:00 am-4:00 pm. Other hours by appointment. Closed daily, 12:00 pm-1:30 pm and Federal holidays.

### **Information Repositories**

California State University Monterey Bay (CSUMB) Tanimura and Antle Family Memorial Library  
100 Campus Center  
Seaside, California 93955  
(831) 582-3733  
For current library hours, call or visit <http://csumb.edu/library>

Seaside Branch Library  
550 Harcourt Avenue  
Seaside, California 93955  
(831) 899-2055  
Hours: Mon-Thurs 10:00 am-8:00 pm; Fri/Sat 10:00 am-5:00 pm

## REFERENCES

- Environmental Services Cooperative Agreement Remediation Program Team (ESCA RP Team). 2015a. Final Interim Remedial Action Completion Report, Interim Action Ranges Munitions Response Area, Phase II, Former Fort Ord, Monterey County, California. January 30. (Fort Ord Administrative Record No. ESCA-0285B)
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- Malcolm Pirnie. 2002. Final Fort Ord Ordnance and Explosives Risk Assessment Protocol. October. (Fort Ord Administrative Record No. OE-0402G)
- Parsons Infrastructure & Technology Group, Inc. (Parsons). 2007. Final MRS-Ranges 43-48, Interim Action, Technical Information Paper, Former Fort Ord, Monterey, California, Military Munitions Response Program. January 26. (Fort Ord Administrative Record No. OE-0590L)
- Shaw Environmental, Inc. (Shaw). 2012. Final Comprehensive Basewide Range Assessment Report. Former Fort Ord, California, Revision 2. January 17. (Fort Ord Administrative Record No. BW-2300L)
- United States Department of the Army (Army). 2002. Record of Decision, Interim Action for Ordnance and Explosives at Ranges 43-48, Range 30A, and Site OE-16, Former Fort Ord, California. August 26. (Fort Ord Administrative Record No. OE-0414)
- . 2008. Record of Decision, Impact Area Munitions Response Area Track 3 Munitions Response Site, Former Fort Ord, California. May 15. (Fort Ord Administrative Record No. OE-0647)
- United States Environmental Protection Agency (EPA). 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. Interim Final. EPA/540/G-89/004. October.
- . 1999. A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. EPA/540/R-98/031. July.

## GLOSSARY

**Administrative Record** – A compilation of all documents relied upon to select a remedial action pertaining to the investigation and cleanup of Fort Ord.

**Applicable or Relevant and Appropriate Requirements (ARARs)** – The substantive Federal and State environmental cleanup standards and other requirements that a selected remedy will meet. These requirements may vary among sites and alternatives.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, otherwise known as Superfund)** – CERCLA authorizes federal action to respond to the release or threatened release of hazardous substances into the environment or a release or threatened release of a pollutant or contaminant into the environment that may present an imminent or substantial danger to public health or welfare. This law also establishes criteria for the creation of key cleanup documents such as the Remedial Investigation (RI), Feasibility Study (FS), Proposed Plan, and Record of Decision (ROD).

**Construction Support** – Assistance provided by DOD explosive ordnance disposal (EOD) or UXO-qualified personnel and/or by personnel trained and qualified for operations involving chemical agents (CA), regardless of configuration, during intrusive construction activities on property known or suspected to contain UXO, other munitions that may have experienced abnormal environments (e.g., DMM), munitions constituents in high enough concentrations to pose an explosive hazard, or CA, regardless of configuration, to ensure the safety of personnel or resources from any potential explosive or CA hazards (DOD Manual 6055.09M).

**Discarded Military Munitions (DMM)** – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include UXO, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 U.S.C. 2710(e)(2))

**Explosive Ordnance Disposal (EOD) Personnel** – Military personnel who have graduated from the Naval School, Explosive Ordnance Disposal; are assigned to a military unit with a Service-defined EOD mission; and meet Service and assigned unit requirements to perform EOD duties. EOD personnel have received specialized training to address explosive and certain chemical agent (CA) hazards during both peacetime and wartime. EOD personnel are trained and equipped to perform Render Safe Procedures (RSP) on nuclear, biological, chemical, and conventional munitions, and on improvised explosive devices.

**Feasibility Study (FS)** – An evaluation of potential remedial technologies and treatment options that can be used to clean up a site.

**Focused Feasibility Study (FFS)** – A study including assessment of risks to human health, safety, and the environment, and identification of potential remedial technologies and treatment options that can be used to clean up a site.

**Land Use Controls (LUC)** – Land use controls are physical, legal, or administrative mechanisms that restrict the use of, or limit access to, real property, to manage risks to human health and the environment. Physical mechanisms include fences, pavement, or signs. Legal mechanisms include deed restrictions that limit how the

property is used. Administrative mechanisms include providing munitions recognition training for workers who do intrusive work.

**Military Munitions** – Military munitions means all ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed. (10 U.S.C. 101)(e)(4)(A through C)).

**Military Munitions Response Program (MMRP)** – Program established by the Department of Defense to manage environmental, health and safety issues presented by MEC.

**Munitions Debris** – Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. Munitions debris is confirmed inert by technically-qualified personnel.

**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), as defined in 10 U.S.C. 101(e)(5) (A) through (C); (B) Discarded military munitions (DMM), as defined in 10 U.S.C. 2710(e)(2); or (C) Explosive munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard, as defined in 10 U.S.C. 2710(e)(3).

**Munitions Response Area (MRA)** – Any area on a defense site that is known or suspected to contain MEC. Examples include former ranges and munitions burial areas. A munitions response area is made up of one or more munitions response sites.

**Munitions Response Site (MRS)** – A discrete location within a MRA that is known to require a munitions response.

**Preferred Remedial Alternative** – The remedial alternative that, when compared to other potential alternatives, was determined to best meet the nine CERCLA evaluation criteria in the Feasibility Study, and is proposed for implementation at a site.

**Proposed Plan** – A plan that identifies the preferred alternative for a site cleanup, and is made available to the public for comment.

**Record of Decision (ROD)** – A ROD is the document used to record the remedial action decision under CERCLA. The ROD will be filed in the project Administrative Record and project file.

**Remedial Action Objectives (RAOs)** – Specific goals to be met as part of a remedial action that are developed to protect human health and the environment.

**Remedial Alternatives** – Potential remedies to address contamination (in this case, MEC).

**Remedial Investigation (RI)** – The RI is intended to “adequately characterize the site for the purpose of developing and evaluating an effective remedial alternative” (NCP, 40 CFR 300.430(d)). In addition, the RI provides information to assess the risks to human health, safety, and the environment that were identified during risk screening in the site investigation.

**Superfund** – See Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) above.

**Unexploded Ordnance (UXO)** – Military munitions that: (A) have been primed, fuzed, armed, or otherwise prepared for action; (B) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and (C) remain unexploded either by malfunction, design, or any other cause. (10 U.S.C. 101(e)(5) (A) through (C)).

**UXO-Qualified Personnel** – Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist or Senior UXO Supervisor (DOD Manual 6055.09M).

Table 1

Summary of Evaluation of Remedial Alternatives for Interim Action Ranges MRA

| Remedial Alternative   | EPA's 9 CERCLA EVALUATION CRITERIA  |  |  |  |  |  |                   |  |  |
|--|---|--|--|--|--|--|-------------------|--|--|
|  | Threshold Criteria  |  | Balancing Criteria   |  |  |  |                   | Modifying Criteria   |  |
|  | Overall Protectiveness of Human Health and the Environment  | Compliance with ARARs  | Short-Term Effectiveness   | Long-Term Effectiveness & Permanence   | Reduction of Toxicity, Mobility, or Volume Through Treatment <sup>1</sup>                  | Implementability                                       | Cost <sup>2</sup> | State Acceptance   | Community Acceptance   |
| Alternative 1 - No Further Action  | Not protective; does not mitigate potentially remaining MEC risks to intrusive workers  | No potential ARARs identified for this alternative           | Not effective in the short-term; no MEC risk mitigation  | Not effective in the long-term; no MEC risk mitigation   | No reduction in volume because no further MEC removals would be conducted                  | Not administratively feasible                          | Minimal           | Unlikely   | Unlikely   |
| Alternative 2 - Land Use Controls  | Protective to construction and maintenance workers (intrusive workers); prohibits use for residential reuse                   | No potential ARARs identified for this alternative           | Effective in the short-term; required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers) | Required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers) until evaluation determines LUCs no longer necessary | No reduction in volume because no further MEC removals would be conducted                  | Technically and administratively feasible to implement | \$542,000         | Likely to be acceptable  | May be acceptable  |
| Alternative 3 - Additional MEC Remediation   | May be protective of human health and the environment   | Implementation would require compliance with potential ARARs | May be effective in the short-term; although additional mitigation measures (such as land use controls) may be required                                  | May or may not be effective in the long-term; additional risk mitigation may be needed after additional MEC remediation  | May result in MEC reduction if additional MEC is discovered and removed during remediation | Technically and administratively feasible to implement | \$14,700,000      | Likely to be acceptable because of additional remediation and short and long term mitigation actions | Acceptability unknown due to vegetation disturbance and removal involved |
| Alternative 4 - Additional Subsurface MEC Remediation in Selected Areas of the MRA and Land Use Controls | Protective to construction and maintenance workers (intrusive workers); may be protective of human health and the environment | Implementation would require compliance with potential ARARs | Effective in the short-term; required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers) | Effective in the long-term; required training and construction support would mitigate risks to construction and maintenance workers (intrusive workers); may reduce MEC risks    | May result in MEC reduction if additional MEC is discovered and removed during remediation | Technically and administratively feasible to implement | \$7,650,000       | Likely to be acceptable because of additional remediation and short and long term mitigation actions | Acceptability unknown due to vegetation disturbance and removal involved |

**Notes:**

ARARs = applicable or relevant and appropriate requirements

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act

LUC = Land Use Controls

MEC = munitions and explosives of concern

<sup>1</sup> = Completed MEC removal actions already provide for reduction of volume.

<sup>2</sup> = Costs do not include long-term management costs for each alternative.