FINAL

Record of Decision

Group 2

California State University Monterey Bay Off-Campus Munitions Response Area

Former Fort Ord, California

January 7, 2015

United States Department of the Army
Base Realignment and Closure (BRAC)
Former Fort Ord, California

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APPENDIX

1. DECLARATION

1.1. Site Name and Location

The former Fort Ord is located in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Figure 1). The U.S. Environmental Protection Agency (EPA) identification number for Fort Ord is CA7210020676. This Record of Decision (ROD) addresses Munitions and Explosives of Concern (MEC), specifically unexploded ordnance (UXO) and discarded military munitions (DMM), that potentially remain in the Group 2 California State University Monterey Bay (CSUMB) Off-Campus Munitions Response Area (MRA).

Since 1917, military units (e.g., cavalry, field artillery, and infantry) used portions of the former Fort Ord for training (e.g., maneuvers, live-fire target ranges) and other purposes. Because the military conducted munitions-related activities (e.g., live-fire training) on the facility, military munitions (e.g., UXO and DMM) may be present on parts of the former Fort Ord. The types of military munitions used at the former Fort Ord included: artillery and mortar projectiles, rockets, guided missiles, rifle and hand grenades, practice land mines, pyrotechnics, bombs, and demolition materials. For the Fort Ord Military Munitions Response Program (MMRP) being conducted and this ROD, MEC does not include small arms ammunition (.50 caliber and below). A Glossary of Military Munitions Response Program Terms is provided in Appendix A.

In March 2007, the United States Department of the Army (Army) and Fort Ord Reuse Authority (FORA) entered into an Environmental Services Cooperative Agreement (ESCA) to provide funding for MEC remediation services. In accordance with the ESCA and an Administrative Order on Consent (AOC), FORA is responsible for completion of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions, except for those responsibilities retained by the Army, on approximately 3,300 acres of the former Fort Ord with funding provided by the Army. The AOC was entered into voluntarily by FORA, EPA, California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and the United States Department of Justice Environment and Natural Resources Division in December 2006 (EPA Region 9 CERCLA Docket No. R9-2007-03). The underlying property was transferred to FORA in May 2009. The CSUMB Off-Campus MRA is included in the ESCA between the Army and FORA.

The CSUMB Off-Campus MRA is a site where MEC were found and munitions response (MEC removal) actions were conducted. The CSUMB Off-Campus MRA contains portions, or all, of several munitions response sites (MRSs) that were suspected to have been used for military training with military munitions (Table 1). These MRSs were investigated, with all detected MEC removed. These munitions response actions also included Quality Control and Quality Assurance requirements that evaluated the adequacy of the munitions response actions. Although MEC is not expected to be encountered within these MRSs, it is possible that some MEC may not have been detected and remains present. Because a future land user (e.g., resident, recreational user, maintenance worker, or construction worker) may encounter MEC at the MRA, a Group 2 Remedial Investigation/Feasibility Study (RI/FS) was conducted to evaluate remedial alternatives to address this potential risk to future land users (ESCA RP Team 2013). The Group 2 RI/FS was developed by FORA under the ESCA and in accordance with the AOC.

1.2. Basis and Purpose

This decision document selects the remedial action for MEC for the CSUMB Off-Campus MRA. The remedy for the MRA was selected in accordance with CERCLA of 1980, as amended, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information and reports contained in the Administrative Record for the former Fort Ord.

This decision is undertaken pursuant to the President's authority under CERCLA Section 104, as delegated to the Army in accordance with Executive Order 12580, and in compliance with the process set out in CERCLA Section 120. The selection of the remedy is authorized pursuant to CERCLA Section 104, and the selected remedy will be carried out in accordance with CERCLA Section 121.

The Army and EPA have jointly selected the remedy. The DTSC has had an opportunity to review and comment on the ROD.

1.3. Site Assessment

This ROD addresses hazardous substances and pollutants or contaminants which may pose a threat to human health and welfare or the environment.

The Army has provided the CERCLA covenant in the deed for the property. Some MEC items found and detonated on the property in the past were a Resource Conservation and Recovery Act (RCRA) reactive waste and thus a CERCLA hazardous substance. Therefore, MEC items discovered on the property in the future will likewise be addressed as such pursuant to the CERCLA covenant unless the Army determines that an item is not a hazardous substance by making a waste specific determination based on testing or knowledge consistent with RCRA.

1.4. Description of the Selected Remedy

The selected remedy addresses risks to human health and the environment from MEC that potentially remains in the CSUMB Off-Campus MRA. Munitions responses (MEC removals) have been completed at the MRA, significantly reducing the risks to human health and the environment. The selected remedy for the CSUMB Off-Campus MRA includes Land Use Controls (LUCs) because detection technologies may not detect all MEC present. The LUCs include requirements for: (1) MEC recognition and safety training for those people that conduct ground-disturbing or intrusive activities on the property; (2) construction support by UXO-qualified personnel for ground-disturbing or intrusive activities; and (3) restrictions prohibiting residential use in the proposed future non-residential reuse area. For the purpose of this decision document, residential use includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12 (Army 2007). Any proposal for residential development in the proposed non-residential reuse portion of the CSUMB Off-Campus MRA will be subject to regulatory agency and Army review and approval. The selected remedy will be implemented by FORA in its capacity as Grantee under the ESCA and as a party to the AOC and not in its capacity as the owner of the real estate or as a government entity. A Remedial Design/Remedial Action (RD/RA) Work Plan will be developed to: (1) outline the processes for implementing the LUCs selected as part of the remedy; and (2) identify procedures for responding to discoveries of MEC. The Army will evaluate these sites as part of the installation-wide CERCLA five-year review to be conducted in 2017. The selected LUCs may be modified in the future based on the five-year review process.

As part of the LUC implementation strategy, long term management measures comprised of a deed notice and restrictions, annual monitoring and reporting, and five-year review reporting will be included for the land use areas within the CSUMB Off-Campus MRA. As part of the early transfer of the subject property, the Army has entered into a State Covenant to Restrict the Use of Property (CRUP) with the DTSC that document land use restrictions. The existing deed to FORA for the CSUMB Off-Campus MRA parcel includes the following land use restrictions: 1) residential use restriction; and 2) excavation restrictions (unless construction support and MEC recognition and safety training are provided). The Army will modify the existing land use restrictions in the federal deed, as necessary, to reflect the selected remedy. FORA, or its successor under the ESCA and the AOC, will prepare and submit annual letter reports to the EPA and the DTSC summarizing any MEC found and changes in site conditions that could increase the possibility of encountering MEC. Copies of the annual monitoring reports will also be provided to the Army for inclusion in the five-year reviews.

While the Army does not consider California laws and regulations concerning CRUPs to be potential applicable or relevant and appropriate requirements (ARARs), the Army entered into CRUPs with the DTSC at the time the property was transferred to FORA. The DTSC will modify the existing CRUP, as appropriate, to reflect the land use restrictions included in the selected remedy. 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 CRUPs and the DTSC will modify the CRUPs, as appropriate, to be consistent with the identified remedy.

1.5. Statutory Determination

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost effective. Munitions responses to address the principal threat by removing all identified MEC items have already been completed. This meets the intent of using permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable, and satisfies the statutory preference for treatment as a principal element (i.e., reducing the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).

Because the selected remedy may not result in removal of all MEC potentially present within the CSUMB Off-Campus MRA, a statutory review will be conducted by the Army within five years after initiation of the remedial action to ensure the remedy is, or will be, protective of human health and the environment. The next five-year review will occur in 2017.

1.6. ROD Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this site.

- Types of MEC identified during previous removal actions (Section 2.8.).
- Current and reasonably anticipated future land use assumptions used in the risk assessment and ROD (Section 2.9. and Table 2).
- Current after-action "Overall MEC Risk Scores" estimated in the Risk Assessment based upon the current site conditions (Section 2.10.).

- Remedial action objectives for addressing the current after-action "Overall MEC Risk Scores" estimated in the Risk Assessment (Section 2.11.).
- How source materials constituting principal threats are addressed (Sections 2.13. and 2.14.).
- Potential land use that will be available at the site as a result of the selected remedy (Section 2.14. and Table 2).
- Estimated capital, annual operations and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected (Section 2.14.4).
- Key factor(s) that led to selection of the remedy (Sections 2.14.1 and 2.15. and Table 3).

1.7. Authorizing Signatures and Support Agency Acceptance of Remedy

Record of Decision
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Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Group 2, California State University Off-Campus Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

Thomas E. Lederle
Chief
Base Realignment and Closure Division
U.S. Department of the Army

19 Feb 2015
Date

Record of Decision
Group 2
California State University Off-Campus Munitions Response Area
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Signature Sheet for the foregoing Record of Decision for Group 2, California State University Off-Campus Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

William K. Collins

William K. Collins
BRAC Environmental Coordinator
Fort Ord BRAC Office
U.S. Department of the Army

1/8/2015

Date

Record of Decision
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California State University Off-Campus Munitions Response Area
Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Group 2, California State University Off-Campus Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

2-26-15

Angeles Herrera
Assistant Director, Superfund Division
Federal Facilities and Site Cleanup Branch
U.S. Environmental Protection Agency, Region IX

Date

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California State University Off-Campus Munitions Response Area
Former Fort Ord, California

Signature Sheet for the foregoing Record of Decision for Group 2, California State University Off-Campus Munitions Response Area, Former Fort Ord, California, among the United States Army, the United States Environmental Protection Agency, and the California Environmental Protection Agency, Department of Toxic Substances Control.

The State of California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on the Record of Decision (ROD) and our concerns were addressed.

Charlie Ridenour, P.E.
Branch Chief
Cleanup Program - Sacramento Office
California Environmental Protection Agency
Department of Toxic Substances Control

2/25/15
Date

2. DECISION SUMMARY

2.1. Site Description

The former Fort Ord is located near Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Figure 1). The former Army post consists of approximately 28,000 acres adjacent to Monterey Bay and the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. State Route 1 passes through the western portion of former Fort Ord, separating the beachfront from the rest of the base. Laguna Seca Recreation Area and Toro Regional Park border former Fort Ord to the south and southeast, respectively, as well as several small communities, such as Toro Park Estates and San Benancio. Additional information about the site:

- EPA Identification Number: CA7210020676;
- Lead Agency: Army;
- Lead Oversight Agency: EPA;
- Support Agency: DTSC;
- Source of Cleanup Monies: Army;
- Site Type: Former Military Installation.

2.2. Site History

Since 1917, portions of the former Fort Ord were used by cavalry, field artillery, and infantry units for maneuvers, target ranges, and other purposes. From 1947 to 1974, Fort Ord was a basic training center. The 7th Infantry Division was activated at Fort Ord in October 1974, and occupied Fort Ord until base closure in 1994. Fort Ord was selected in 1991 for decommissioning, but troop reallocation was not completed until 1993 and the base was not officially closed until September 1994. The property remaining in the Army's possession was designated as the Presidio of Monterey Annex on October 1, 1994, and subsequently renamed the Ord Military Community (OMC). Although Army personnel still operate parts of the base, no active Army division is stationed at the former Fort Ord. Since the base was selected in 1991 for Base Realignment and Closure (BRAC), site visits, historical and archival investigations, military munitions sampling, and removal actions have been performed and documented in preparation for transfer and reuse of the former Fort Ord property. The Army will continue to retain the OMC and the U.S. Army Reserve Center located at the former Fort Ord. The remainder of former Fort Ord was identified for transfer to Federal, State, and local government agencies and other organizations and, since base closure in September 1994, has been subjected to the reuse process. Portions of the property on the installation have been transferred. A large portion of the Inland Training Ranges was assigned to the U.S. Department of the Interior, Bureau of Land Management (BLM). Other areas on the installation have been, or will be, transferred through economic development conveyance, public benefit conveyance, negotiated sale, or other means.

Munitions-related activities (e.g., live-fire training, demilitarization) involving different types of conventional military munitions (e.g., artillery and mortar projectiles, rockets and guided missiles, rifle and hand grenades, practice land mines, pyrotechnics, bombs, and demolition materials) were conducted at Fort Ord. Because of these activities, MEC, specifically UXO and DMM, have been encountered and are known or suspected to remain present at sites throughout the former Fort Ord. A Glossary of Military Munitions Response Program Terms is provided in Appendix A.

2.3. Enforcement and Regulatory History

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 CERCLA. To address the possibility of the public being exposed to explosive hazards, MEC investigations and removal actions began following BRAC listing and closure of Fort Ord. In November 1998, the Army agreed to evaluate military munitions at former Fort Ord in an Ordnance and Explosives Remedial Investigation/Feasibility Study (basewide OE RI/FS) — now termed the basewide Munitions Response Remedial Investigation/Feasibility Study (basewide MR RI/FS) — consistent with CERCLA. A Federal Facility Agreement (FFA) was signed in 1990 by the Army, EPA, DTSC (formerly the Department of Health Services or DHS), and the California Regional Water Quality Control Board (RWQCB). The FFA established schedules for performing remedial investigations and feasibility studies and requires that remedial actions be completed as expeditiously as possible. In April 2000, an agreement was signed between the Army, EPA, and DTSC to evaluate military munitions and perform military munitions response activities at the former Fort Ord subject to the provisions of the Fort Ord FFA.

The basewide MR RI/FS program reviews and evaluates past investigative and removal actions, as well as recommends future response actions deemed necessary to protect human health and the environment regarding explosive safety risks posed by MEC on the basis of proposed reuses. These reuses are specified in the Base Reuse Plan (FORA 1997) and its updates. The basewide MR RI/FS documents are being prepared in accordance with the FFA, as amended. These documents are made available for public review and comment, and placed in the Administrative Record.

The Army has been conducting military munitions response actions (e.g., investigation, removal) at identified MRSs and will continue these actions to mitigate imminent MEC-related hazards to the public, while gathering data about the type of military munitions and level of hazard at each of the MRSs for use in the basewide MR RI/FS. The Army is performing its activities pursuant to the President's authority under CERCLA Section 104, as delegated to the Army in accordance with Executive Order 12580 and in compliance with the process set out in CERCLA Section 120. Regulatory agencies (EPA and DTSC) have been and will continue to provide oversight of the munitions response activities pursuant to the FFA.

The Army conducts ongoing and future responses to MEC at the former Fort Ord that are components of the Army's basewide efforts to promote explosive safety because of Fort Ord's history as a military base. These efforts include: (1) five-year reviews and reporting; (2) notices and restrictions in deeds and property transfer documentations (e.g., letter of transfer); (3) MEC incident reporting; (4) MEC recognition and safety training; (5) school education; and (6) community involvement.

In March 2007, the Army and FORA entered into an ESCA to provide funding for MEC remediation services. In accordance with the ESCA, the AOC, and the FFA Amendment No. 1, FORA is responsible for completion of the CERCLA remedial activities, except for those responsibilities retained by the Army, on approximately 3,300 acres of the former Fort Ord with funding provided by the Army. The AOC was entered into voluntarily by FORA, EPA, DTSC, and the United States Department of Justice Environment and Natural Resources Division in December 2006 (EPA Region 9 CERCLA Docket No. R9-2007-03). The underlying property was transferred to FORA in May 2009.

As part of the early transfer of the subject property, the Army has entered into State CRUPs with the DTSC that document land use restrictions. The DTSC has agreed to modify the existing CRUP to document the land use restrictions included in the identified remedy. After the signature of this ROD, DTSC will modify the existing CRUP when DTSC has received a request for modification and has concurred that the Residential Protocol (DTSC 2008) has been successfully and correctly implemented.

The applicability of and requirements for CRUPs are described in California Code of Regulations Section 67391.1 and California Civil Code Section 1471.

As described in the Final Summary of Existing Data Report, Former Fort Ord, Monterey, California (ESCA RP Team 2008), the ESCA areas were combined into nine MRAs, and they were further consolidated into four groups according to similar pathway-to-closure characteristics. Group 1 consists of the Parker Flats and Seaside MRAs. Group 2 consists of the CSUMB Off-Campus and County North MRAs. Group 3 consists of Del Rey Oaks (DRO)/Monterey, Laguna Seca Parking, and Military Operations in Urban Terrain (MOUT) Site MRAs. Originally, Group 3 included the Interim Action Ranges MRA. The Interim Action Ranges MRA was removed from Group 3 for further evaluation as agreed upon by FORA, EPA, DTSC and the Army. Group 4 consists of the Future East Garrison MRA. Group 2 includes the CSUMB Off-Campus MRA and the County North MRA; however, in August 2009, the *Track 1 Plug-In Approval Memorandum County North Munitions Response Area, Former Fort Ord, California* ("the Approval Memorandum") was issued for the County North MRA by the Army for public review and comment (Army 2009b). A notice announcing agency concurrence with the Approval Memorandum was published on March 16, 2010. The Track 1 Plug-In process was described in the Army's *Record of Decision, No Further Action Related to Munitions and Explosives of Concern - Track 1 Sites, No Further Remedial Action with Monitoring for Ecological Risks from Chemical Contamination at Site 3 (MRS-22)* (Army 2005). Therefore, this Group 2 ROD only addresses the CSUMB Off-Campus MRA.

2.4. Community Participation

The Final Group 2 RI/FS for the CSUMB Off-Campus MRA was published on February 18, 2013, and the Group 2 Proposed Plan was made available to the public on June 5, 2013. The Proposed Plan presented the preferred alternative of Land Use Controls (Alternative 2). The Land Use Control alternative is being selected as the final remedy in this ROD. The Proposed Plan also summarized the information in the Group 2 RI/FS and other supporting documents in the Administrative Record. These documents were made available to the public at the following locations:

- Seaside Branch Library, 550 Harcourt Avenue, Seaside, California.
- California State University Monterey Bay Tanimura & Antle Family Memorial Library, Divarty Street, CSUMB Campus, Seaside, California.
- Fort Ord Administrative Record, Building 4463, Gigling Road, Room 101, Ord Military Community, California.
- www.fortordcleanup.com website.

The notice of the availability of the Proposed Plan was published in the Monterey County Herald and the Salinas Californian on June 12, 2013. A 30-day public comment period was held from June 12, 2013, to July 12, 2013. In addition, a public meeting was held on June 19, 2013, to present the Proposed Plan to a broader community audience than those that had already been involved at the site. At this meeting, representatives from the Army, EPA, and DTSC were present, and the public had the opportunity to submit written and oral comments about the Proposed Plan. Representatives from FORA were also present to answer questions. The Army's response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD (Section 3.0).

2.5. Scope and Role of Response Action

This ROD addresses the planned response action for managing the potential risk to future land users from MEC that potentially remains in the CSUMB Off-Campus MRA, where munitions response activities have been completed as described in Section 2.7 below and detailed in the Group 2 RI/FS (ESCA RP Team 2013).

The planned response action for the CSUMB Off-Campus MRA will be the final remedy for protection of human health and the environment. Remedial Alternative 2, which was identified as the preferred remedial alternative for the CSUMB Off-Campus MRA, is summarized as follows:

- **Remedial Alternative 2 - Land Use Controls (LUCs):** MEC recognition and safety training for people that will conduct ground-disturbing or intrusive activities; construction support during ground-disturbing or intrusive activities; and restrictions prohibiting residential use in the proposed future non-residential reuse area.

The selected remedy will be implemented by FORA under the ESCA and in accordance with the AOC. An RD/RA Work Plan will be developed to: (1) outline the processes for implementing land use restrictions; and (2) identify procedures for responding to discoveries of MEC, including coordinating a response to a discovery of a significant amount of MEC in the CSUMB Off-Campus MRA. The selected LUCs may be modified in the future based on the five-year review process.

In addition, long term management measures comprised of a deed restriction, annual monitoring and reporting, and five-year review reporting will be implemented for the reuse areas within the CSUMB Off-Campus MRA.

Based on the Army Basewide Range Assessment Program (Shaw/MACTEC 2009), which evaluated the potential presence of chemicals of concern in soil, no further action has been recommended for Historical Areas (HAs) within the CSUMB Off-Campus MRA. In addition, the EPA and the DTSC have concurred that no further action is necessary at Installation Restoration Program Site 39B (Inter-Garrison Site; Army 2007) located within the MRA; however, subsequent soil sampling resulted in a recommendation for removal of soil contamination from one area with an elevated concentration of lead in shallow soil (Army 2009a). Approximately 20 cubic yards of soil were excavated and disposed of from HA-161. Confirmation samples indicated that residual soil concentrations for lead were below the target cleanup concentrations. The results of the soil removal activities were presented in the *Draft Final Interim Action Confirmation Report* (Shaw 2011). As a follow-up to the 3rd Five-Year Review, an additional evaluation was conducted to determine the protectiveness of the human health-based cleanup levels for the Interim Action sites with lead in soil, including Site 39B. Based on this evaluation, the soil remedial action taken at Site 39B is protective for residential use (Army 2013b).

2.6. Site Characteristics

The CSUMB Off-Campus MRA is located in the north-central portion of the former Fort Ord, bordered by Inter-Garrison Road to the north, the County North MRA to the east and southeast, the Parker Flats MRA to the south, and 8th Avenue and CSUMB campus property to the west and southwest (Figure 2). The CSUMB Off-Campus MRA encompasses approximately 332.6 acres and is composed mostly of MRS-31, which includes four smaller MRSs: MRS-04C, MRS-07, MRS-08, and MRS-18. The remainder of the MRA consists of MRS-13C and a portion of MRS-13B.

Historical records and recovered MEC and munitions debris (MD) indicate that the majority of the CSUMB Off-Campus MRA had previously been used as a troop training and maneuver area.

2.7. Group 2 CSUMB Off-Campus MRA Remedial Investigation Summary

The CSUMB Off-Campus MRA contains portions, or all, of several MRSs identified in Table 1 and also shown on Figure 2 where munitions response actions have been conducted. The Remedial Investigation for the CSUMB Off-Campus MRA is based on the evaluation of previous work conducted for the MRA in accordance with the Group 2 RI/FS Work Plan (ESCA RP Team 2009).

This section provides background information on the CSUMB Off-Campus MRA Remedial Investigation data collection and review (site evaluations) conducted for the MRSs. Table 1 summarizes the site-specific investigations and removal actions, and Section 2.8 presents a summary of the site evaluations for the MRSs in the CSUMB Off-Campus MRA as presented in the Group 2 RI/FS (Volume 1; ESCA RP Team 2013).

Scope of Removal Actions – Initial investigations included grid sampling within MRS-04C, MRS-07, MRS-08, MRS-13B, and MRS-18. Based on the results of the grid sampling, a removal action designed to address MEC to a depth of up to 3 or 4 feet (ft) below ground surface (bgs) was conducted in MRS-13B and across MRS-31, which encompasses MRS-04C, MRS-07, MRS-08, and MRS-18. The main objective of the removal actions was to remove detected MEC from the MRA to a depth of 3 to 4 ft (or deeper). If an anomaly was detected below a depth of 3 to 4 ft, permission from the U.S. Army Corps of Engineers OE Safety Specialist was obtained prior to continuing the investigation. A removal action was also conducted in MRS-13C and was designed to address MEC to a depth of up to 4 ft bgs. The MEC investigations and removal actions at the CSUMB Off-Campus MRA were performed by Army contractors Human Factors Applications, Inc. (HFA), UXB International, Inc. (UXB), and USA Environmental, Inc. (USA; formerly CMS Environmental, Inc. [CMS]).

A verification and quality assurance action, consisting of a Residential Quality Assurance (RQA) Pilot Study, was conducted on the removal actions in the proposed future residential reuse area of the CSUMB Off-Campus MRA. The RQA Pilot Study activities included digital geophysical investigation in a portion of the proposed future residential reuse area. All anomalies detected during these actions were investigated and resolved, and all detected MEC items were removed or destroyed. The verification and quality assurance action was conducted by FORA on behalf of the Army under the ESCA.

These investigations and removal actions conducted within the CSUMB Off-Campus MRA were focused on addressing explosive hazards.

Site Evaluation – The evaluation process was documented by completion of a series of checklists for the CSUMB Off-Campus MRA in accordance with the Group 2 RI/FS Work Plan (ESCA RP Team 2009). Checklists prepared for the MRA were provided as Appendix B of the Group 2 RI/FS (Volume 1; ESCA RP Team 2013).

CSUMB Off-Campus MRA is composed mostly of MRS-31, which includes four smaller MRSs: MRS-04C, MRS-07, MRS-08, and MRS-18. The remainder of the MRA consists of MRS-13C and a portion of MRS-13B (Figure 2). The MRSs were identified through a review of former Fort Ord records compiled for the Revised Fort Ord Archive Search Report (USACE 1997a) and was used to facilitate MEC investigations and removal actions. The MRA boundaries generally correspond to the boundaries of land transfer Parcel S1.3.2 (Table 2 and Figure 2). Based on the results of the literature review, investigations, and removal actions, the MRA was used for chemical, biological, and radiological (CBR) training (MRS-

04C); mine and booby trap training (MRS-07 and MRS-08); practice mortar training (MRS-13B and MRS-13C); minefield practice area (MRS-18); and troop maneuvers, confidence course, and land navigation training (MRS-31). CBR training typically included use of tear gas agents in a test chamber or use of hand grenades containing tear gas agents. There were no buildings identified on facility maps or historical aerial photographs that were located within or near MRS-04C that may have been used for CBR training (i.e. gas chambers). Several hand grenades (MEC) containing the tear gas agent O-Chlorobenzylidene Malonitrile (CS) and MD from CS grenades were found in the eastern two-thirds of the MRA, but the locations did not coincide with MRS-04C or CBR training areas identified on historical facilities and training maps. The lack of typical CBR facilities and few CS items encountered indicated incidental use of CS grenades, but no evidence of a gas chamber at the CSUMB Off-Campus MRA. Recovered MEC and MD also indicated that practice hand grenade training and practice rifle grenade training occurred in MRS-31.

An initial grid sampling investigation was conducted within MRS-04C, MRS-07, MRS-08, MRS-13B, and MRS-18 in 1994 to determine if further action (removal) was necessary. The grids received a surface and subsurface survey using analog geophysical instruments across the entire grid and anomalies were investigated to a depth of up to 4 feet bgs. Based on the results of the grid sampling investigation, the U.S. Army Corps of Engineers, Huntsville Division (CEHND) Safety Specialist determined the site to contain UXO. Therefore, a removal action was conducted across the entire MRS-31. The removal action in MRS-31 was conducted in three parts with detected anomalies investigated to a depth of up to 3 or 4 feet bgs (Table 1). The first part of the removal action was conducted by HFA over the majority of the area referred to as the CSU Footprint, which included MRS-31, using analog geophysical instruments. Anomalies were excavated up to a depth of 4 ft bgs (HFA 1994). The second and third parts of the removal action were conducted by UXB over the remaining portion of the CSU Footprint in the eastern and central portions of MRS-31. Grids were investigated using analog geophysical instruments and anomalies were initially investigated up to a depth of 3 ft bgs, but the excavation depth requirement was later changed to 4 ft bgs. If an anomaly was detected below a depth of 3 to 4 ft, permission from the U.S. Army Corps of Engineers OE Safety Specialist was obtained prior to continuing the investigation (UXB 1995a, 1995b, and 1995c). A MEC removal action performed by USA in MRS-13C, located along the southern boundary of the CSUMB Off-Campus MRA, and in MRS-13B, located south of MRS-31, was conducted using analog geophysical instruments with detected anomalies investigated to a depth of up to 4 feet bgs (USA 2000a and 2000b; Table 1).

An RQA Pilot Study was conducted by FORA contractors in the approximately 49-acre proposed future residential (CSUMB campus housing) reuse area of the CSUMB Off-Campus MRA, which includes portions of MRS-31, MRS-13C, and MRS-13B, as an additional verification and quality assurance of prior MEC investigations and removal actions. The RQA data were collected in two phases. During the first phase of the RQA Pilot Study, a digital geophysical mapping investigation and subsurface MEC removal were conducted in approximately 17 acres followed by a soil scrape and second digital geophysical mapping investigation and subsurface MEC removal on approximately five of the 17 acres. During the second phase of the RQA Pilot Study, a detailed data evaluation was conducted on the approximately 49-acre area, and a verification site walk with analog geophysical instruments was conducted to support the data evaluation. The digital and analog geophysical instruments used during the RQA Pilot Study were effective at detecting the types of munitions expected at the CSUMB Off-Campus MRA. The RQA Pilot Study activities included removal of detected MEC and MD from the proposed future residential (CSUMB campus housing) reuse area to the depth of detection and confirmed the results of previous MEC investigations and removal actions. Based on the RQA Process evaluation, including results of the RQA Pilot Study and RQA Implementation Study, the proposed future residential reuse area in the CSUMB Off-Campus MRA was recommended as acceptable for future residential reuse with appropriate institutional controls, such as the local digging and excavation ordinance, construction

support, and disclosures (ESCA RP Team 2012 and 2013). DTSC has released the Residential Protocol (DTSC 2008) that, when successfully implemented and approved by DTSC, would provide a basis to remove a State residential CRUP on munitions response sites (DTSC 2014). FORA has submitted the Final Residential Protocol Implementation Report, CSUMB Off-Campus MRA, dated October 21, 2014 (ESCA RP Team 2014) to provide data and conclusions to support the removal of the residential CRUP on the proposed residential area.

The majority of MEC and MD encountered within the CSUMB Off-Campus MRA were consistent with the documented historical use of the MRA as a troop training and maneuver area. The types of MEC and MD removed from the MRA included: firing devices, hand grenades and hand grenade fuzes, rifle grenades, mines and mine fuzes, mortars (60mm and 81mm), various projectiles, illumination flares and signals, smoke generating items, rockets, and simulators. The majority of these items were associated with practice and pyrotechnic munitions.

2.8. CSUMB Off-Campus MRA Munitions Response Site Summaries

MRS-31 (Includes MRS-04C, MRS-07, MRS-08, and MRS-18)

From January to February 1994, HFA conducted initial investigations at MRS-04C, MRS-07, MRS-08, and MRS-18, located within MRS-31, and MRS-13B. Sampling grids were approximately 100 by 100 ft and separated by at least 200 ft. The grids received a surface and subsurface survey across the entire grid using either the Schonstedt Model GA-52C or Model GA-72Cv magnetometer (HFA 1994). Based on the results of the grid sampling, the CEHND Safety Specialist determined the site to contain UXO; therefore, HFA conducted a removal action across the entire area referred to as the CSU Footprint, which generally corresponds to MRS-31 (Table 1).

From February to June 1994, HFA conducted a subsurface removal action within a portion of the CSU Footprint, which corresponded to the western portion of MRS-31. The site was divided into 100-ft by 100-ft square grids and grids received a surface and subsurface survey across the entire grid using Schonstedt Model GA-52Cv or GA-72Cv magnetometers. Anomalies were marked with flags, and were excavated up to a depth of 4 ft bgs. In accordance with the work plan, non-UXO scrap was initially not removed from the grid. In March 1994, the scope of work was modified to allow HFA to remove non-UXO-related scrap from the grids (HFA 1994).

In June 1994, UXB took over the removal action activities within the remaining portion of the CSU Footprint, which corresponded to the eastern portion and a central portion of MRS-31. The remaining portion was divided into 100-ft by 100-ft square grids. Initially, the geophysical instruments used were the Schonstedt Model GA-52C and Model GA-72Cv magnetometers. In October 1994, UXB began using the Schonstedt Model GA-52Cx magnetometer. Each anomaly was marked with a flag. Excavations were conducted up to a depth of 3 ft bgs until the excavation depth requirement was changed to 4 ft bgs in December 1994. UXB's removal action was conducted over two areas in MRS-31. From July 1994 to July 1995, UXB conducted a subsurface removal action (part of which extended into the adjacent County North MRA) in the eastern portion of MRS-31. From April to June 1995, UXB conducted a subsurface removal action to a depth of 4 ft bgs located approximately in the center of MRS-31 using the Schonstedt Model GA-52Cx magnetometer (UXB 1995a, 1995b, and 1995c).

MRS-13B

MRS-13B was included in the grid sampling investigation performed by HFA from January to February 1994. Fifty-seven sampling grids were approximately 100-ft by 100-ft and separated by at least 200 ft.

The grids received a surface and subsurface survey across the entire grid using either the Schonstedt Model GA-52C or Model GA-72Cv magnetometer (HFA 1994). Based on the results of the grid sampling, the CEHND Safety Specialist determined the site to contain UXO. Based on the MRS-13B sampling results, a removal action to a depth of 4 ft bgs was recommended in accordance with the Final Phase I Engineering Evaluation/Cost Analysis (USAESCH 1997).

Between August 1995 and April 1998, a removal action was performed by CMS (which became USA Environmental, Inc.) in MRS-13B located south of MRS-31 and MRS-13C (Table 1). The removal action was conducted by dividing the area into 100-ft by 100-ft grids or portions of grids. The grids were investigated using the Schonstedt Model GA-52Cx magnetometer and subsurface anomalies encountered were investigated up to a depth of 4 ft bgs. Based on the results of the removal action, no further MEC response was recommended for the area (USA 2000a).

MRS-13C

From June to September 1997, a removal action was performed by USA in MRS-13C located along the southern boundary line of the CSUMB Off-Campus MRA (Table 1). The removal action in MRS-13C was conducted by dividing the area into 100-ft by 100-ft grids or portions of grids. The grids were investigated using the Schonstedt Model GA-52Cx magnetometer and subsurface anomalies encountered were investigated up to a depth of 4 ft bgs. Based on the results of the removal action, no further MEC response was recommended for the area (USA 2000b).

2.9. Current and Potential Future Land and Resource Uses

The future land uses for the CSUMB Off-Campus MRA, summarized below, are based upon the Fort Ord Base Reuse Plan (FORA 1997) and the CSUMB Master Plan (CSUMB 2007). Future land use information is also included in the Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California (HMP; USACE 1997b) and modifications to the HMP provided in *Assessment, East Garrison – Parker Flats Land Use Modifications, Fort Ord, California* (Zander 2002), and *Memorandum of Understanding Concerning the Proposed East Garrison/Parker Flats Land-Use Modification* (Army 2004).

The CSUMB Off-Campus MRA is proposed for school/university reuse with residential infill opportunities. The reasonably foreseeable reuses being considered for the CSUMB Off-Campus MRA include:

- Residential (CSUMB campus housing), Parcel S1.3.2 — The western portion of the MRA (approximately 49 acres) is proposed for use as off-campus housing for CSUMB (CSUMB 2007). Construction and maintenance of buildings and roads, installation and maintenance of utilities, as well as the activities of future residents are expected within the reuse area.
- Non-residential (CSUMB open space park), Parcel S1.3.2 — The eastern portion of the MRA (approximately 284 acres) is proposed for an oak woodland and maritime chaparral open space park with a 100-ft buffer along the Natural Resources Management Area (NRMA) interface (ESCA RP Team 2008). Vegetated areas and hiking trails may require maintenance such as planting and weeding. Recreational hiking and bicycling/horseback riding on trails are expected to occur.

2.10. Summary of Site Risks

Munitions response actions have been completed at the CSUMB Off-Campus MRA, significantly reducing the potential risks to human health and the environment from explosive hazards associated with

MEC. Because detection technologies may not detect all MEC present and some areas contain barriers (e.g. pavement, buildings) that, while providing protection against MEC potentially present, preclude the use of detection technologies, a future land user (i.e., receptors) may encounter MEC. The risk was evaluated in a MEC Risk Assessment as part of the Group 2 RI/FS (Volume 2; ESCA RP Team 2013).

The Fort Ord Ordnance and Explosives Risk Assessment Protocol (Malcolm Pirnie 2002) was developed to qualitatively estimate the risk to future land users of the property from potentially remaining MEC in terms of an ”Overall MEC Risk Score” for each receptor expected to be present during area development and reuse.

The MEC Risk Assessment Protocol results are based on three key factors (MEC Hazard Type, Accessibility, and Exposure) that are assigned use-specific values and are weighted in importance. These factors were used to develop an Overall MEC Risk Score for each receptor at a given reuse area as follows:

Overall MEC Risk Score	A	B	C	D	E
	Lowest	Low	Medium	High	Highest

These qualitative Overall MEC Risk Scores guided the development and evaluation of alternatives in the Group 2 Feasibility Study. The future land users of the property identified for analysis in the MEC Risk Assessment and a summary of the Overall MEC Risk Scores for each receptor for the reuse areas within the CSUMB Off-Campus MRA are provided below. It is recognized that although the detected anomalies have been investigated and all detected MEC have been removed during the previous removal actions conducted on the CSUMB Off-Campus MRA, the potential exists that MEC may remain in the subsurface at the MRA. Therefore, the risks associated with subsurface (intrusive) receptors (e.g., maintenance workers and construction workers) are assumed to remain at the CSUMB Off-Campus MRA at a level that requires mitigation and remedial alternatives were evaluated in a Feasibility Study.

The qualitative Overall MEC Risk Scores were used in the Group 2 Feasibility Study (Volume 3; ESCA RP Team 2013) to guide the development and evaluation of response alternatives for the CSUMB Off-Campus MRA during development and for reasonably anticipated future uses.

The response actions selected in this ROD are necessary to protect the public health or welfare from the possible presence of subsurface MEC.

The receptors identified for analysis in the MEC Risk Assessment for the CSUMB Off-Campus MRA included: trespasser, recreational user, maintenance worker, resident, and construction worker. The overall MEC risk score for each receptor was “A” (lowest risk).

2.11. Remedial Action Objectives

The remedial action objective (RAO) for the CSUMB Off-Campus MRA is based on the MEC Risk Assessment results and on EPA’s Remedial Investigation/Feasibility Study Guidance (EPA 1988) to achieve the EPA’s threshold criteria of “Overall Protection of Human Health and the Environment” and “Compliance with ARARs.” The RAO developed for the protection of human health and the environment for Group 2 is to prevent or reduce the potential for the CSUMB Off-Campus MRA reuse receptors to come in direct contact with MEC items potentially remaining in subsurface soil.

As described in EPA's Land Use in the CERCLA Remedy Selection Process (EPA 1995), "Remedial action objectives provide the foundation upon which remedial cleanup alternatives are developed. In general, remedial action objectives should be developed in order to develop alternatives that would achieve cleanup levels associated with the reasonably anticipated future land use over as much of the site as possible. EPA's remedy selection expectations described in section 300.430 (a) (l) (iii) of the NCP should also be considered when developing remedial action objectives. Where practicable, EPA expects to treat principal threats, to use engineering controls such as containment for low-level threats, to use institutional controls to supplement engineering controls…."

For the purpose of this ROD, the contaminant of concern within the CSUMB Off-Campus MRA is MEC. The potential for soil contamination from munitions constituents at the former Fort Ord is being addressed under the Army's Basewide Range Assessment (BRA) Program (Shaw/MACTEC 2009). Based on the BRA Program, no further action has been recommended for HAs within the CSUMB Off-Campus MRA (Shaw/MACTEC 2009). In addition, the EPA and the DTSC have concurred that no further action is necessary at Installation Restoration Program Site 39B (Inter-Garrison Site; Army 2007) located within the MRA; however, subsequent soil sampling resulted in removal and disposal of approximately 20 cubic yards of soil from HA-161. Confirmation samples indicated that residual soil concentrations for lead were below the target cleanup concentrations (Shaw 2011). As a follow-up to the 3rd Five-Year Review, an additional evaluation was conducted to determine the protectiveness of the human health-based cleanup levels for the Interim Action sites with lead in soil, including Site 39B. Based on this evaluation, the soil remedial action taken at Site 39B is protective for residential use (Army 2013b).

Consistent with EPA's guidance, (1) the principal threats at the CSUMB Off-Campus MRA have already been treated (i.e., MEC removal actions have been completed), and (2) institutional controls (herein referred to as land use controls or LUCs) are considered appropriate remedial alternatives.

2.12. Description of Alternatives

Three remedial alternatives were evaluated for the CSUMB Off-Campus MRA in the Group 2 Feasibility Study (Volume 3; ESCA RP Team 2013). The alternatives were summarized in the Group 2 Proposed Plan (Army 2013a).

Long-term management measures (deed notice and restrictions, annual monitoring, and five-year review reporting) are implementation and management measures for Alternatives 2 and 3. Long-term management measures are described further in Section 2.14.3. The cost associated with implementing these measures over a period of 30 years is approximately $210,000.

The Group 2 Risk Assessment (Volume 2; ESCA RP Team 2013) estimated the Overall MEC Risk Scores for each receptor is "A", the lowest risk. Although previous removal actions have been conducted on the MRA, the potential exists for MEC to remain in the subsurface. Therefore, the risks associated with intrusive receptors (maintenance workers, construction workers, and residents) are assumed to remain at a level that requires mitigation. The three remedial alternatives developed to mitigate this risk are summarized below:

Alternative 1 – No Further Action

This alternative assumes no further action would be taken at the CSUMB Off-Campus 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 NCP. There are minimal costs associated with implementation of this alternative.

Alternative 2 – Land Use Controls

This alternative assumes that LUCs, without additional MEC remediation on any portion of the CSUMB Off-Campus MRA, would be implemented to address potential MEC risks for intrusive or ground-disturbing reuse. The LUCs alternative consists of MEC recognition and safety training, construction support, and continuation of the existing residential use restriction in the proposed future non-residential reuse area. The residential use restriction would be removed from the proposed future residential reuse area. The components of the alternative are described below:

MEC Recognition and Safety Training - People involved in intrusive operations during the proposed reuses and development at the CSUMB Off-Campus MRA would be required to attend the MEC recognition and safety training to increase their awareness of and ability to identify MEC items. Prior to planned intrusive activities, the property owner would be required to notify FORA or its successor to provide MEC recognition and safety training for all workers performing intrusive activities.

Construction Support - Construction support, either on-call or onsite, would be arranged during the construction and maintenance planning stages of the project prior to the start of any intrusive or ground-disturbing activities. For on-call construction support, UXO-qualified personnel must be contacted prior to the start of intrusive or ground-disturbing activities to ensure their availability, advised about the project, and placed "on call" to assist if suspected MEC are encountered during construction and maintenance. During on-call support, UXO technicians have the option to be present at the site during intrusive activities if warranted. For onsite construction support, UXO-qualified personnel will attempt to identify and remove any explosive hazard in the construction footprint prior to any intrusive construction activities. If evidence of MEC is found during construction activities, the intrusive or ground-disturbing work would immediately cease, no attempt would be made to disturb, remove, or destroy the MEC, and the local law enforcement agency having jurisdiction on the property would be immediately notified so that appropriate explosive ordnance disposal personnel could be dispatched to address the MEC, as required under applicable laws and regulations.

Residential Use Restriction - Residential use restriction placed on the CSUMB Off-Campus MRA property at the time of property transfer to FORA would be maintained only for the proposed future non-residential reuse area. Restrictions prohibiting residential use in the proposed future residential area would be removed. For the purpose of this decision document, residential use includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12 (Army 2007).

The LUCs included in this alternative are based on the planned reuse of the CSUMB Off-Campus MRA. The specific details of LUCs would be presented in the Remedial Design/Remedial Action (RD/RA) Work Plan, or similar document. The cost associated with implementing this alternative is estimated to be $1.2 million. In addition, a long-term management cost of $210,000 applies to this alternative.

Alternative 3 – Additional Subsurface MEC Remediation

This alternative assumes that subsurface MEC remediation would be conducted throughout the entire footprint of the CSUMB Off-Campus MRA. This alternative includes implementing the appropriate type of vegetation clearance in the MRA, if necessary, and the implementation of additional MEC remediation. 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 (DDESB)-approved MEC detonation procedures in areas where explosive MEC items are identified during remedial activities and require disposal. Debris including MD that was found or detected during the process would also be removed, to the extent feasible. The specific details of the vegetation clearance methods and the MEC detection equipment would be presented in the RD/RA Work Plan, or similar document. The cost associated with implementing this alternative is estimated to be $6.9 million. In addition, a long-term management cost of $210,000 applies to this alternative.

2.13. Principal Threat Wastes

Munitions responses have been completed at the CSUMB Off-Campus MRA. All MEC items which would meet the principal threat waste criteria identified as part of the investigation have already been addressed. The selected remedy includes LUCs because detection technologies may not detect all MEC present. The source material constituting the principal threats at the CSUMB Off-Campus MRA are MEC that potentially remain below the ground surface (in the subsurface).

The selected remedy will address the residual threats through implementing the following LUCs:

- MEC recognition and safety training for people that will conduct ground-disturbing or intrusive activities;
- Construction support for ground-disturbing or intrusive activities to address the possibility that MEC remains in the subsurface; and
- Restrictions prohibiting residential use only in the proposed future non-residential reuse area. Restrictions prohibiting residential use in the proposed future residential area will be removed. The existing residential CRUP will be removed when DTSC has received a request for modification and has concurred that the Residential Protocol (DTSC, 2008) has been successfully and correctly implemented.

2.14. Selected Remedy

2.14.1. Summary of the Rationale for the Selected Remedy

Each alternative developed for the CSUMB Off-Campus MRA was assessed against the nine EPA evaluation criteria described in Table 3. Using the results of this assessment, the alternatives were compared and a remedy selected for the MRA. The remedy that best meets the nine evaluation criteria is Alternative 2 (Land Use Controls). This remedy was selected because LUCs will be protective of human health for future land users, and would be effective in the short- and long-term at mitigating the risk to workers conducting ground-disturbing or intrusive activities from MEC that is potentially present. This remedy will require a low level of effort to implement, a moderate level of effort to administer over time, and would be cost effective. The remedy can be implemented in a manner consistent with Federal and State guidance.

The Army and EPA have jointly selected the remedy. The DTSC has had an opportunity to review and comment on the ROD.

Community acceptance is discussed in the Responsiveness Summary (Section 3.0). The selected remedy is further described below.

2.14.2. Description of the Selected Remedy

The selected remedial alternative for the CSUMB Off-Campus MRA is Alternative 2 (Land Use Controls). LUCs and their implementation strategy are described below.

Land Use Controls

The LUCs that will be implemented at the CSUMB Off-Campus MRA include requirements for: (1) MEC recognition and safety training for people that will conduct ground-disturbing or intrusive activities, (2) construction support for ground-disturbing or intrusive activities to address MEC that potentially remains in the subsurface, and (3) restrictions prohibiting residential use in the proposed future non-residential reuse area.

- **MEC recognition and safety training** - For the areas addressed in this ROD, ground-disturbing or intrusive activities are expected to occur. Personnel involved in ground-disturbing or intrusive operations at these areas will be required to attend the MEC recognition and safety training to increase their awareness of and ability to identify MEC items. Prior to conducting ground-disturbing or intrusive activities, the property owner will be required to notify FORA or its successor to provide MEC recognition and safety training for all persons performing ground-disturbing or intrusive activities.

  MEC recognition and safety training will be evaluated as part of the five-year review process to determine if the training program should continue. If further evaluation indicates that this LUC is no longer necessary, the program may be discontinued with regulatory approval.

- **Construction support** - Construction support by UXO-qualified personnel is required during any intrusive or ground-disturbing construction activities at the CSUMB Off-Campus MRA to address potential MEC risks to construction and maintenance personnel. Construction support will be arranged during the construction and maintenance planning stages of the project prior to the start of any intrusive or ground-disturbing activities. If evidence of MEC is found during construction support activities, the intrusive or ground-disturbing work will immediately cease, no attempt will be made to disturb, remove, or destroy the MEC, and the local law enforcement agency having jurisdiction on the property 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. Construction support may be applicable in the short term during development of the reuse area, and/or in the long term during established reuse.

  Construction support will be evaluated as part of the five-year review process to determine if the LUC should continue. If the MEC-related data collected during the development of the reuse areas indicates that this LUC is no longer necessary, construction support may be discontinued with regulatory approval.

- **Restrictions prohibiting residential use** - Residential use restriction placed on the CSUMB Off-Campus MRA property at the time the property was transferred will be maintained for the proposed future non-residential reuse area. Restrictions prohibiting residential use in the proposed future residential area will be removed. For the purposes of this document, residential reuse includes, but is

not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12 (Army 2007).

2.14.3 Land Use Control Implementation Strategy

The performance objectives for the LUCs that are part of the remedy are the following:

- **MEC recognition and safety training:** (1) to ensure that land users involved in ground-disturbing or intrusive activities are educated about the possibility of encountering MEC, and (2) to ensure that land users involved in ground-disturbing or intrusive activities stop the activity when encountering MEC and report to the appropriate authority.
- **Construction support:** to ensure projects involving ground-disturbing or intrusive activities are coordinated with UXO-qualified personnel so discoveries of potential MEC items will be handled appropriately. Mechanisms for implementing the requirement for construction support may include local ordinance(s), and details of implementation will be described in the RD/RA Work Plan for the LUCs.
- **Restrictions prohibiting residential use:** to ensure that any proposals to allow residential development or modifications to residential restrictions for the proposed future non-residential reuse area are approved by EPA and Army in coordination with DTSC.

LUCs will be maintained until EPA and DTSC concur that the land use may be conducted in a manner protective of human health and the environment without the LUCs. This concurrence may be based on: 1) new information (e.g., limited geophysical mapping, site development); or 2) where the depth of soil disturbance related to ground-disturbing or intrusive activities is sufficient to address the uncertainty of MEC remaining in the subsurface and any MEC encountered during such activities is removed.

The LUCs and the implementation actions will be explained in more detail in the RD/RA Work Plan. In accordance with the ESCA, the AOC, and the FFA Amendment No.1, FORA will prepare a LUC Remedial Design which shall contain implementation, monitoring and maintenance actions, including periodic reports. Within 21 days of the signature of the ROD, FORA shall provide EPA and DTSC for review and approval a schedule for implementation of a LUC remedial design.

As part of the implementation plan, the RD/RA Work Plan will also describe the following long-term management measures:

- **Existing land use restriction:** The deed to FORA for the CSUMB Off-Campus MRA parcel restricts residential use. The deed will be modified to remove the residential use restriction on the proposed future residential reuse area. The residential use restriction will remain for the proposed future non-residential reuse area. Residential use includes, but is not limited to: single family or multi-family residences; childcare facilities; nursing homes or assisted living facilities; and any type of educational purpose for children or young adults in grades kindergarten through 12. It should be noted that the CRUP for the CSUMB Off-Campus MRA parcel restricts residential use. After the signature of this ROD, DTSC will modify the existing CRUP when DTSC has received a request for modification and has concurred that the Residential Protocol (DTSC, 2008) has been successfully and correctly implemented.
- **Annual monitoring and reporting:** After this ROD is signed, FORA, or its successor entity under the ESCA and the AOC, will perform annual monitoring and reporting. FORA or its successor entity

will notify the regulatory agencies, as soon as practicable, of any MEC-related data identified during use of the property, and report the results of monitoring activities annually.

- **Five-year review reporting:** Five-year reviews will be conducted by the Army in accordance with CERCLA Section 121(c) and the Fort Ord FFA. The five-year review will evaluate the protectiveness of the selected remedy. Based on the evaluation, the selected LUCs may be modified or discontinued, with the approval of the EPA and DTSC.

The standard procedure for reporting any encounter with a known or suspected MEC item in the transferred former Fort Ord property is to immediately report the encounter to the local law enforcement agency having jurisdiction on the property so that appropriate explosive ordnance disposal personnel can be dispatched to address the MEC, as required under applicable laws and regulations. After the response, the probability of encountering MEC will be reassessed. If the probability of encountering MEC is low, construction may resume with construction support. If the probability of encountering MEC is moderate to high, UXO-qualified personnel will attempt to identify and remove any explosive hazard in the construction footprint prior to any intrusive construction activities.

FORA or its successor will notify the regulatory agencies, as soon as practicable, of any MEC-related data identified during use of the property, and report the results of monitoring activities annually. The Army will conduct five-year reviews. If additional evaluation or work or modification of the selected remedy is proposed based on such review, it will be implemented in accordance with Paragraph 34 of the AOC, and/or Section C.4.1.7 of the ESCA.

Pursuant to the ESCA, the AOC and the FFA Amendment No.1, FORA assumes full responsibility for completion of necessary CERCLA response actions (except Army Obligations) which include implementing, maintaining, reporting, and enforcing the land use controls. Although the Army has already transferred the responsibilities to implement, maintain, monitor, and enforce LUCs to another party by contract, property transfer agreement, or through other means, the Army retains the ultimate responsibility for remedy integrity. Future property owners will also have responsibilities to act in accordance with the LUCs as specified in the deed(s).

2.14.4. Summary of the Estimated Remedy Costs

For those alternatives whose life-cycle is indeterminate or exceeds 30 years, for the purposes of evaluating and comparing alternatives as specified in EPA's Remedial Investigation/Feasibility Study Guidance (EPA 1988), a period of 30 years is used for estimating long term O&M costs. For the CSUMB Off-Campus MRA, the life-cycle is indeterminate; therefore, long term O&M costs were estimated over a period of 30 years. Capital and long term O&M costs for implementing and maintaining LUCs under Alternative 2 are estimated at a total of approximately $1.2 million for the reuse areas within the CSUMB Off-Campus MRA. Capital and long term O&M costs for implementing and maintaining Long Term Management Measures are estimated at approximately $210,000 for the reuse areas within the MRA. Therefore, the total estimated 30-year Net Present Value cost of the remedy is approximately $1.4 million. Long term O&M costs are based on a 2.7 percent real interest rate for Years 1-7 (assumed duration for development and construction), and a 2.7 percent real interest rate for Years 8-30 (established reuse). A detailed, activity-based breakdown of the estimated costs associated with implementing and maintaining the remedy is provided in the Group 2 Feasibility Study (Volume 3; ESCA RP Team 2013).

2.14.5. Expected Outcomes of Selected Remedy

The expected outcomes of the selected remedy would be protection of human health and the environment through implementation of LUCs.

If residential development is planned for the proposed future non-residential reuse portion of the CSUMB Off-Campus MRAs included in this ROD, the plans will be subjected to regulatory agency and Army review and approval.

2.15. Statutory Determinations

The selected remedy satisfies the requirements of Section 121 of CERCLA as follows:

- Protection of Human Health and the Environment: The selected remedy provides protection for both human health and the environment through implementation of LUCs to mitigate the risk from potentially remaining MEC.
- Compliance with Applicable or Relevant and Appropriate Requirements: The selected remedy can 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 CRUPs with the DTSC at the time the property was transferred to FORA. The DTSC will modify the existing CRUP, as appropriate, to reflect the land use restrictions included in the selected remedy. 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 CRUPs and the DTSC will modify the CRUPs, as appropriate, to be consistent with the identified remedy.
- Cost Effectiveness: The selected remedy is a cost-effective solution for reducing the risks to human health and the environment. The Net Present Value of the total estimated costs for the reuse areas within the CSUMB Off-Campus MRA (including long term management measures costs of $210,000) is approximately $1.4 million (including long term management measures costs of $210,000) for the selected remedy of Land Use Controls (Alternative 2), which is well below the estimate for Additional MEC Remediation (Alternative 3) of approximately $7.1 million (including long term management measures costs of $210,000). In addition, costs for Alternative 3 may be higher than estimated because: (1) after additional MEC remediation is completed, these areas would require a re-evaluation of potential risk from MEC; and (2) the areas are likely to continue to require additional risk mitigation measures (e.g., LUCs) to protect human health during development and long-term reuse. There are minimal costs associated with Alternative 1.
- Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable: The principal threats at the CSUMB Off-Campus MRA have already been treated (i.e., MEC removal actions have been completed) utilizing permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable.
- Preference for Treatment as a Principal Element: The principal threats at the CSUMB Off-Campus MRA have already been addressed (i.e., MEC removal actions have been completed), satisfying the statutory preference for treatment as a principal element (i.e., reducing the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).
- Five-Year Review Requirements: Because the selected remedy may result in MEC potentially remaining within the CSUMB Off-Campus MRA, a statutory review will be conducted by the Army

within five years after initiation of the remedial action to ensure the remedy is, or will be, protective of human health and the environment. The purpose of a five-year review is to gather updated information, evaluate the condition of the site, and determine if the site remains safe from contamination that might be left at the site. The next five-year review will occur in 2017.

2.16. Documentation of Significant Changes from Preferred Alternative of Proposed Plan

As described in Section 2.4., the Proposed Plan for the Group 2 CSUMB Off-Campus MRA was released for public comment on June 5, 2013, and a public meeting was held on June 19, 2013. This Proposed Plan identified preferred remedial alternatives for the CSUMB Off-Campus MRA. Comments collected over the public review period between June 12, 2013, and July 12, 2013 did not necessitate any significant changes to the conclusions or procedures outlined in the Group 2 RI/FS and Group 2 Proposed Plan.

3. RESPONSIVENESS SUMMARY

3.1. Proposed Plan Overview

Based on the Final Group 2 RI/FS for the CSUMB Off-Campus MRA, dated February 18, 2013, the Army identified a preferred remedial alternative, which consists of the following requirements for future property users:

- MEC recognition and safety training (for people that will conduct ground-disturbing or intrusive activities, such as construction workers and maintenance workers)
- Construction support by UXO- qualified personnel (for ground-disturbing or intrusive activities)
- Restrictions prohibiting residential use in the proposed future non-residential reuse area.

3.2. Background on Community Involvement

Focused community involvement for the Group 2 Proposed Plan involved a notice of availability of the Proposed Plan for review, a 30-day public comment period, a public meeting, and a responsiveness summary to address comments received on the Group 2 Proposed Plan.

The Group 2 Proposed Plan notice of availability was published in the Monterey County Herald and the Salinas Californian newspapers on June 12, 2013. The 30-day public comment period began on June 12, 2013, and closed on July 12, 2013.

The public meeting was held on June 19, 2013, to present the Group 2 Proposed Plan to a broader community audience. At this meeting, representatives from the Army, EPA, and DTSC were present, and the public had the opportunity to submit written and oral comments about the Proposed Plan. Representatives from FORA were also present at the public meeting to answer questions on the Group 2 Proposed Plan. Copies of the comments received on the Proposed Plan and a transcript of the public comments are available at the former Fort Ord Administrative Record and on the former Fort Ord website at www.fortordcleanup.com.

The responsiveness summary responds to written comments received during the Group 2 Proposed Plan public comment period as well as oral comments expressed during the Group 2 Proposed Plan public meeting. Public comments submitted during the Group 2 Proposed Plan public comment period and the Army's responses provided in the following section.

3.3. Summary of Comments Received During the Public Comment Period and Department of the Army Responses

Public comments received during the Group 2 Proposed Plan public comment period and the Army's responses are summarized below.

Comments were received from the public: (1) at the public meeting held on June 19, 2013; and (2) in written comments received during the 30-day public comment period from June 12 to July 12, 2013.

Comment summaries are provided below and have been categorized based on the focus of each comment. The three categories are:

A. Preferred Alternative and Supporting Information

B. Community Involvement and Outreach

C. Other Comments

A. Preferred Alternative and Supporting Information

A1: A commenter expressed support for the requirement of construction support at the CSUMB Off-Campus MRA as part of the proposed remedial alternative, citing the very low probability of any munitions item remaining on the site.

Response: The comment is acknowledged.

A2: A commenter expressed disappointment in the preferred remedial alternative, Alternative 2, Land Use Controls, citing concerns regarding the type of detection equipment used during munitions removal actions, the methodology of previous removal actions, and the credibility of the risk assessment performed for the CSUMB Off-Campus MRA. Concern was also expressed for the adequacy of the cleanup, the possibility that munitions may remain in the MRA, and reporting requirements under Alternative 2 for potential MEC discoveries by future land users. One commenter expressed support for Alternative 3, Additional Subsurface MEC Remediation.

Response: The specific concerns identified with respect to the detection equipment and methodology used during previous removal actions and the adequacy of the removal actions were evaluated in the Group 2 RI/FS. The Group 2 RI/FS included a removal action approach evaluation (Section 3.2), an equipment evaluation (Section 3.3), a data collection evaluation (Section 3.4), and a data analysis (Section 4.0) to determine the adequacy of previous removal actions. As presented in the Group 2 RI/FS, removal actions were conducted in the CSUMB Off-Campus MRA, with all detected MEC removed. These munitions response actions also included quality control and quality assurance requirements that validated the adequacy of the munitions response actions. Additionally, an RQA Pilot Study verification and quality assurance action was conducted in the proposed future residential reuse area of the CSUMB Off-Campus MRA. The Group 2 RI/FS concluded that the MRA had been sufficiently characterized for MEC and the data was of sufficient quality to be used for the risk assessment.

Although MEC is not expected to be encountered within the CSUMB Off-Campus MRA, it is possible that some MEC may not have been detected and remain present in the subsurface, as indicated in the Group 2 RI/FS. Therefore, a risk assessment and feasibility study were conducted and documented in the Group 2 RI/FS. Remedial action alternatives were evaluated using the nine CERCLA evaluation criteria to manage the risk to future land users from MEC that potentially remains in the property. The LUC remedy (Alternative 2) was determined to best meet the CERCLA evaluation criteria and will be protective of human health by requiring safety training and construction support for intrusive activities and restricting the property from residential use (i.e. sensitive uses) in the proposed future non-residential area, where the RQA Pilot Study verification and quality assurance action were not conducted. The LUCs are appropriate to address risks from MEC that may potentially remain at the site during reuse.

In the event that potential MEC is discovered by a future land user, the discovery should be immediately reported to the local law enforcement agency. The Army has included a notice in the property transfer deed (which will be carried through subsequent property transfers in perpetuity) describing that, should any MEC item be discovered in the future, it should immediately be reported to local law enforcement agency. Appropriate ordnance disposal personnel will address the discovered MEC. A RD/RA Work Plan

will be developed by FORA for the CSUMB Off-Campus MRA and will include procedures for responding to discoveries of MEC.

Under CERCLA and the National Contingency Plan, the Army follows the public participation and community involvement process, and encourages members of the local community and other interested parties to make comments on the Proposed Plan. The Army, in conjunction with the regulatory agencies, takes all comments into consideration prior to the selection of a final remedy. Community acceptance of the Proposed Plan is gauged using available public input and reactions to the information presented within the Proposed Plan as summarized in this Responsiveness Summary. The Army acknowledges some members of the community may not accept the Proposed Plan; however, many members of the public accept it and recognize the need for the proposed remedy.

A3: A commenter stated that the residential use restriction for the CSUMB-Off Campus MRA non-residential reuse area was not necessary, based on the site history, the cleanup completed, the number and type of munitions found and actions completed after the cleanup. Such a restriction places a burden on the future property owner which does not appear justified by the results of the risk assessment.

Response: As described in the Proposed Plan, based on the remedial investigation and risk assessment, MEC is not expected to be encountered within the non-residential reuse portion of the CSUMB Off-Campus MRA; however, it is possible that some MEC may not have been detected and remain present in the subsurface. Therefore, to manage the risk to future land users from MEC that potentially remains in the property, remedial action alternatives were evaluated. LUCs, including residential use restriction, were evaluated as a remedial alternative using the nine CERCLA evaluation criteria. Based on the results of this evaluation, LUCs including MEC recognition and safety training, construction support, and continuation of the existing residential use restriction in the proposed future non-residential reuse area were determined to be protective of human health. The selected LUCs are appropriate to address risks from MEC that may potentially remain at the proposed future non-residential reuse area within the CSUMB Off-Campus MRA.

A4: A commenter stated that analysis of tank training on the former Fort Ord had not been adequately addressed for the CSUMB Off-Campus MRA.

Response: Based on historical records, it appears that tank driving training did occur at the former Fort Ord; however, no evidence of firing from tanks has been identified. The Group 2 RI/FS includes a site-specific evaluation of archival and field-based investigation data. As stated in Section 4.2.2, Types of Munitions Removed, of the Group 2 RI/FS Volume 1, antitank munitions were recovered on the MRA. Recovered munitions included M22 antitank guided missile simulator, M1A1and 604 practice antitank mine fuzes, and M1 antitank mine activators; however, these were non-penetrating items and would be expected to be found at or near the surface. Additionally, very few M11 antitank practice rifle grenades and 35 mm M73 antitank sub caliber practice rockets were recovered during the removal actions conducted within the CSUMB Off-Campus MRA indicating that training specifically associated with these items did not likely occur in this area (ESCA RP Team 2013).

The Group 2 RI/FS also included a risk assessment and an evaluation for remedial alternatives considered for the CSUMB Off-Campus MRA. Residual risks were carefully considered during the risk assessment process and LUCs, specifically designed to address residual risks, have been identified for the CSUMB Off-Campus MRA.

A5: A commenter suggested that additional information may be available that supports the preferred remedial alternative, such as records from the Army's munitions response site security program, which

documents discovery of munitions items. The commenter stated that since the time the munitions response actions were completed, many individuals who received MEC recognition and safety training have participated in activities that have the potential to uncover munitions items at the CSUMB Off-Campus MRA, such as community events including organized trash collections, and site walks performed by FORA and the regulatory agencies. Information gathered from these activities is valuable and should be documented in the Record of Decision.

Response: Records of MEC incidents were reviewed and no incidents were reported for the CSUMB Off-Campus MRA. With the selection of the final remedy, FORA or its successor will notify the regulatory agencies, as soon as practicable, of any MEC-related data identified during use of the property. Information for the CSUMB Off-Campus MRA regarding MEC finds will be reported by FORA or its successor annually. This information will be evaluated by the Army during the five-year review process to determine whether the selected remedy continues to be protective of human health and the environment. The next five-year review will occur in 2017.

B. Community Involvement and Outreach

B1: Comments were made regarding involvement of the community, including CSUMB faculty and students, during the cleanup process. Concern was expressed that community members may not have been adequately informed about the cleanup process and associated activities, and that they were not present at the Proposed Plan public meeting.

Response: Working with the community throughout the cleanup process is an important priority to the Army. The Army strives to do this through, in part, making the cleanup information available to the public and inviting the public to participate in the decision-making process. The Fort Ord Cleanup Program maintains an extensive community outreach program to keep the public informed about the cleanup activities at the former Fort Ord and provide opportunities for the public to participate during the decision-making process. An extensive public participation process is also being implemented by FORA as part of the ESCA Remediation Program at the former Fort Ord. The Group 2 CSUMB Off-Campus MRA is part of the ESCA Remediation Program.

Information about the Group 2 RI/FS has been presented to the community through newsletters, ESCA Informal Community Workshops, and Army Community Involvement Workshops. As part of the Fort Ord Cleanup Program's extensive community outreach program, the draft and draft final Group 2 RI/FS Work Plan were made available for public review and comment, and the comments were considered and incorporated into the Final Group 2 RI/FS Work Plan, which was issued on July 8, 2009. The draft and draft final Group 2 RI/FS were also provided for review and comment by the public, and the comments were considered and incorporated into the Final Group 2 RI/FS on February 18, 2013. The Proposed Plan for the CSUMB Off-Campus MRA was made available to the public on June 5, 2013 for a 30-day public comment period. The Army made these documents available to the public in the following manner:

- California State University Monterey Bay (CSUMB) Tanimura & Antle Family Memorial Library, Divarty Street, CSUMB Campus, Seaside, California
- Seaside Library, 550 Harcourt Avenue, Seaside, California
- Fort Ord Administrative Record, Building 4463, Gigling Road, Room 101, Ord Military Community, California
- www.fortordcleanup.com website

- Approximately 800 copies of the Proposed Plan were mailed out to the Army's mailing list on June 5, 2013
- Over 2,200 e-mails were sent notifying interested community members of the availability of the Group 2 Proposed Plan, the public comment period, and the public meeting
- Copies of the Proposed Plan were distributed at the June 19, 2013 Proposed Plan public meeting

Notices of the availability of the Proposed Plan and the date and location of the Proposed Plan Public Meeting were published in the Monterey County Herald and the Salinas Californian on June 12, 2013. Additionally, notices on the availability of the Proposed Plan were published using the:

- Army website
- FORA website
- FORA ESCA Remediation Program website
- FORA ESCA Remediation Program Facebook page
- FORA ESCA Remediation Program email list

B2: A commenter stated that the title of the Proposed Plan was not clear in conveying the purpose of the document, and noted points of the Proposed Plan as needing further clarification for the public.

Response: As described in the Decision Making Process section (page 2) of the Group 2 Proposed Plan, the purposes of the document are to:

- Provide background information about the CSUMB Off- Campus MRA
- Describe the remedial options considered
- Identify the Preferred Alternative for remedial action at the CSUMB Off-Campus MRA 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 for the CSUMB Off-Campus MRA.

The Proposed Plan's primary audience is the public. It was prepared in compliance with Section 117(a) of the CERCLA, or Superfund, and follows EPA guidance (EPA 1999). Non-technical language is used wherever possible and appropriate. Necessary technical terminology is defined in the glossary on pages 13 through 15 of the Proposed Plan. References to key supporting documents were provided, as well as how the documents can be accessed and contact information for the Army and regulatory agency representatives available to assist with understanding the information.

B3: A commenter asked how the public will be alerted in the event of an accident involving munitions at CSUMB Off-Campus MRA, and how the public will be notified of discoveries of munitions items.

Response: As described in the Proposed Plan (page 11), an RD/RA Work Plan will be developed by FORA for the CSUMB Off-Campus MRA. This work plan will include procedures for responding to and reporting future discovery of MEC in the CSUMB Off-Campus MRA. A process has been developed for reporting the discovery of MEC to an appropriate local law enforcement agency. The local law enforcement agency will promptly request response by UXO-qualified personnel. Any MEC finds or incidents will be reported immediately to the regulatory agencies and will be documented in annual reports. Annual reports will be made available on the Fort Ord Administrative Record which can be accessed online at www.fortordcleanup.com.

C. Other Comments

C1: A commenter expressed concerns that chemical contamination of the soil from munitions, pesticides, and herbicides in the area of the CSUMB Off-Campus MRA and elsewhere on the former Fort Ord had not been sufficiently addressed.

Response: The purpose of the Group 2 RI/FS, Proposed Plan, and this ROD, is to address the potential risk to future land users from MEC that potentially remain in the CSUMB Off-Campus MRA. Comments regarding soil contamination have previously been received during the development of the Group 2 RI/FS, and relevant information was incorporated into the final version as appropriate. Please refer to the responses to comments provided in Appendix C of the Group 2 RI/FS (ESCA RP Team 2013). In addition, the Administrative Record is a source of information on the cleanup of the former Fort Ord. The Fort Ord Administrative Record can be accessed online at www.fortordcleanup.com.

The Group 2 RI/FS and Proposed Plan only address the areas included within the CSUMB Off-Campus MRA. Areas located outside of the subject MRA are beyond the scope of the Group 2 RI/FS and Proposed Plan.

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TABLES

Table 1. Summary of Munitions Response Site (MRS) Investigations Record of Decision, Group 2 California State University Monterey Bay Off-Campus Munitions Response Area, Former Fort Ord, California

MRS Site Number	Site Acreage	Site Name	Past Use	Site Investigation Status **
MRS-31 (includes MRS-04C, MRS-07, MRS-08, and MRS-18)	307.3	CSU Footprint	Chemical, biological, and radiological training in MRS-04C; mine and booby trap training in MRS-07 and MRS-08; minefield practice in MRS-18; troop maneuvers, confidence course, land navigation training, practice hand grenade training, and practice rifle grenade training	MEC removal to 3 and 4 feet bgs completed
MRS-13B	1.2*	Practice mortar range	Practice mortar training	MEC removal to 4 feet bgs completed
MRS-13C	24.1	CSU Footprint - Wedge	Practice mortar training	MEC removal to 4 feet bgs completed

Acronyms

MRS = munitions response site
MEC = munitions and explosives of concern
bgs = below ground surface

Footnotes

* Acreage stated is the portion of the MRS contained within the designated MRA.

** All detected anomalies (i.e., ferromagnetic material) were investigated and all detected MEC were removed during MEC removal actions.

Table 2. Summary of Group 2 MRA Transfer Parcels Record of Decision, Group 2 California State University Monterey Bay Off-Campus Munitions Response Area, Former Fort Ord, California

Transfer Parcel No.	Approx. Acreage	Planned Reuse *
S1.3.2 (western portion)	49	Residential (CSUMB campus housing)
S1.3.2 (eastern portion)	284	Non-residential (CSUMB open space park)

Acronyms

CSUMB = California State University Monterey Bay

Footnotes

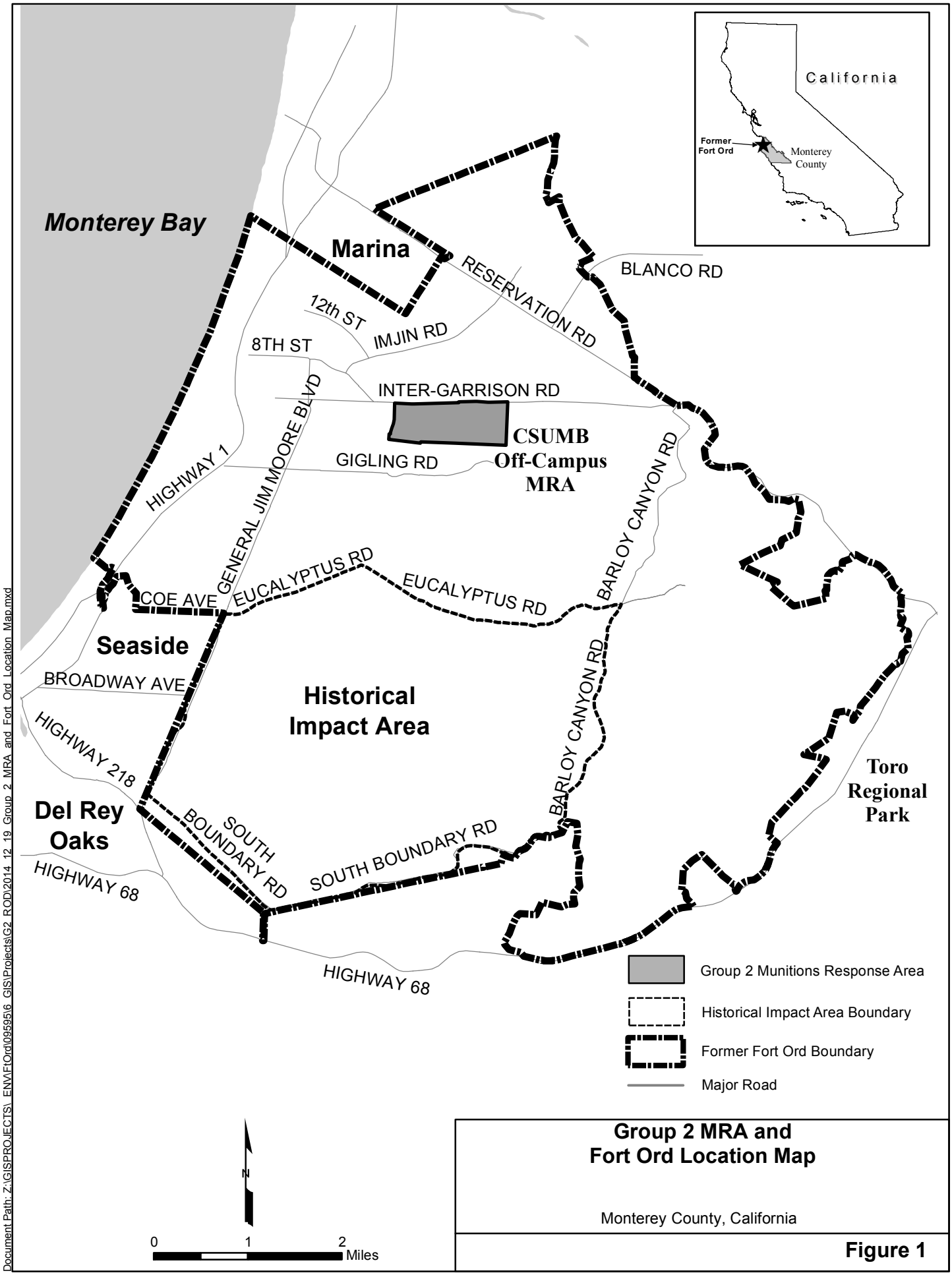
* Planned use information obtained from the *FORA Fort Ord Reuse Plan* (FORA 1997) and *CSUMB Master Plan, Volume I, Design Plan* (CSUMB 2007).

Table 3. Summary of Remedial Alternatives Evaluation and Comparison
Record of Decision, Group 2 California State University Monterey Bay Off-Campus
Munitions Response Area, Former Fort Ord, California

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 [1]	Implementability	Cost	State Acceptance	Community Acceptance
Alternative 1 - No Further Action	Not protective; does not mitigate potentially remaining MEC risks to intrusive workers	No 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	Not acceptable	Not acceptable
Alternative 2 - Land Use Controls	Protective to construction and maintenance workers; mitigates risks to future residents	Continued implementation of land use restrictions with no ARARs identified for this alternative	Effective in the short-term; implementation of LUCs to mitigate MEC 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	$1,204,000	Accepted as the preferred alternative	Acceptable to some community members
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	May be effective in the long-term; additional risk mitigation may be required after additional MEC remediation	May result in MEC reduction if additional MEC is discovered and removed during remediation	Technically and administratively feasible to implement	$6,920,000	Not selected	Acceptable to some community members

Acronyms
ARARs = applicable or relevant and appropriate requirements
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
EPA = U.S. Environmental Protection Agency
LUCs = Land Use Controls
MEC = munitions and explosives of concern
MRA = munitions response area
Footnotes
[1] = Completed MEC removal actions already provide for reduction of volume.

FIGURES



Group 2 MRA and Fort Ord Location Map

Monterey County, California

Figure 1

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MRS-18:MRS-31

MRS-08:MRS-31

MRS-07:
MRS-31

MRS-04C:MRS-31

INTER-GARRISON RD

ABRAMS DR

8TH AVE

Residential
(CSUMB
Campus
Housing)

Non-residential
(CSUMB Open
Space Park)

MRS-31

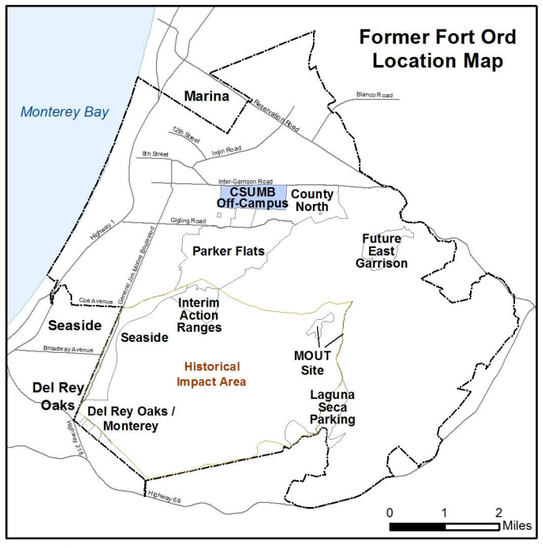
Parcel S1.3.2

MRS-13C

MRS-13B

Legend

- Munitions Response Area (area subject to Land Use Controls)
- Area Subject to Residential Use Restriction
- USACE Parcel
- MRS-31 — Munitions Response Site
- Major Road



N

0 600 1,200 Feet

CSUMB Off-Campus MRA Reuse Areas and Munitions Response Sites

Monterey County, California

Figure 2

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APPENDIX A

GLOSSARY OF MILITARY MUNITIONS RESPONSE PROGRAM TERMS

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Glossary of Military Munitions Response Program Terms

Administrative Record – A compilation of all documents relied upon to select a remedial action pertaining to the investigation and cleanup of the former Fort Ord. *Source:* (1).

After Action Report (AAR) – A report presenting the results of munitions and explosives of concern (MEC) investigation, sampling and/or removal actions conducted at a site pertaining to the investigation and cleanup of the former Fort Ord. *Source:* (1).

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. *Source:* (1).

Construction Support – Assistance provided by the Department of Defense (DOD), explosive ordnance disposal (EOD) or unexploded ordnance (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., discarded military munitions [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. *Source:* (3).

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 unexploded ordnance (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)).

For the purposes of the basewide Military Munitions Response Program (MMRP) being conducted at the former Fort Ord, DMM does not include small arms ammunition (.50 caliber and below).

Engineering Control (EC) – A variety of engineered remedies to contain and/or reduce contamination, and/or physical barriers intended to limit access to property. Some examples of ECs include fences, signs, guards, landfill caps, soil covers, provision of potable water, slurry walls, sheet pile (vertical caps), pumping and treatment of groundwater, monitoring wells, and vapor extraction systems. *Source:* (5).

Expended – The state of munitions debris (MD) in which the main charge has been expended leaving the inert carrier. *Source:* (1).

Feasibility Study (FS) – An evaluation of potential remedial technologies and treatment options that can be used to clean up a site. *Source* (1).

Historical Impact Area – The historical impact area consists of approximately 8,000 acres in the southwestern portion of former Fort Ord, bordered by Eucalyptus Road to the north, Barloy Canyon Road to the east, South Boundary Road to the south, and North-South Road (renamed General Jim Moore Boulevard) to the west. *Source:* (1).

Institutional Control (IC) – (a) Non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination by limiting land or resource use; (b) are

generally to be used in conjunction with, rather than in lieu of, engineering measures such as waste treatment or containment; (c) can be used during all stages of the cleanup process to accomplish various cleanup-related objectives; and (d) should be "layered" (i.e., use multiple ICs) or implemented in a series to provide overlapping assurances of protection from contamination. *Source:* (6).

Land Use Controls (LUCs) – LUC 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 encompass a variety of engineering remedies to contain or reduce contamination and/or physical barriers to limit access to real property, such as fences or signs. *Source:* (3).

Magnetometer – An instrument used to detect ferromagnetic (iron-containing) objects. Total field magnetometers measuring the strength of the earth's natural magnetic field at the magnetic sensor location. Gradient magnetometers, sensitive to smaller near-surface metal objects, use two sensors to measure the difference in magnetic field strength between the two sensor locations. Vertical or horizontal gradients can be measured. *Source:* (4).

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 (DOD), 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 of the above.

The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, other than 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) – Department of Defense (DOD)-established program to manage the environmental, health and safety issues presented by munitions and explosives of concern (MEC). *Source:* (1).

Mortar – Mortars typically range from approximately 1 inch to 11 inches in diameter or larger, and can be filled with explosives, toxic chemicals, white phosphorus or illumination flares. Mortars generally have thinner metal casing than projectiles but use the same types of fuzing and stabilization. *Source:* (2).

Munitions Constituents (MC) – Any materials originating from unexploded ordnance (UXO), discarded military munitions (DMM), or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (10 U.S.C. 2710 (e) (3)).

Munitions Debris (MD) – Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. *Source* (3).

Munitions and Explosives of Concern (MEC) – Distinguishes specific categories of military munitions that may pose unique explosives safety risks, such as: (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) munitions constituents (e.g., Trinitrotoluene [TNT], Cyclotrimethylene trinitramine

[RDX]), as defined in 10 U.S.C. 2710(e)(3), present in high enough concentrations to pose an explosive hazard. (32 CFR 179.3).

For the purposes of the basewide Military Munitions Response Program (MMRP) being conducted for the former Fort Ord, MEC does not include small arms ammunition (.50 caliber and below).

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). Examples are former ranges and munitions burial areas. A MRA comprises of one or more munitions response sites (MRSs). (32 CFR 179.3).

Munitions Response Site (MRS) – A discrete location within a Munitions Response Area (MRA) that is known to require a munitions response. (32 CFR 179.3).

No Further Action – Determination following a remedial investigation or action that a site does not pose a significant risk and so requires no further activity under Comprehensive Environmental Response, Compensation, and Liability Act **(**CERCLA). *Source:* (1).

Projectile – An object projected by an applied force and continuing in motion by its own inertia, as a bullet, bomb, shell, or grenade. Also applied to rockets and to guided missiles. *Source:* (2).

Proposed Plan – A plan that identifies the preferred alternative for a site cleanup, and is made available to the public for comment. *Source:* (1).

Record of Decision (ROD) – A ROD is the document used to record the remedial action decision made at a National Priorities List property. The ROD will be maintained in the project Administrative Record and project file. *Source:* (1).

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. *Source:* (1).

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 materials; and (C) remain unexploded, whether by malfunction, design, or any other cause. (10 U.S.C. 101(e)(5)(A through C)).

For the purposes of the basewide Military Munitions Response Program (MMRP) being conducted for the former Fort Ord, UXO does not include small arms ammunition (.50 caliber and below).

UXO-Qualified Personnel – Personnel who have performed successfully in military explosives ordnance disposal (EOD) positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: Unexploded Ordnance (UXO) Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist or Senior UXO Supervisor. *Source:* (3)

Sources:

(1) Non-standard definition developed to describe Fort Ord-specific items, conditions, procedures,

principles, etc. as they apply to issues related to the munitions and explosives of concern (MEC) cleanup.

(2) U.S. Department of Defense Environment, Safety and Occupational Health Network and Information Exchange. 1996. Unexploded Ordnance (UXO): An Overview. October.

(3) U.S. Department of Defense Manual Number 6055.09-M, Volume 8, SUBJECT: DoD Ammunition and Explosives Safety Standards: Glossary, Administratively Reissued. August 4, 2010.

(4) Survey of Munitions Response Technologies, June 2006. ITRC with ESTCP (Environmental Security and Technology Certification Program) and SERDP (Strategic Environmental Research and Development Program).

(5) Compendium of Department of Defense Acronyms, Terms, and Definitions. The Interstate Technology and Regulatory Council (ITRC) Work Group (Unexploded Ordnance Work Team), December 2000.

(6) Institutional Controls: A Site Managers' Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups. US EPA Office of Solid Waste and Emergency Responses (OSWER) 9355.0-74FS-P, EPA 540-F-00-005. September, 2000.