U.S. Army Corps of Engineers, Sacramento District

PROPOSED PLAN FOR MUNITIONS RESPONSE ACTION – FINAL

El Centro Rocket Target No. 2 (#93) Munitions Response Site.
Formerly Used Defense Site (FUDS) Project No. J09CA014701 - Imperial County, CA

May 2025

INTRODUCTION

Purpose

This **Proposed Plan** is being presented by the U.S. Army Corps of Engineers (USACE), Sacramento District for the public to review and comment on the proposed decision for No Action at the El Centro Rocket Target No. 2 (#93) **munitions response site (MRS)** located in Imperial County, California (CA). (**Figure 1**). This Proposed Plan is prepared in accordance with Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)** which provides opportunities for public input in the site decision-making process.

This Proposed Plan identifies that the lead agency has determined that no action is necessary to protect public health or welfare or the environment at the El Centro Rocket Target No. 2 (#93) (hereafter referred to as "El Centro Rocket Target No. 2") and provides the rationale for this preference determination. This plan summarizes information in the **Remedial Investigation (RI)** Report (USACE, 2024). The USACE Sacramento District encourages the public to review the RI Report to gain a more comprehensive understanding of the site. In December 2024, the CA Department of Toxic Substances Control (DTSC) rescinded their approval of the RI report. A copy of the RI Report is located at the Information Repository locations for this site.

No **munitions and explosives of concern (MEC)** were identified during the RI. Only **munitions debris (MD)** associated with practice munitions were recovered. The MEC risk assessment conducted by the USACE project team and BLM for El Centro Rocket Target No. 2 did not identify unacceptable risks from explosive hazards under current and reasonably anticipated future land use scenarios.

This Proposed Plan contains terms (**in bold letters**) used for environmental remediation and the overall **Military Munitions Response Program (MMRP)**. These terms are described in the Glossary found at the end of this document.

A list of acronyms and abbreviations used in this document is presented following the Glossary at the back of this document.

Dates to Remember:
PLEASE MARK YOUR CALENDAR!

PUBLIC COMMENT PERIOD:
02 June 2025 – 03 July 2025

The USACE will accept written comments on the Proposed Plan during the public comment period.

Written comments and/or a request for a public meeting may be sent to U.S. Army Corps of Engineers, Sacramento District Public Affairs Office or via email at the following addresses:

U.S. Army Corps of Engineers, Sacramento District
Attn: Public Affairs Office
1325 J St
Sacramento, CA 95814

spk-pao@usace.army.mil

If requested by the public, a public meeting will be hosted virtually during the public comment period to discuss the Proposed Plan. If requested, details will be made available on the Project Website:
https://www.spk.usace.army.mil/Missions/Military-Projects/FUDS/El-Centro-Rocket-Target-Range-No-2/

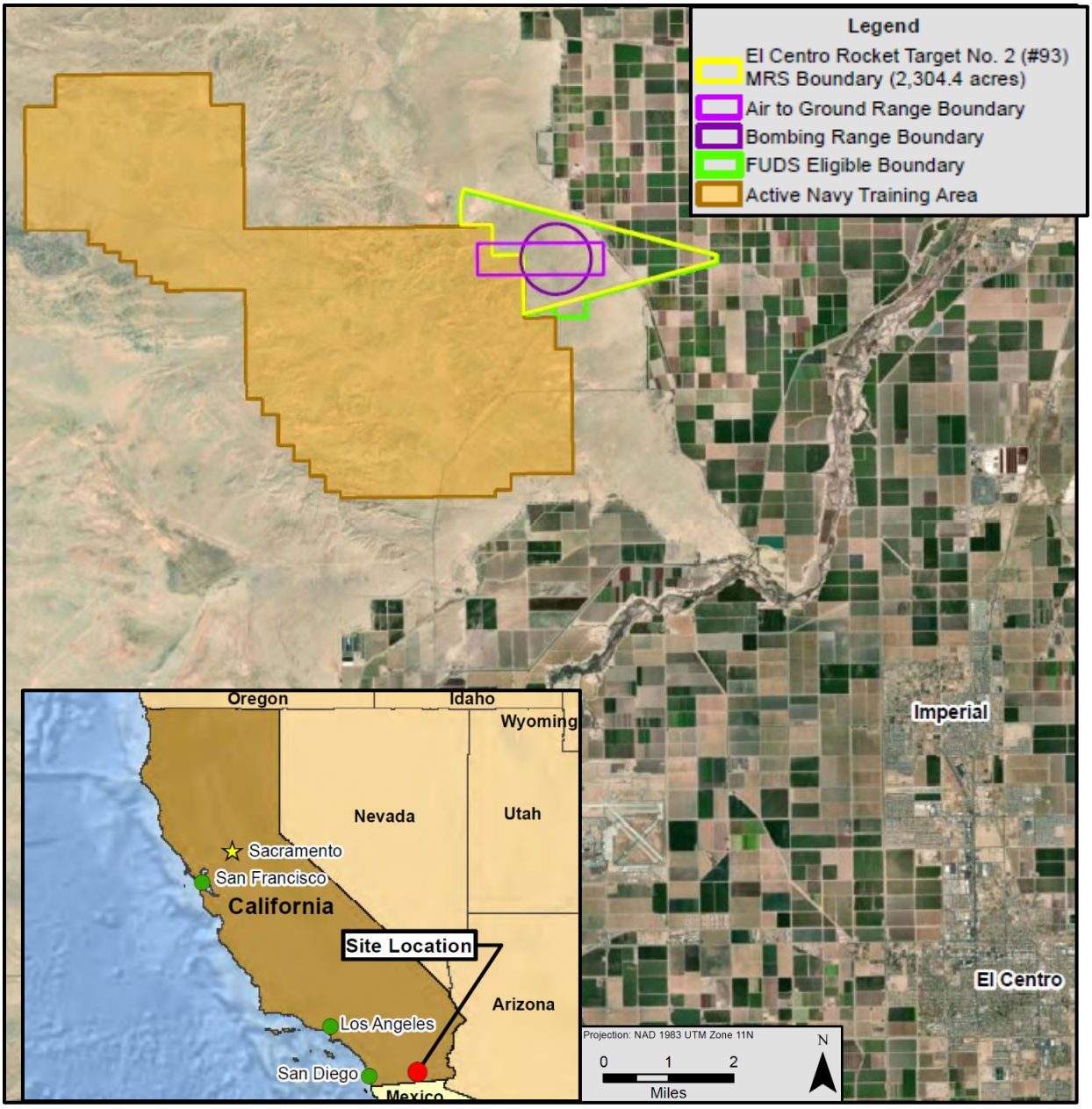
For more information, please see the Information Repository locations at:

El Centro Library
1198 N Imperial Avenue
El Centro, CA 92243

U.S. Army Corps of Engineers, Sacramento District
1325 J St, Room 1640
Sacramento, CA 95814

Similarly, with regards to **munitions constituents (MC)**, the human health risk assessment and screening level ecological risk assessment concluded that unacceptable risks to human health are not expected under current and reasonably anticipated future land use scenarios and potential adverse effects to ecological receptors due to exposure to antimony and zinc in surface soil at the MRS are unlikely.

Figure 1: El Centro Rocket Target No. 2 General Location Map



Since no unacceptable risks were identified for current and reasonably anticipated future land use at the El Centro Rocket Target No. 2 MRS, no remedial action or **Feasibility Study** was warranted. After reviewing and considering all information submitted during the public comment period, USACE will present its final decision in a **Record of Decision (ROD)**. USACE may modify its proposed decision for No Action based on new information or public comments. For this reason, the public is encouraged to review and comment on this Proposed Plan.

Scope and Role of Munitions Response Site

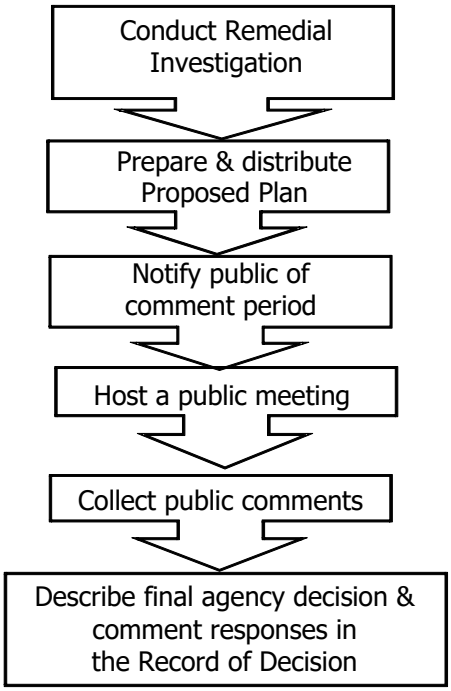
No prior removals or remedial actions have been documented for the El Centro Rocket Target No. 2 **Formerly Used Defense Site (FUDS)**. El Centro Rocket Target No. 2 is the only MRS identified for this property and no other response actions are anticipated to be needed to reduce the risk of hazards associated with potential exposure to MEC and/or MC. The no action decision would result in project and property closeout for El Centro Rocket Target No. 2.

Public Involvement Process

Local community members and other interested parties are encouraged to review this Proposed Plan and submit comments. USACE will consider public comments before making a final determination for the El Centro Rocket Target No. 2 MRS. The USACE, the lead agency for site activities, will make a determination on the proposed No Action decision for El Centro Rocket Target No. 2 after reviewing and considering all information submitted during the public comment period. The USACE may modify its proposed decision for No Action based on new information or public comments. This Proposed Plan is a component of the requirements of Section 117(a) of the CERCLA, and Sections 300.430(f)(2) and 300.430(f)(3) of the National Oil and Hazardous Substances Pollution Contingency Plan. This document summarizes information that can be found in greater detail in the RI report and other documents contained in the Information Repository for this site (see address on Page 1). The public is encouraged to review these documents to gain a more comprehensive understanding of the site, and activities conducted at the site. The Proposed Plan follows the requirements of Engineer Regulation 200-3-1 (USACE, 2020), the FUDS Handbook (USACE, 2022) and the U.S. Environmental Protection Agency (USEPA) guidance provided in A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (USEPA, 1999).

The decision for El Centro Rocket Target No. 2 will be presented in a ROD. The USACE responses to public comments on this Proposed Plan will appear in the "Responsiveness Summary" section of the ROD. The flow chart shown in **Figure 2** summarizes the various steps in the development process to achieving a ROD.

Figure 2: Public Involvement Process



Lead and Support Agencies

The USACE is the lead agency for investigating, reporting, and making remedial decisions at the El Centro Rocket Target No. 2 MRS. The CA DTSC is the lead regulatory agency.

The western half of the MRS is managed by the Bureau of Land Management (BLM), and therefore BLM is considered a major stakeholder. BLM supported the RI, including being part of the MEC risk assessment team. Due to the proximity of the adjacent active U.S. Navy training area to the west of the MRS, the U.S. Navy is also considered a stakeholder. A representative from the U.S. Navy participates in project meetings, however, the U.S. Navy is not involved in document reviews.

PROJECT SITE BACKGROUND

Site History and Causes of Contamination

In 1944, the Eleventh Naval District acquired approximately 400 acres of desert land from the Department of Interior and established El Centro Rocket Target No. 2. The Navy used the site as a rocket, bombing and strafing target for Fleet Unit training from 1944 to 1946. On April 23, 1945, the Commander of the Eleventh Naval District changed the number system of all the El Centro targets, and El Centro Target #2 became El Centro Target #93. The Navy discontinued use of the site on October 24, 1946. Approximately half of the FUDS-eligible property is public land currently managed by the BLM. The remaining portion of the site is privately owned.

The El Centro Rocket Target No. 2 is comprised of 2,304.4 acres. The munitions used at El Centro Target No. 2 included practice bombs (and their associated spotting charges and signals), practice rockets, practice projectiles (20-millimeter), and small arms ammunition. Based on the suspected site history, the site was investigated for contamination caused by past munitions activity. The site was investigated for residual MEC, as well as contamination resulting from release of MC to the environment. MC are considered to be chemicals that could cause contamination as a result of munitions activity at the site and include explosives and MC metals that are common among World War II era munitions (i.e., antimony, copper, lead, and zinc).

Previous Investigations

The **Inventory Project Report (INPR)** (USACE, 1993) was completed in September 1993. The INPR established the site as a FUDS, established the acreage, and assigned the FUDS project number (J09CA014701). A site visit was conducted for the INPR on May 3, 1993. Ordnance found included flares, one 5-inch shell, multiple blasting caps, fuzes (likely the electrical cables for the 2.25-inch and 3.25-inch rockets), multiple .50-caliber links, and one 25-lb practice bomb. Note, the use of "shell" in the INPR is a misapplication of terminology. This item was likely a 5-inch practice rocket warhead based on history of munitions use and subsequent investigations at the site.

Following the INPR an **Archive Search Report (ASR)** and ASR Supplement were conducted in 1996 and 2004 respectively. The initial 1996 ASR included a site visit to verify information found in the historical records. The primary focus of the site visit was to locate evidence of ordnance and explosives on the surface. During the site visit, ordnance observed included a Mk1 series 5-inch rocket warhead (plaster filled), debris from 20-millimeter target practice (TP) projectiles, debris from 3-lb miniature practice bombs, and electrical cables for 2.25-inch and 3.25-inch rockets. The ASR reports that only conventional ordnance was used at the El Centro Target No. 2 (USACE, 1997).

A Site Inspection (SI) was completed at El Centro Rocket Target No. 2 in 2008. The SI evaluation included performing approximately 15.6 miles of qualitative reconnaissance (i.e., meandering transects throughout the MRS) within the El Centro Target No. 2. During the qualitative reconnaissance, one .50-caliber round (small arms ammunition) and two practice 5-inch High Velocity Aircraft Rocket (HVAR) warheads were observed during the SI field effort. Although the .50-caliber round was mistakenly originally identified as MEC during the SI, small arms ammunition are not considered MEC, therefore that discovery is not considered to be MEC. Additionally, the site visit team observed MEC from two modern aircraft parachute illumination flares within the El Centro Target No. 2. Modern munitions identified at the El Centro Target No. 2 are from the adjacent active Naval range and are not FUDS-related (i.e., munitions that are post-1986 do not fall under the purview of the FUDS program). Small arms ammunition debris (bullets, casings, and links) was observed. MD from 20-millimeter projectiles, practice bombs (AN-Mk 43), rockets (2.25-inch sub-caliber aircraft rocket and 5-inch HVAR), and from modern aircraft parachute illumination flares were also observed.

In addition, 12 discrete surface soil samples and two associated field duplicate samples were collected and analyzed for explosives and metals as part of the SI. Explosives were reported as non-detections at concentrations less than the project screening levels for all samples. Metals were detected in all soil samples collected, but the concentration of each evaluated non-essential MC metal was less than the respective human health screening value.

PROJECT SITE CHARACTERISTICS

Location

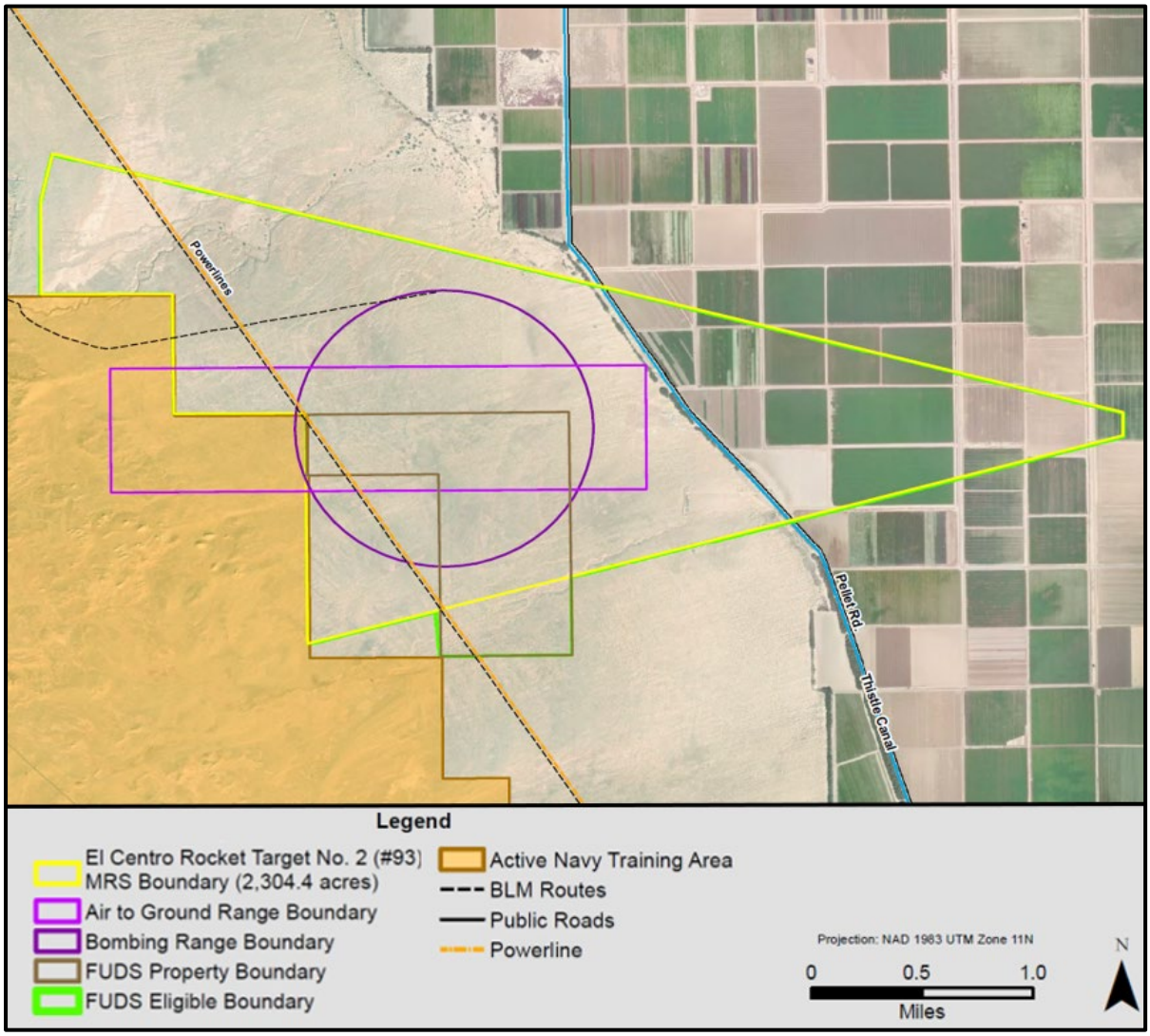
The El Centro Rocket Target No. 2 is located within the Imperial Valley in the east half and the northwestern quarter of Section 13, Township 14 South, Range 12 East of Imperial County, California. El Centro Rocket Target No. 2 lies approximately 10 miles northwest of the town of El Centro, California and 12 miles due south of the Salton Sea in the south of California (**Figure 1**). The site is split in two by the Thistle Canal, the area to the east of which is used for farmland. To the west of Thistle canal is smooth undeveloped desert plains (**Figure 3**).

Physical Characteristics

The El Centro Rocket Target No. 2 is located within the Imperial Valley of California. The terrain of the Imperial Valley of California consists mostly of smooth plains. The topography at the site ranges from 90 feet below sea level to 40 feet above mean sea level.

There are no rivers or streams, active or dry, at the El Centro Rocket Target No. 2. Natural drainage at the site occurs through washes, draws, and gullies (trenches cut out by the natural drainage of runoff from precipitation). These trenches are dry in times of no precipitation. These natural runoff drainage trenches empty into rivers or canals. Surface water in the area of the El Centro Rocket Target No. 2 drains east into the Thistle Canal, which drains into

Figure 3: El Centro Rocket Target No. 2 Munitions Response Site Overview



the New River, which eventually drains into the Salton Sea. The site itself is underlain by the Imperial Valley groundwater basin, which is bounded on the east by the Sand Hills and on the west by the impermeable rocks of the Fish Creek and Coyote Mountains. To the north, the basin is bounded by the Salton Sea, which is the discharge point for groundwater in the basin. The basin has two major aquifers, an upper and a lower, that consist mostly of alluvial deposits of late Tertiary and Quaternary age.

The vegetation that grows naturally in this area is mostly brush and shrublands. Predominant potential natural communities include the creosote bush, bursage, allscale, salt bush, mesquite, ocotillo, and fan palm (U.S. Department of Agriculture, 2008). The portion of the site that lies east of Thistle Canal is agricultural land used for crops that rotate throughout the year.

There is no designated critical habitat at El Centro No. 2 and there is low potential for any species protected under the state or federal Endangered Species Act to occur within the project area. Several California species of special concern (those not yet formally listed but recognized as vulnerable) were observed during the RI, including flat-tailed horned lizards, a fringe-toed lizard, burrowing owls, and loggerhead shrikes.

Land Use

Approximately half of the MRS is managed by the BLM (i.e., the western portion of the El Centro Target No. 2) and is located within a "Limited Use" area. Travel on BLM land is allowed only on designated routes, and no off-route travel is allowed in "Limited Use" areas. The remaining portion of the site is privately owned. The portion of the FUDS-eligible property located east of Pellett Road is intensively used for agricultural purposes.

Information obtained from BLM (USACE, 2024) notes that the California desert is a regional recreation resource, attracting not only local residents, but visitors from an area encompassing all of Southern California, and to a lesser degree, other regions of the United States and Canada. The area is open year-round, but visitation increases significantly during the winter months. Visitation on regular weekdays is usually very low but increases during the weekends. Specifically, for the El Centro Target No. 2, BLM stated that there is not much camping, but the area is used by the locals for day-use: off-highway vehicle riding and target shooting. Drivers tend to stay on designated roads and trails but some areas near the roads are used by utility task vehicle and all-terrain vehicle drivers as staging areas. BLM estimates 1,500 to 3,000 visitors per year to the El Centro Target No. 2, with most of those numbers coming from wintertime weekends. BLM patrols the area to enforce regulation compliance with most patrolling taking place during the weekends when visitation is at its peak. The Imperial County Sheriff's Office also patrols the area and enforces County and State regulations. Few intrusive activities are conducted in the area, but from BLM's observations, most happen in proximity to the legal roads and trails. For the portion of the MRS utilized for agricultural purposes, intrusive activities performed include mechanized agricultural practices (e.g., tilling) down to a depth of 12 inches. Activities limited to the surface include maintenance of surface-based irrigation lines. There has been no historical evidence or documentation of MEC being uncovered by agricultural activities.

Based on information provided by BLM in February 2024, plans are being evaluated to upgrade/replace the existing above ground power transmission line that bisects the MRS. Future plans include installing a power transmission line utilizing the existing power line's footprint or constructing a separate power line running parallel. As of March 2024, plans are in the early stages of development and a system impact study is being conducted by the owner of the transmission line. Once complete, the transmission line may be left undisturbed for 30 years or more. However, there is periodic inspection work as well as any maintenance necessary depending on its condition. The depth required for either direct burial or foundational work would all be design specific, which cannot be provided at this time. It is assumed that foundational work would be performed down to depths exceeding 10 ft.

BLM expressed an expectation that land use may include an expansion of mineral extraction areas (i.e., mining) or geothermal investigations/ development; however, in the absence of supporting documentation the reasonably anticipated future land use of the El Centro Rocket Target No. 2 MRS is expected to remain the same as current use.

Nature and Extent of Contamination

Background

During the RI, initial surveys were conducted using geophysical instruments (i.e., EM61-MK2) to identify magnetic irregularities in the subsurface – termed "**anomalies**". These subsurface anomalies could be buried debris (e.g., construction debris, irrigation pipe, barbed wire, etc.) or a potential munitions item.

An area with numerous anomalies (termed a **high density (HD) area**) may be indicative of a **high use area (HUA)**, where munitions use has been confirmed. Alternatively, an area within an MRS that has few anomalies (termed a **low density (LD) area**) may be indicative of a **low use area (LUA)**. This is an area where there is a low potential for munitions to be present due to limited historical munitions use (e.g., buffer zone).

Once the potential HUA was identified, and the boundaries refined through the collection of additional delineation geophysical surveys, additional surveys were conducted using an **advanced geophysical classification (AGC)** instrument along transects in a cross pattern to identify and classify anomalies that would then be intrusively investigated to identify the source of the anomalies. The following subsections provide an overview of the approach and results from the RIs performed at El Centro Rocket Target No. 2 for MEC and MC. The nature and extent of contamination results are presented in detail in the RI Report (USACE, 2024).

Munitions and Explosives of Concern (MEC)

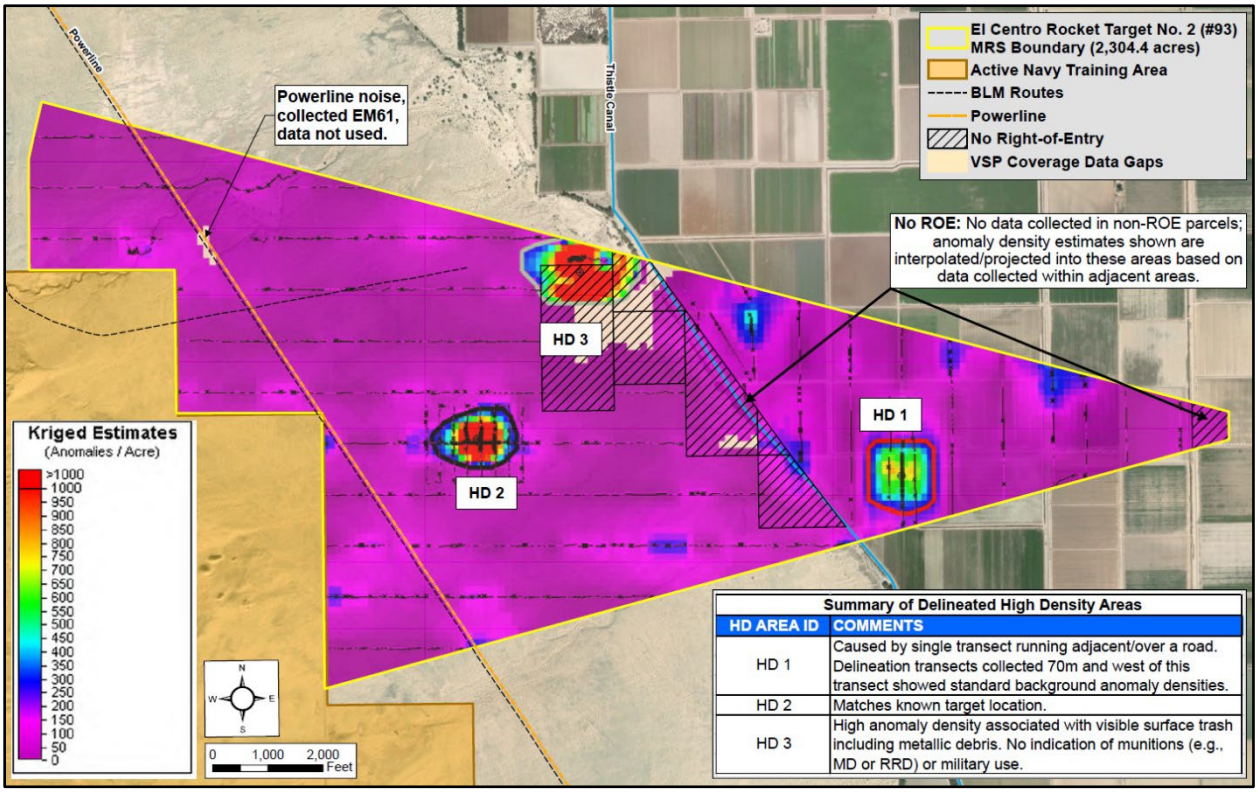
A RI was performed to complete the characterization of MEC at the El Centro Rocket Target No. 2 MRS. The work was conducted in accordance with the objectives and goals presented in the accepted Uniform Federal Policy – Quality Assurance Project Plan (UFP-QAPP) (USACE, 2021) and followed the general MEC characterization tasks:

- Conducting preliminary characterization by collecting **digital geophysical mapping (DGM)** transects using an EM61-MK2 to estimate anomaly density across the site to identify the HD area(s);
- Performing detailed characterization at the HD area by conducting AGC surveys involving dynamic AGC data collection transects utilizing the UltraTEM Classifier to further delineate HD areas and identify the locations of geophysical **targets of interest** in the subsurface; and
- Intrusive investigation of targets of interest within the HD area to evaluate whether it is considered a HUA or added to the surrounding LUA.

Consistent with the objectives identified in the UFP-QAPP, DGM transect coverage for the El Centro Rocket Target No. 2 MRS was designed to identify a 217-meter radius target area with an average anomaly density at the target edge of 20 anomalies per acre above background density (assumed as 100 anomalies per acre) with 100% confidence. This analysis resulted in transects spaced at 280-meter intervals covering the entirety of the MRS.

A threshold was agreed to by the project team, in which areas exceeding 250 anomalies per acre would define HD areas representing potential target impact areas for the El Centro Rocket Target No. 2 MRS (USACE, 2024). Based on the anomaly density evaluation utilizing **Visual Sample Plan (VSP)** and the 250 anomaly per acre threshold agreed to by the project team, three HD areas were identified: HD 1, HD 2, and HD 3 (**Figure 4**). However, one area (HD 3) was associated with a large historic refuse deposit consisting of a wide range of household refuse (glass, cans, furniture, automotive parts, construction debris, electronics, refrigerators, a water heater, and other abandoned appliances). There were no indicators of munitions and therefore, was excluded from additional investigation under the RI. Another area, HD 1, was caused by single transect running adjacent/over a road near agricultural irrigation lines. Additional delineation transects were collected 70m east and west of this initial transect and indicated typical background anomaly densities in the vicinity. The third area, HD 2, coincided with the location of the known target impact area identified in historical documentation. Based on this information, only HD 2 was selected for additional detailed characterization during the RI.

Figure 4: Anomaly Density Evaluation



Additional characterization of HD 2 (at the known target area) included dynamic AGC data collection transects utilizing the UltraTEM Classifier system to identify the locations of geophysical anomalies in the subsurface and "classify" them for potential intrusive investigation. AGC classification is a method of identifying and categorizing potentially hazardous objects, such as **unexploded ordnance**, buried underground. This process involves using specialized equipment to collect data about the objects' physical properties, such as their size, shape, and composition. The collected data is then analyzed utilizing an approved process to identify "targets of interest" in the subsurface that may be considered hazardous. Based on this analysis, objects are classified into different categories based on their level of risk. This classification process helps ensure that potentially dangerous objects are identified and handled appropriately. The dynamic AGC transect paths were oriented N-S and E-W to traverse the full extent of the HD area. Approximately 2.5 acres of AGC transect data (2.9 linear miles) were collected in total within the HD area (**Figure 5**). The AGC dataset was then processed, anomalies were classified, and a dig list consisting of 201 total locations was assembled. In addition, a 2.8-acre **saturated response area (SRA)** was identified at the center of the HD area. Within the SRA, the anomaly density was too elevated to reliably perform the anomaly classification step. Therefore, two small (10' x 10') grids were selected within the SRA, for intrusive investigation to characterize the subsurface within this portion of the HD area.

Between October 25, 2022, and November 07, 2022, the unexploded ordnance intrusive team successfully completed the intrusive investigation of a representative subset of the identified anomaly sources resulting in 201 single point anomalies and the SRA analog grid investigations. The 201 single point anomaly investigation locations within the HD area at the El Centro No. 2 MRS resulted in 192 munitions related recoveries, thus confirming past use as a munitions target and impact area. Each recovered item was identified as MD, without an explosive hazard. No MEC items were recovered and no evidence of fragmentation from **high explosive (HE)** ordnance items were observed. MD items recovered included practice rockets (2.25-inch, 3.25-inch and 5-inch), practice bombs (3-lb and 4.5-lb), practice projectiles (20-millimeter), small arms ammunition (.50 caliber) and unidentifiable pieces. MD was recovered on

the surface and as deep as 165-centimeters (5.4 feet). Based on the findings of the RI, there was no evidence of intact fuzes or spotting charges observed in the MRS. The intrusive locations and results are presented on **Figure 5**.

Although no MEC items were recovered from the MRS during the RI fieldwork, a single demolition event was conducted on November 17, 2022. For disposal purposes, twelve plaster-filled 5-inch rocket warheads (MD) recovered during the intrusive investigation were destroyed using on-call donor explosives to prepare the items for off-site disposal/recycling.

There was no evidence of HE munitions use (such as fragmentation), nor have any reports confirmed MEC being found historically at the El Centro Rocket Target No. 2 MRS. Therefore, based on empirical data collected during the RI, it can be concluded that this site was used for practice munitions and not HE munitions.

The findings of the preliminary and HD area characterization surveys were consistent with the **conceptual site model (CSM)**. The singular documented target area utilized for rocket, bombing, and strafing training was confirmed to be present with no other target areas identified.

Although no MEC items were observed, the HD area investigated at the suspected target center of the El Centro Rocket Target No. 2 MRS was confirmed as a HUA based on the high proportion of MD present. The area outside of the HUA, but within the MRS boundary is considered a LUA. **Figure 6** identifies the boundaries of the recommended 27-acre HUA and 2,304.4-acre LUA. Since the MRS boundary represents a range safety fan (i.e., buffer zone), a **no evidence of use (NEU)** designation was not identified for any portion of the El Centro Rocket Target No. 2 MRS.

Figure 5: Intrusive Investigation Results

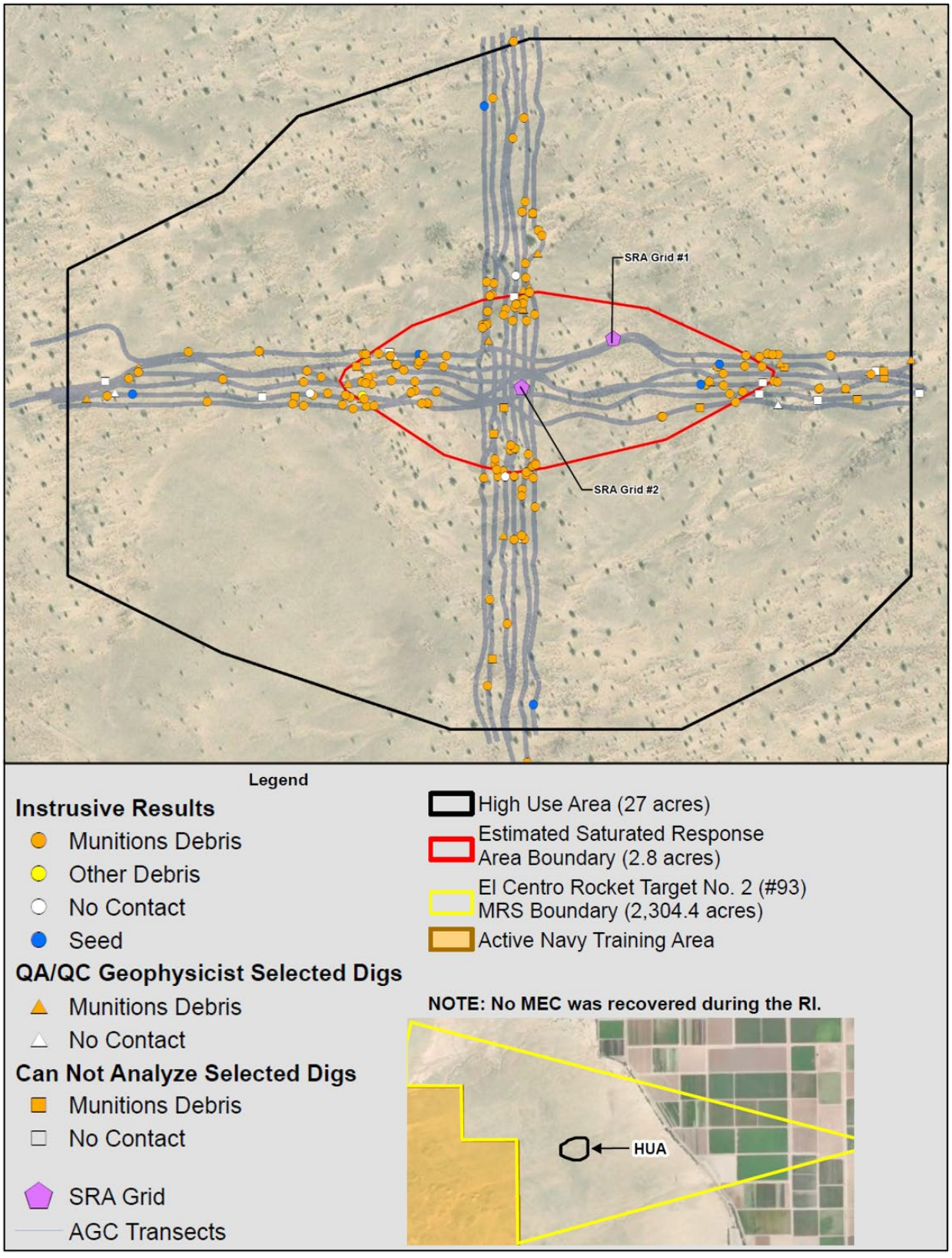
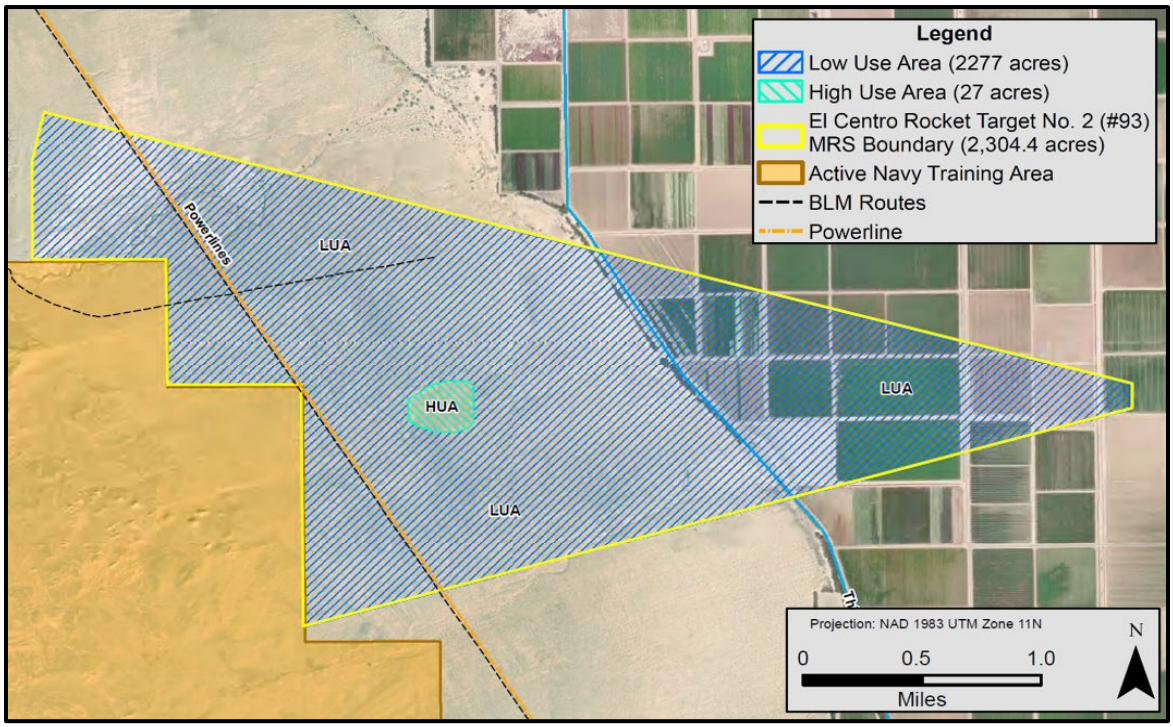


Figure 6: Delineation of HUA/LUA



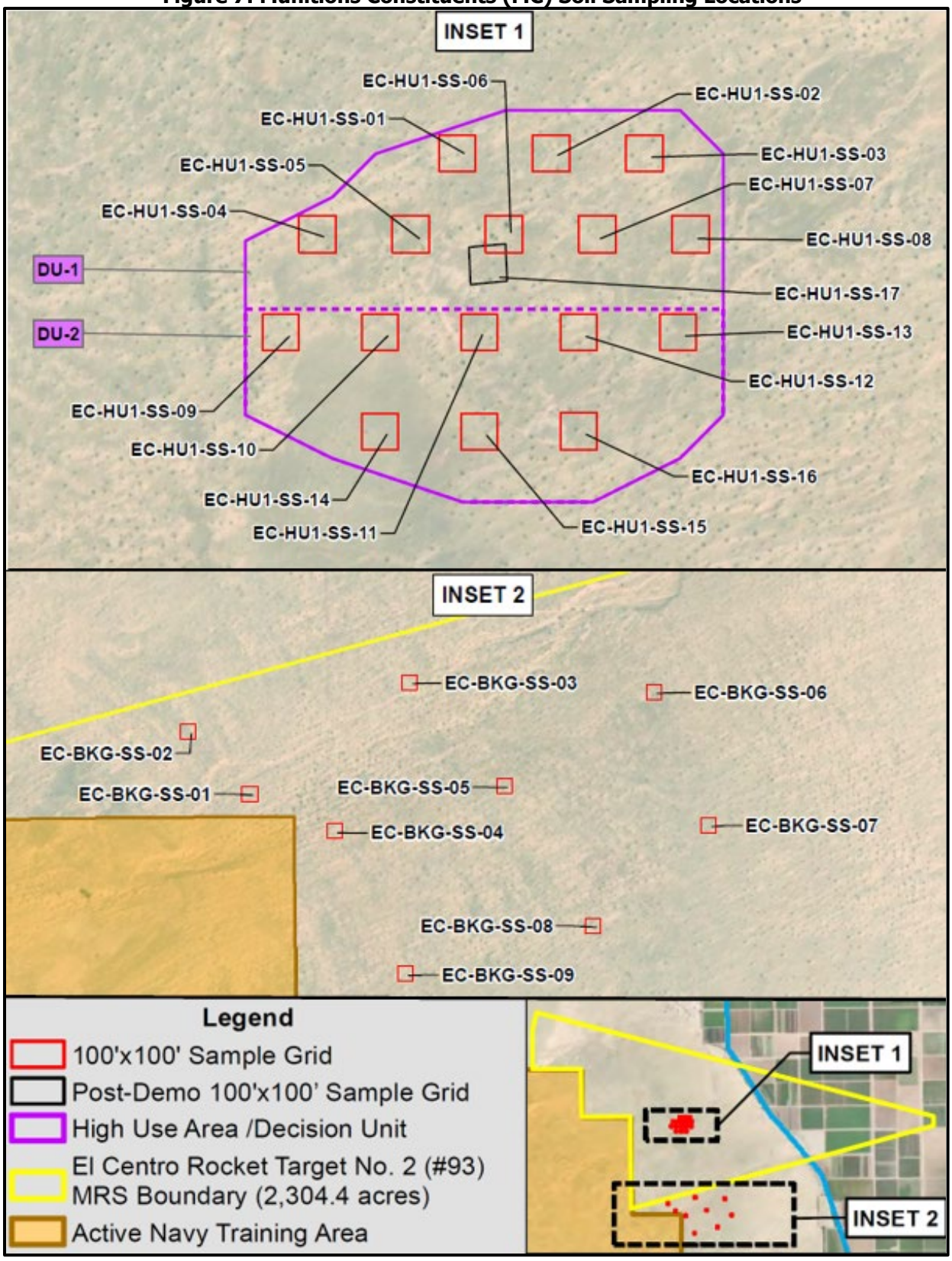
Munitions Constituents (MC)

Consistent with the RI objectives, MC sampling was conducted within the HUA to determine if releases of MC from munitions activities have occurred that pose a risk to human health and the environment. Sampling also included collection of background samples, outside the MRS boundary. Similar to HUA samples, background soil samples were collected using incremental sampling techniques to include 9 sampling units (30 increments per 100-ft x 100-ft sampling unit). Soil increments were collected from 0 to 6 inches below ground surface. The background soil samples represented an area of similar soil and geology as the HUA.

In order to fully characterize the HUA, sampling units were randomly placed within the boundaries of each decision unit (DU) within the HUA. As described in the UFP-QAPP (USACE 2021), each DU would not exceed 20 acres in size. Therefore, two DUs were identified within the 27-acre HUA at the El Centro Rocket Target No. 2 HUA, each of which containing 8 sampling units (**Figure 7**). Each sampling unit was collected in triplicate.

All samples collected from the HUA were analyzed for explosives and a site-specific MC metals list consisting of antimony, copper, lead, and zinc. The background sample analysis was limited to the site-specific MC metals list. The MC metals analyte list was originally developed based on the chemical composition of typical World War II era munitions in which the primary metals included: aluminum, antimony, copper, iron, lead, and zinc. However, iron and aluminum were excluded from the analysis. Iron is an essential nutrient and USEPA recommends that these chemicals are not evaluated (USEPA, 1989). Substances that are not listed as CERCLA Hazardous Substances (e.g., aluminum) would not drive risk management decisions, and was therefore similarly excluded from the analysis. The mean site concentration was greater than the mean background concentration for each evaluated MC metal in both DUs, however, the site concentration was less than the respective human health screening values. Based on the results of the RI, there are no identified sources of MC contamination for human receptors. However, contaminants of potential ecological concern consisting of antimony and zinc were identified in soil at the El Centro Rocket Target No. 2 MRS. Following ecological risk assessment evaluation, potential adverse effects to ecological receptors due to exposure to antimony and zinc in the surface soil at the MRS are unlikely. Since the HUA is the expected source of MC, the extent of elevated MC concentrations would be expected to be coincident with the extent of the HUA.

Figure 7: Munitions Constituents (MC) Soil Sampling Locations



SUMMARY OF SITE RISKS

A qualitative risk assessment was conducted to evaluate potential explosive hazards to human receptors at El Centro Rocket Target No. 2. The evaluation was completed in accordance with Headquarters, USACE Memorandum dated, 3 January 2017, Subject, *Trial Period for **Risk Management Methodology** at FUDSs MMRP Projects*, also referred to as the "**RMM**" (USACE, 2017). The qualitative risk assessment was prepared as a collaborative effort amongst the USACE project team and BLM. Since the baseline MEC risk assessment is greatly influenced by current and reasonably anticipated future land use considerations, BLM were consulted and involved with development of the baseline MEC risk assessment. Detailed information regarding assessing risks from explosive hazards, an approach for addressing multiple risk scenarios, and an overview of the input factors for the RMM can be seen in Section 6.1. of the RI Report (USACE, 2024). The RMM uses three matrices to support the risk evaluation for each risk scenario:

- Likelihood of Encounter;
- Severity of Incident; and
- Likelihood of Detonation.

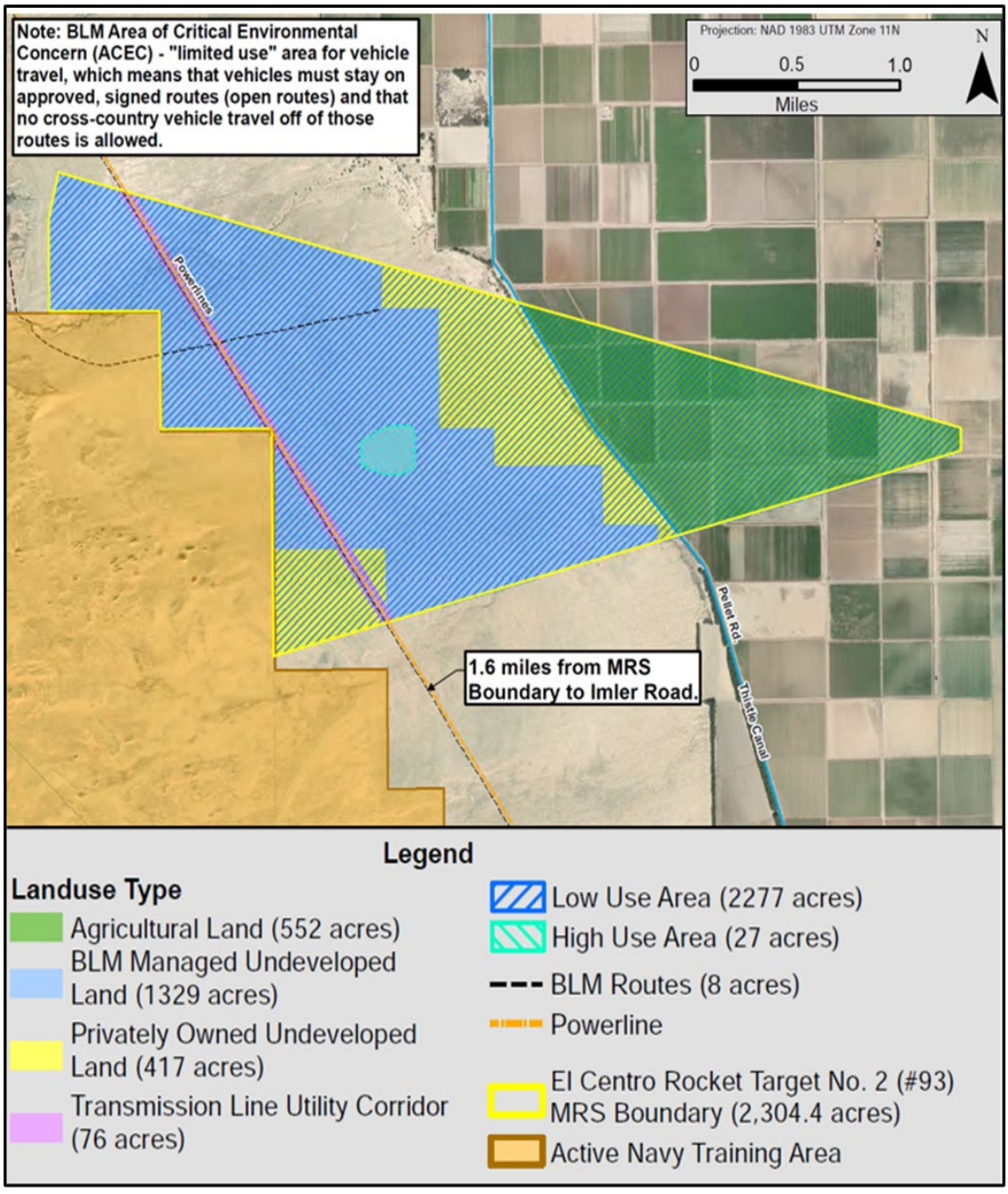
The RMM considers land use in determining the likelihood of encounter component of the risk assessment process. To assess risks in El Centro Rocket Target No. 2, USACE identified two assessment areas (see **Figure 7**): "a HUA" and "LUA". The HUA is located in the center of the site and contains the HD 2 area with a buffer zone. The HUA is 27 acres total. The LUA is the remainder of the MRS outside of the HUA, totaling 2,277 acres.

Table 1: El Centro Rocket Target No. 1 Receptors and Exposure Pathways

Assessment Area	Receptors and Exposure Pathways	Depth of Exposure
HUA 27 acres See **Figure 8**	**HUA-1**: **Recreational users**: Illegal off-road travel, hiking within BLM undeveloped land (27 acres)	Surface only
	HUA-2: **Recreational users**: Camping within BLM undeveloped land (27 acres)	Subsurface – down to 12 inches below ground surface
LUA 2,277 acres See **Figure 8**	**LUA-3**: **Agricultural workers**: Tilling agricultural land up to 4x per year (552 acres)	Subsurface – down to 12 inches below ground surface
	LUA-4: **Agricultural workers**: Surface agricultural activities (adjusting surface irrigation lines, etc.) (552 acres)	Surface only
	LUA-5: **Recreational users**: Illegal off-road travel, hiking within BLM undeveloped land (1,300 acres)	Surface only
	LUA-6: **Recreational users**: Camping within BLM undeveloped land (1,300 acres)	Subsurface – down to 12 inches below ground surface
	LUA-7: **Recreational users/ BLM personnel**: Off-road travel, along approved BLM routes. BLM personnel patrol area to enforce regulation compliance (8 acres)	Surface only
	LUA-8: **Construction workers**: Construction associated with installation of new or upgraded transmission line. Periodic inspections and maintenance as necessary (76 acres)	Surface and Subsurface – Down to 10+ feet below ground surface
	LUA-9: **Recreational users/Site Visitors**: Off-road travel, hiking within privately owned undeveloped land (417 acres)	Surface only
	LUA-10: **Recreational users/Site Visitors**: Camping within privately owned undeveloped land (417 acres)	Subsurface – down to 12 inches below ground surface

Land use within the LUA is varied, with privately owned and BLM managed undeveloped desert recreational land west of the Thistle canal, an overhead utility transmission corridor, and agricultural land to the east. The HUA is entirely in undeveloped BLM recreational land. No changes to land use are anticipated. As a result of the varied ownership and physical characteristics of land at El Centro Rocket Target No. 2, several different land use scenarios exist across different swathes of the site. As such, risk scenarios were evaluated for different receptors and exposure pathways based off the use case, frequency of use, and potential exposure depths of different receptors. A list of each identified exposure scenarios is presented in **Table 1** and **Figure 8**.

Figure 8: Land Use and Exposure Scenario Overview



Likelihood of Encounter

Amount of MEC

The available designations for the "Amount of MEC" category include six categories, ranging from Category I where MEC is visible on the surface and detected in the subsurface to Category VI where the investigation of the MRS did not identify evidence of MEC presence.

Based on the findings of the RI, a single HUA exists at the El Centro Rocket Target No. 2, and it is situated in the BLM managed portion of the MRS (**Figure 8**). Following the decision logic identified in the approved UFP-QAPP, since no MEC items were found on the surface of the HUA during the investigation, "Category II" was selected to describe the "Amount of MEC" within HUA.

The area outside of the HUA, but within the MRS boundary was classified as a LUA. Following the decision logic in the approved UFP-QAPP, since no MEC items were found in the LUA during the investigation, "Category V" was selected to describe the "Amount of MEC" within the LUA. The amount of MEC category designations for each of the exposure scenarios is tabulated in **Table 2**.

Access Conditions

The available designations under the RMM for "Access Conditions" range from Rare (e.g., very limited use) to Regular (e.g., daily use). Access conditions vary across the El Centro Rocket Target No. 2 MRS depending on the specific exposure scenario being evaluated. The BLM roads (LUA-7) are frequently used by recreational users and surface activities within the agricultural land is regularly performed (LUA-4). As such these two use cases received an access conditions selection of "Regular".

The remaining travel-based exposure scenarios not on the BLM approved roads or on agricultural land have a lower usage rate and so traveling on privately owned land (LUA-9), and illegal off-road travel on BLM land in the LUA (LUA-5) were selected as "Often". Since the HUA is more remote and further removed from designated BLM roads, illegal travel in the HUA (HUA-1) was designated as "Intermittent".

In the agricultural portion of the LUA, while most of the usage is surface level, as described above, the land is tilled periodically throughout the year (LUA-3). This exposure scenario was therefore given a designation of "Intermittent". There is also periodic maintenance of the powerlines that run through the western portion of the LUA (LUA-8), this was also given a designation of "Intermittent" access.

Very limited subsurface use (e.g., camping up to a 12-inch depth) occurs within the undeveloped portions of the site between the BLM managed and privately owned property (HUA-2, LUA-6, and LUA-10). As a result, each received an access conditions selection of "Rare". The access conditions category designations for each of the exposure scenarios is tabulated in **Table 2**.

Severity of Incident

The "Severity" factor is a static characteristic of the munitions known or suspected to exist at the site. The designations for "Severity" range from Improbable (e.g., no injury is anticipated) to Catastrophic/Critical (e.g., may result in 1 or more deaths, permanent total or partial disability, or hospitalization). No HE munitions or evidence of HE munitions were identified (i.e., no fragmentation); therefore, a "Severity" factor of "Modest" was selected to represent the practice munitions observed at the site. Since this factor is based on the munitions found, this designation applies to the entirety of the site and is universal among all exposure scenarios. The severity of incident category designations for each of the exposure scenarios is tabulated in **Table 2**.

Likelihood of Detonation

Sensitivity: Susceptibility to Detonation

The "sensitivity" of a munitions item is inherent to the known or suspected munitions present at the site. The available designations range from Not Sensitive to High (e.g., classified as sensitive). Based on observations during the SI and RI, identified munitions are practice munitions and it is not likely that nose fuzes are intact following impact. The sensitivity was identified as "Low". Since this factor is based on the munitions found, this designation applies to the entirety of the site and is universal among all exposure scenarios. The sensitivity category designations for each of the exposure scenarios is tabulated in **Table 2**.

Likelihood to Impart Energy on an Item

The available designations for Likelihood to Impart Energy on an Item range from Inconsequential (e.g., not anticipated) to High (e.g., areas planned for development or seasonally tilled). Exposure

scenarios where heavy equipment is utilized below grade has the highest potential to impart energy on munitions that may exist in the ground. Therefore, the subsurface exposure scenario in the agricultural land (LUA-3) where the fields are seasonally tilled and the exposure scenario for maintenance with the transmission line utility corridor (LUA-8) both received a "High" designation.

Since the exposure area is undeveloped and rarely used for subsurface activities, the likelihood of imparting energy on an item was conservatively set as "Modest" for the exposure scenarios within the undeveloped portions of the site between the BLM managed and privately owned property (HUA-2, LUA-6, and LUA-10).

Since no MEC was observed on the surface, and the activities under the surface only exposure scenarios are limited to surface-based activities, they were all given the designation of "Inconsequential" as there is minimal chance of interaction. This includes travel on and off roads on BLM managed land in both the HUA (HUA-1) and the LUA (LUA-5 and LUA-7), travel on the privately owned property within the MRS (LUA-9), and within the agricultural land (LUA-4). The likelihood to impart energy on an item category designation for each of the exposure scenarios is tabulated in **Table 2**.

Risk Assessment Results

The results of the RMM assessment for El Centro Rocket Target No. 2 MRS indicated there are no unacceptable risks from explosive hazards under current and reasonably anticipated future land use scenarios. Additional details describing the baseline RMM for MEC for the El Centro Rocket Target No. 2 MRS are provided in Chapter 6 and Appendix D of the RI Report (USACE, 2024), and a summary table of the results is included below as **Table 2**.

The human health risk assessment and screening level ecological risk assessment for El Centro Rocket Target No. 2 MRS concluded that unacceptable risks to receptors from MC are not anticipated under current and reasonably anticipated future land use scenarios. (USACE, 2024).

Table 2: El Centro Rocket Target No. 1 – MEC RMM Summary Table

#	Exposure Scenario	Amount of MEC						Access Conditions (frequency of use)				Severity				Sensitivity				Likelihood to Impart Energy on an Item			MEC Risk [1] Conclusions	
		Cat I	Cat II	Cat III	Cat IV	Cat V	Cat VI	Regular	Often	Intermittent	Rare	Catastrophic/ Critical	Modest	Minor	Improbable	High	Moderate	Low	Not Sensitive	High	Modest	Inconsequential	**Unacceptable**	**Acceptable**
El Centro Rocket Target No. 2: HUA																								
HUA-1	**HUA: BLM Undeveloped Land; Surface Use** (e.g., illegal off-road travel, hiking)		✓							✓			✓					✓				✓		✓
HUA-2	**HUA: BLM Undeveloped Land; Subsurface Use** (e.g., illegal camping; up to 12")		✓								✓		✓					✓			✓			✓
El Centro Rocket Target No. 2: LUA																								
LUA-3	**LUA: Agricultural Land; Subsurface Use** (e.g., Tilling up to 12"; ~4x per year)					✓				✓			✓					✓		✓				✓
LUA-4	**LUA: Agricultural Land**; Surface Use					✓		✓					✓					✓				✓		✓
LUA-5	**LUA: BLM Undeveloped Land; Surface Use** (e.g., illegal off-road travel, hiking)					✓			✓				✓					✓				✓		✓
LUA-6	**LUA: BLM Undeveloped Land; Subsurface Use** (e.g., illegal camping)					✓					✓		✓					✓			✓			✓
LUA-7	**LUA: BLM Roads**; Surface Use					✓		✓					✓					✓				✓		✓
LUA-8	**LUA: Transmission Line Utility Corridor; Surface and Subsurface Use** (to depths of 10+ feet)					✓				✓			✓					✓		✓				✓
LUA-9	**LUA: Privately Owned Undeveloped Land; Surface Use** (e.g., off-road travel, hiking)					✓			✓				✓					✓				✓		✓
LUA -10	**LUA: Privately Owned Undeveloped Land; Subsurface Use** (e.g., camping: up to 12")					✓					✓		✓					✓			✓			✓

Notes: (1) There are no unacceptable MEC risks under current and reasonably anticipated future land use scenarios.

REMEDIAL ACTION OBJECTIVES

Because no unacceptable risks to human health or the environment were identified at the El Centro Rocket Target No. 2 MRS under current and reasonably anticipated future land use, a feasibility study and development of **remedial action objectives** are not necessary for a no action decision.

SUMMARY OF PROPOSED NO ACTION DECISION

This Proposed Plan identifies that the lead agency has determined that no action is necessary to protect public health or welfare or the environment at the El Centro Rocket Target No. 2. As no unacceptable risks to human health or the enviroment from MEC or MC were identified under current and reasonably anticipated future land use in the RI Report for the El Centro Rocket Target No. 2 (USACE, 2024), development or evaluation of remedial alternatives was not warranted.

COMMUNITY PARTICIPATION

Public Comment

The USACE is the lead agency for investigating, reporting, making remedial decisions, and taking any necessary remedial actions at the El Centro Rocket Target No. 2 MRS. The RI Report (USACE, 2024) is a comprehensive document that describes the site history, details of previous investigations, the associated risk assessments, and their conclusions. The RI Report and this Proposed Plan are part of the FUDS Information Repository and are available for review at the locations listed below.

USACE considers public comments before making a no action determination. Written and oral comments on this Proposed Plan will be accepted throughout a public comment period between 02 June 2025 and 03 July 2025. Correspondence should be postmarked no later than 03 July 2025 and should be sent to the attention of the U.S. Army Corps of Engineers, Sacramento District Public Affairs Office (see below). If requested by the public, USACE will host a public meeting virtually during the public comment period to discuss the proposed No Action decision. USACE will consider comments received during the public comment period and at the public meeting (if requested) in determining whether to adopt the proposed No Action decision presented in the Proposed Plan. Responses to comments received will be documented in the responsiveness summary section of the ROD and published in the Information Repository.

Contact Information

U.S. Army Corps of Engineers, Sacramento District
Attn: Public Affairs Office
1325 J St.
Sacramento, CA 95814
916-557-5100
spk-pao@usace.army.mil

Information Repository

Copies of the final RI Report, along with other project documents and reports for the El Centro Rocket Target No. 2 MRS can be found in the Information Repository at the following locations:

El Centro Library
1198 N Imperial Avenue
El Centro, CA 92243

U.S. Army Corps of Engineers, Sacramento District
1325 J St, Room 1640
Sacramento, CA 95814

REFERENCES

USACE, 1993. DERP-FUDES Inventory Project Reports (INPR's) for Site Nos: J09CAO17200, J09CA015300, JO9CAO16800J, 09CA014500J, 09CAO14700J, OBCAO15600J,0 9CAO17000, JO9CAO17300, and J09CA016700. September 23, 1993.

USACE, 1997. Archives Search Report. El Centro Rocket Target Range No. 2 (#93). 25 June 1997.

USACE, 2004. Archives Search Report Supplement. El Centro, California. 26 November 2004.

USACE, 2017. CEMP-CED Memorandum: Trial Period for Risk Management Methodology at Formerly Used Defense Sites (FUDS) Military Munitions Response Program (MMRP) Projects. 3 January.

USACE, 2020. Environmental Quality, Formerly Used Defense Sites (FUDS) Program Regulation. Engineer Regulations (ER) 200-3-1. CEMP-CED. 01 September 2020.

USACE, 2021. Final Uniform Federal Policy – Quality Assurance Project Plan (UFP-QAPP) for Remedial Investigation in Imperial County, CA. El Centro Rocket Target No. 2 (#93). FUDS Project No. J09CA014701. June 2021

USACE, 2022. Formerly Used Defense Sites (FUDS) Program Implementing Guidance. FUDS Handbook. CEMP-CED. 02 December 2022.

USACE, 2024. Remedial Investigation Report for the Military Munitions Response Program for El Centro Rocket Target No. 2 (#93), Imperial County, CA FUDS Project No. J09CA014701

USEPA, 1989. Risk Assessment Guidance for Superfund (RAGS), Volume 1 - Human Health Evaluation Manual, Part A, Baseline Risk Assessment. Interim final. Office of Emergency and Remedial Response. Washington, DC. EPA/540/1-89/002.

USEPA, 1999. A Guide to Preparing Superfund proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. July 1999.

USDA, 2008a. Ecological Subregions of California. http://www.fs.fed.us/r5/projects/ecoregions/322c.htm. Accessed February 07, 2008.

GLOSSARY OF TERMS

Advanced geophysical classification (AGC): The process of making principled decisions, using methods validated by the DoD, to identify buried metal objects that pose a potential explosive hazard and those that can be safely left in the ground as nonhazardous item.

Anomaly: Measured response associated with one or more sources that can be distinguished from background.

Archives Search Report (ASR): A detailed investigation to report on past MEC activities conducted on an installation. The principal purpose of the Archives Search is to assemble historical records and available field data, assess potential ordnance presence, and recommend follow-up actions at a Defense Environmental Restoration Program – FUDS. There are four general steps in an Archives Search: records search phase, site safety and health plan, site survey, and archives search report including risk assessment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986: A federal law that addresses the funding for and remediation of abandoned or uncontrolled hazardous waste sites. This law also establishes criteria for the creation of key documents such as the RI, Feasibility Study, Proposed Plan, and Decision Document.

Conceptual Site Model (CSM): A description of a FUDS and its environment that is based on existing knowledge. It describes sources of military munitions or HTRW at a property; actual, potentially complete, or incomplete exposure pathways; current or reasonably anticipated future land use; and potential receptors. The source-receptor interaction is a description output of a CSM. The CSM serves as a planning instrument, a modeling and data interpretation aid, and a communication device for use by the Project Decision Team.

Digital geophysical mapping (DGM): Data collection process that employs a metal detector system to digitally record sensor and position data for subsequent data analysis and presentation.

Feasibility Study: A study undertaken by the lead agency to develop and evaluate options for remedial action. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study.

Formerly Used Defense Site (FUDS): Facility or site property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to the contamination by hazardous substances. By the DoD Environmental Restoration Policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States.

High density (HD) area: Area within a MRS where the anomaly density has been determined to be greater than or equal to critical density. HD areas will be presumed to result from munitions use unless it can be demonstrated otherwise.

High Explosives (HE): An explosive substance designed to function by detonation (e.g., main charge, booster, or primary explosive).

High use area (HUA): High anomaly density area where munitions use has been confirmed.

Inventory Project Report (INPR): The INPR is the FUDS Program document that formally documents the FUDS Property and project eligibility or ineligibility.

Low density (LD) area: Area(s) within a MRS where the anomaly density has been determined to be less than critical density. LD areas can include both low use areas (LUA) and no evidence-of-use areas (NEU).

Low use area (LUA): Low anomaly density area where the potential presence of munitions has been confirmed or cannot be ruled out. Examples of LUA include buffer zones and maneuver areas.

Military Munitions Response Program (MMRP): Formerly known as the Ordnance and Explosives Cleanup Program, and a part of the Defense Environmental Restoration Program, the Military Munitions Response Program is the program category under which DoD carries out environmental restoration activities to respond to releases to the environment of unexploded

ordnance, discarded military munitions, or MC at MRSs.

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

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

Munitions and Explosives of Concern (MEC): Specific categories of military munitions that may pose unique explosives safety risks, specifically composed of (a) unexploded ordnance, (b) discarded military munitions, or (c) MC present in high enough concentrations to pose an explosive hazard.

Munitions Response Site (MRS): A discrete location within a munitions response area that is known to require a munitions response.

No-evidence-of-use (NEU) area: An area within a munitions response area where the weight of evidence indicates that no munitions were used or disposed of. All available and relevant lines of evidence supporting this delineation (e.g., historical records review, historical photo interpretation, visual observations, interviews, and field investigations) must be documented in the CSM and considered.

Proposed Plan: A plan that identifies the preferred remedial alternative(s) for a site and is made available to the public for comment.

Risk Management Methodology (RMM): Qualitative methodology designed to provide information to support risk management decisions upon completion of site characterization, develop remedial action objectives, and provide a basis for assessing achievement of remedial action objectives relative to acceptable end states.

Record of Decision (ROD): Documents the remedial action plan for a site addressed pursuant to CERCLA authority.

Remedial Action Objective: Cleanup objectives that specify contaminants to be cleaned up, the cleanup standard, and the area of cleanup for the purpose of protecting human health and the environment.

Remedial Investigation (RI): A process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The remedial investigation emphasizes data collection and site characterization. The remedial investigation includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives.

Saturated Response Area (SRA): An area where anomaly selection is not possible because responses from multiple sources overlap each other to the degree that geophysical anomaly selection or source classification cannot be performed.

Target of Interest: Sources of anomalies that meet the project-specific target selection criteria. For advanced geophysical classification, targets of interest include sources predicted by the advanced geophysical classification analysis to be items of concern and seeds, sources predicted to have physical attributes similar to items of concern, and clusters of unknown sources with similar attributes that are similar to potential munitions or hazardous components.

Unexploded Ordnance: Military munitions that have been primed, fuzed, armed, or otherwise prepared for action and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material, and remain unexploded either by malfunction, design, or any other cause.

Visual Sample Plan (VSP): A software tool developed by Pacific Northwest National Laboratory that supports the development of a defensible sampling plan based on statistical sampling theory and the statistical analysis of sample results to support confident decision-making.

ACRONYMS AND ABBREVIATIONS

AGC	Advanced geophysical classification
ASR	Archive Search Report
BLM	Bureau of Land Management
CA	California
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	Conceptual Site Model
DGM	Digital geophysical mapping
DoD	Department of Defense
DTSC	California Department of Toxic Substances Control
FUDS	Formerly Used Defense Site
HD	High density
HE	high explosive
HUA	High Use Area
HVAR	High Velocity Aircraft Rocket
INPR	Inventory Project Report
LD	Low density
LUA	Low Use Area
MC	Munitions constituents
MD	Munitions Debris
MEC	Munitions and explosives of concern
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
NEU	No evidence of use
RI	Remedial Investigation
RMM	Risk Management Methodology
ROD	Record of Decision
SI	Site Inspection
SRA	Saturated response area
TBD	to be determined
UFP-QAPP	Uniform Federal Policy – Quality Assurance Project Plan
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VSP	Visual Sample Plan

PUBLIC COMMMENT SHEET
El Centro Rocket Target No. 2 (#93)
Imperial County, CA
PROPOSED PLAN

Please use the space below to submit your comments on the Proposed Plan for this site. If you need more space for your comments, attach additional pages. After completing this comment sheet, you may send it via mail to U.S. Army Corps of Engineers, Sacramento District, Attn: SPK-PAO, 1325 J Street, Sacramento, CA 95814 (Telephone: 916-557-5100). Comments must be postmarked by 2 July 2025. Comments may also be submitted via email to spk-pao@usace.army.mil.

If you have any questions about the public comment period, please contact the U.S. Army Corps of Engineers, Sacramento District Public Affairs Office using the contact information provided.

Name _____

Address _____

City _____

State _____ **Zip Code** _____