

Draft
Site Reconnaissance Results and Work Plan
for Additional Investigation
Basewide Range Assessment Investigation
Unit 31
Former Fort Ord
Monterey County, California

Worldwide Environmental Remediation Services Contract
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Table of Contents

List of Tables.....	i
List of Figures	i
List of Site Photographs.....	ii
Acronyms and Abbreviations.....	iii
1.0 Introduction	1
2.0 Site Background.....	2
2.1 Former Range Uses.....	2
2.1.1 Range 31 Platoon Attack Course/TFT/Demolition Range	3
2.1.2 Range 31A/STT Range 23	3
2.1.3 Range 68.....	3
3.0 Site Work	4
3.1 Previous Site Evaluations	4
3.1.1 Range 31 and Range 31A.....	4
3.1.2 Range 68.....	5
3.2 Partial MEC Surface Removal Action.....	5
4.0 Site Reconnaissance	6
5.0 Decision Rules	7
6.0 Conclusions and Recommendations Regarding Unit 31	8
6.1 Conclusions Regarding Unit 31.....	8
6.2 Recommendations for Unit 31.....	9
6.2.1 Proposed Sampling.....	9
6.2.2 Laboratory Analyses	10
6.2.3 Reporting.....	11
7.0 References	12

List of Tables

Table 1	Former Ranges Within or Overlapping Unit 31
Table 2	Basis for Proposed Sample Locations

List of Figures

Figure 1	Location Map
Figure 2	Recovered MEC Items
Figure 3	Proposed Sample Locations

List of Site Photographs

- Photo 1 Target posts and bullet fragments on berm
- Photo 2 Bullet fragments
- Photo 3 Drum used as target
- Photo 4 Pop-Up target box
- Photo 5 Bullet and bullet fragment accumulation area
- Photo 6 Firing point shell casing accumulation area
- Photo 7 Bullet accumulation on berm

Acronyms and Abbreviations

BRA	Basewide Range Assessment
BRAWP	Basewide Range Assessment Work Plan
COC	contaminant of concern
Gilbane	Gilbane Federal
HA	Historical Area
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
KEMRON	KEMRON Environmental Services, Inc.
mg/kg	milligrams per kilogram
mm	millimeter
MD	munitions debris
MEC	munitions and explosives of concern
MRA	munitions response area
MMRP	military munitions response program
QAPP	Quality Assurance Project Plan
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
ROD	Record of Decision
Shaw	Shaw Environmental, Inc.
SOP	Standard Operating Procedures
TNT	2,4,6-trinitrotoluene

1.0 Introduction

This document presents the results of the preliminary site-specific data evaluation activities and site reconnaissance performed as part of the Basewide Range Assessment (BRA) in Unit 31 at the former Fort Ord in Monterey County, California, and presents a plan for collection of additional data to support applicable further site evaluation. Unit 31 is a subarea of Site 39 (Figure 1), which encompasses the Impact Area Munitions Response Area (MRA) of the former munitions practice ranges within the former Fort Ord. The Unit 31 work described herein was performed by KEMRON Environmental Services, Inc. (KEMRON) and Gilbane for the U.S. Army Corps of Engineers under the Worldwide Environmental Remediation Services contract number W912DY-10-D-0027, Task Order CM01.

The BRA investigation program is being conducted throughout Site 39 (including Unit 31) to evaluate the potential presence of contaminants of concern (COCs) at known or suspected small arms ranges, multi-use ranges, and military munitions training areas within the former Fort Ord in accordance with the requirements of the *Quality Assurance Project Plan, Former Fort Ord, California, Volume I, Appendix B, Soil Sampling, Basewide Range Assessment* (Site 39 QAPP; KEMRON, 2016), which establishes the plan to evaluate the potential presence of COCs at known or suspected small arms ranges, multi-use ranges, and military munitions training areas within Site 39 in accordance with the requirements of the *Final Record of Decision Amendment, Site 39, Former Fort Ord, California* (Site 39 ROD Amendment; Army, 2009). The BRA investigation program is also being conducted in accordance with the requirements of the Site 39 ROD Amendment, which specifies the threshold concentrations for applicable remediation. The objective of the BRA investigation is to evaluate whether the COCs specified in the Site 39 ROD Amendment, which include antimony; copper; lead; and the explosive compounds 2,4,6-trinitrotoluene (TNT); hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX); and octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX), are present in soil at concentrations requiring additional characterization and/or remediation to meet the standards for protection of human health and the environment specified in the Site 39 ROD Amendment. Previous evaluations at Fort Ord have indicated that lead is the most commonly encountered metal COC and elevated concentrations of

antimony and copper are only found in the presence of elevated lead. Therefore, lead is used at Fort Ord as the indicator compound for elevated concentrations of metals COCs. Lead is the only metal analyzed during initial site investigation.

This Work Plan (1) presents a summary of the site reconnaissance performed at Unit 31 that served as input to the BRA program, (2) relates historical and recent work to evaluation criteria established in applicable work plans and decision documents, (3) and provides sampling recommendations to evaluate potential COCs in soil within Unit 31 in accordance with the Site 39 QAPP. Sampling, analyses, data validation and other applicable investigative processes to be implemented, which are summarized in subsequent sections of this work plan, will be performed in accordance with the Site 39 QAPP. Specific variations or deviations from Site 39 QAPP protocols, if any, are noted and described in detail within the text of this work plan. All other procedural details are as described in the Site 39 QAPP.

2.0 Site Background

Unit 31 is in the southeastern portion of the Impact Area MRA ([Figure 1](#)) and is composed of rolling terrain with a primary central drainage directed to the southeast. Elevation ranges from approximately 960 feet in the northwest to approximately 630 feet in the southeast.

2.1 Former Range Uses

Historical use of the ranges that lie within or overlap Unit 31 are briefly summarized below and on [Table 1](#). Additional background information regarding former range uses and previous site investigations is presented in the *Final Comprehensive Basewide Range Assessment Report* (Shaw Environmental, Inc. [Shaw], 2012) and the *Final Track 3 Impact Area Munitions Response Area, Munitions Response, Remedial Investigation/Feasibility Study* (MACTEC, 2007). The known ranges within or overlapping Unit 31 include Ranges 31, 31A/STT Range 23, and 68 (Figures 2 and 3). The location of the Range 31 footprint varies slightly on historical maps as shown on Figures 2 and 3, but the locations overlap and generally occupy the same drainage feature. Similarly, Range 31A and STT Range 23 appear to comprise the same former

use area as indicated by site observations. A portion of historical Range 68 overlaps most of Unit 31 except for the southeastern portion (Figures 2 and 3). The portion within Unit 31 is generally coincident with the observed use areas associated former Range 31 and Range 31A.

2.1.1 Range 31 Platoon Attack Course/TFT/Demolition Range

This range is documented on historical maps beginning in 1964. A 1973 Standard Operating Procedure (SOP) document indicates use as Demolition Range (Shaw, 2012). Range control records indicate that construction of the Platoon Attack Range occurred in 1974 or 1975, and range SOPs indicate associated use from at least 1980 to 1993. No definition is provided for the acronym “TFT” as used in associated historical documents, but it is believed to be associated with tactical training.

2.1.2 Range 31A/STT Range 23

The *Final Comprehensive Basewide Range Assessment Report* (Shaw, 2012) indicates that little information is available regarding the historical use of Range 31A/SST Range 23 (hereafter referred to as Range 31A). The ranges appear on training maps from 1964 and 1961, respectively, and generally occupy the same footprint (Figures 2 and 3). The acronym STT can be correlated with multiple known historical military definitions, but is believed to be associated with “special tactical training”. Site evidence indicates former small arms use occurred within the range and that weapons firing appears to have occurred from multiple positions toward multiple target areas.

2.1.3 Range 68

The footprint of Range 68 as indicated in historical documents overlaps a large portion of the southern central Impact Area MRA and includes a majority of Unit 31. (Figures 2 and 3). The exact use of Range 68, also known as HA-68, is unconfirmed. It was identified as “Sub Mach DSMTD” (or submachine gun dismounted) on a 1956 Range Construction Priority Map, but is not documented elsewhere. The range title indicates that it was intended to be used for small arms training. Evaluation of HA-68 is described further in Section 3.2.2 and in the *Final Comprehensive Basewide Range Assessment Report* (Shaw, 2012).

3.0 Site Work

3.1 Previous Site Evaluations

Previous investigations of the historical footprints of Ranges 31, 31A and 68 were performed as part of the BRA program that was established to identify the locations and historical uses of former ranges at Fort Ord and to provide the framework for the range evaluation process. The *Final Comprehensive Basewide Range Assessment Report* (CBRAR; Shaw, 2012) summarizes previously completed BRA investigations, site status determinations, and recommendations regarding sites where investigation was still planned or in progress at the time of publication. Previous evaluations of the historical ranges associated with Unit 31 are briefly summarized below.

3.1.1 Range 31 and Range 31A

Portions of Ranges 31 and 31A within Unit 31 were previously evaluated (CBRAR; Shaw, 2012), but were limited by access difficulties due to dense vegetation and safety considerations associated with the potential presence of MEC. Very dense brush rendered much of the site impassable or unsafe for travel due to the potential presence of MEC where safe footing could not be clearly observed. Limited site reconnaissance was performed in 2001 using established game trails and remnants of overgrown roads, and limited soil sampling was performed in similarly accessible areas 2002. Results of the limited soil sampling performed within Unit 31 (HA31SI0001, HA31SI0006; Figure 3) did not indicate elevated concentrations of COCs in the locations evaluated. However, the CBRAR (Shaw, 2012) recommended further evaluation and sampling of the previously inaccessible areas within Range 31A (which includes coincident portions of Range 31) after vegetation reduction associated with establishment of a fuel break around Unit 31 allowed further access.

3.1.2 Range 68

Previous evaluation of the portion of Range 68 within Unit 31 was limited by dense vegetation and safety concerns associated with the potential presence of MEC. A site reconnaissance was performed in October 2001 and limited sampling was performed in July 2002 (Shaw, 2012). Three soil samples were collected from accessible locations within Unit 31 (HA68SI0002 through HA68SI0004, Figure 3). Based on the analytical results, no further action specific to former Range 68 was recommended (Shaw, 2012). However, the CBRAR (Shaw, 2012) indicates that the portions of Range 68 that are coincident with Ranges 31/31A were not included in the Range 68 evaluation and, as indicated in Section 3.2.1 above, the areas of Range 68 that were within Range 31A were included in the CBRAR recommendation for further evaluation.

3.2 Partial MEC Surface Removal Action

Surface removal of MEC has been performed around the perimeter of Unit 31 (illustrated in Figure 2) in conjunction with the establishment of containment lines for the purpose of fire suppression. Data generated during the MEC removal, including MD accumulation density, MEC identified, target locations and other information was included in the BRA evaluation to identify historical site use patterns and suspect locations to be considered for sampling. Soil evaluation sampling is typically performed after MEC removal operations are completed. However, sampling is being proposed at Unit 31 before the completion of MEC removal to allow the Army to determine if soil remediation/excavation is needed without being impacted by the MEC removal operation schedule. The Army will use the data collected during soil sampling to determine and plan for future activities (i.e. soil excavation) at Unit 31.

4.0 Site Reconnaissance

Based on the recommendation in the CBRAR (Shaw, 2012), site reconnaissance was performed at Unit 31 in accordance with BRA program protocols specified in the *Draft Final Basewide Range Assessment Work Plan* (BRAWP; Harding ESE/IT, 2001) to evaluate site conditions in areas that were not previously evaluated. Reconnaissance activities were completed between January and March 2017 after removal of vegetation around the perimeter of Unit 31 was completed to establish a fuel break for fire suppression. Creation of the fuel break provided access to a substantial portion of Unit 31 that had not previously been available and facilitated additional site reconnaissance.

The BRA evaluation of Unit 31 included review of historical documentation regarding former site use, review of information regarding munitions use acquired during the MEC/MD removal actions around the unit perimeter, and detailed site reconnaissance to identify suspect site features and areas where elevated concentrations of COCs were most likely to be found. The reconnaissance team followed a meandering path throughout the unit to correlate existing data with observable site features and to identify additional indicators of potential elevated COCs such as berms, targets, soil mounds, craters, potential firing locations, bullet accumulation areas, and other suspect physical characteristics. Examples of observed indicators of potential elevated COCs are presented in the attached photographs.

Resulting data was then integrated to identify suspect locations where elevated concentrations of COCs are most likely to be present and where sampling and analyses is appropriate based on the decision rules described in Section 5.0. Conclusions regarding site conditions, proposed sample locations, and site recommendations are described in Section 6.0 of this Work Plan.

5.0 Decision Rules

BRA program-specific decision rules described in in the BRAWP (Harding ESE/IT, 2001) for determining whether soil sampling should be performed based on site conditions observed during site reconnaissance and evaluation of existing site data include the following:

- If the results of the site reconnaissance indicate the potential for COCs to be present, site investigation soil samples will be collected..
- If samples are collected and results indicate concentrations above cleanup levels, the site will be recommended for further characterization.

The Site 39 QAPP (KEMRON, 2016) also specifies sampling criteria that must be taken into consideration including:

- Sampling will focus on “worst-case” locations – that is, locations most likely to exhibit elevated concentrations of COCs – that have been determined by a combination of field reconnaissance, historical range use, and Site 39 ROD Amendment (Shaw, 2009) requirements.
- Seven-point incremental samples are considered sufficient to provide an initial characterization of the sample locations. The seven-point incremental samples will provide a statistically representative sample of the “worst-case” locations within the Units, or portions of Units, of Site 39 not previously investigated.
- If reported concentrations of lead and/or explosives exceed the Site 39 ROD Amendment (Army, 2009) criteria for any sample location, step-down samples (vertical) and step-out (horizontal) will be collected.

6.0 Conclusions and Recommendations Regarding Unit 31

6.1 Conclusions Regarding Unit 31

Conclusions regarding former site use and current conditions are based on the following:

- Review of historical site use maps and other available documentation,
- MEC/MD removal data such as munitions types, locations and densities generated during removal operations performed in July through September of 2015, and July through September of 2016,
- Identification of site features such as targets, suspected targets, soil mounds, impact berms, bullet accumulations, firing points, presence of MEC and/or MD accumulations based on observations made during MEC/MD removal activities performed in 2015 and 2016, and site reconnaissance performed in 2017,

A review of historical documentation identified the locations of Ranges 31, 31A and 68 within or overlapping Unit 31 ([Figures 2 and 3](#)). Evidence of range use identified during MEC/MD surface removal activity in 2015/2016 and site reconnaissance performed in 2017 includes the presence of MEC and MD items and physical features associated with range use such as bullet/lead accumulation areas, berms, targets, soil mounds, craters, and other disturbed areas. Examples of observed site features indicative of potential elevated COCs are presented in the attached photographs. The presence of suspect site features, significant lead accumulation areas and types of MEC/MD found indicate that elevated concentrations of COC may potentially be present and soil sampling should be performed to evaluate concentrations of potential COCs at suspect locations.

Munitions debris accumulations and evidence of munitions impact were observed within portions of Unit 31, particularly in proximity to former target locations. Significant accumulations of bullets and lead fragments were observed on target berms and mounds as well as in erosion/runoff accumulation areas and other locations. Numerous firing locations were also

identified where accumulations of finer lead particulates are possible.

The evaluation identified the following conditions to be considered relative to Unit 31 metals and explosive residues status determination:

- Significant accumulations of lead were identified in Unit 31.
- MEC items and MD identified in Unit 31 to date indicate that historical site activities included use of small arms, automatic weapons, and 37mm, 40mm, 60mm, 75mm, and 81mm projectiles. (Figure 2).
- Physical features typically associated with elevated concentrations of COCs or accumulations of materials potentially contributing to the presence of elevated COCs such as targets, berms, firing points, soil mounds, craters, debris, and other suspect physical characteristics were identified throughout the unit (Figure 3).

6.2 Recommendations for Unit 31

Based on results of data evaluation and comparison of site conditions to the BRA evaluation criteria and Site 39 ROD Amendment requirements, soil sampling and analyses for lead and explosive residues is recommended in Unit 31. Proposed sample locations were selected as the potential “worst case” scenarios in accordance with BRA program criteria (see Section 5.0 Decision Rules), and to provide data regarding the extent of affected areas where elevated concentrations of lead are expected. Examples of areas expected to exhibit elevated lead concentrations are included in the attached photographs. Based on the expected analytical results, some additional locations (e.g., locations 31-14, 31-16, 31-17; Figure 3) in proximity to significant lead accumulations are proposed for sampling to provide further identification of the spatial extent of the expected elevated lead concentrations. Proposed sample locations are illustrated on Figure 3, and the basis for selection of each location is summarized in Table 2. Lead analyses are recommended at 37 locations that include the vicinity of former target locations, identifiable accumulation areas, and suspected firing points. Explosives analyses are recommended at 11 locations based on the presence of apparent explosion craters, known target locations, or suspected former target locations such as soil mounds in the vicinity of MD accumulation areas.

6.2.1 Proposed Sampling

Sampling and analyses will be performed in accordance with the protocol described in the Site 39 QAPP (KEMRON, 2016). Specifically, soil samples will be collected from each proposed location using the seven-point wheel pattern described in U.S. Army Cold Regions Research and Engineering Laboratory, Special Report (SR) 96-15 September 1996, *Assessment of Sampling Error Associated with Collection and Analysis of Soil Samples at Explosives-Contaminated Sites*. Seven soil increments will be collected from an area approximately 4 feet in diameter that will be combined into a single bulk sample for later processing and analysis by the laboratory.

Field duplicate samples will be collected at a 10 percent frequency to examine field sampling procedures for errors and matrix spike/matrix spike duplicates will be collected at a frequency of 5 percent to examine laboratory accuracy. In accordance with Worksheets 11 and 17 of the Site 39 QAPP, samples will be collected at the surface, at a depth of 1 foot, and a depth of 2 feet. However, only surface samples will be initially analyzed. If COCs are detected in surface samples at concentrations that exceed the thresholds specified in the Site 39 ROD Amendment (a range-wide weighted average of 225 milligrams per kilogram (mg/kg) for lead, 5.9 mg/kg for TNT, 3.1 mg/kg RDX, and 2.7 mg/kg for HMX), then the deeper samples will be analyzed and corresponding step-out samples will be collected in the four cardinal directions (4 step-out locations) from the initial location as specified in the Site 39 QAPP (Worksheets 11 and 17) to evaluate whether the elevated COCs may be more laterally extensive or extend deeper.

6.2.2 Laboratory Analyses

Samples submitted for explosives (HMX, RDX, and TNT) will be analyzed using Method 8330B. Samples submitted for lead will be analyzed using Method 6010C. Applicable laboratory sample processing will be performed in accordance with the protocol specified in the Site 39 QAPP (Worksheets 12, 15, 17 and 23-28). In order to obtain analytical results that accurately reflect and are truly representative of worst case scenario sample locations, each incremental sample will be processed per Evaluation of Sampling and Sample Preparation Modifications for Soil Containing Metallic Residue, ER-0918, January 2012, USACE ERDC. The processing has been modified for metals based upon USACE experience. Modifications for metals include drying and sieving down to 0.25 mm (60 mesh sieve). To prevent cross-contamination between

samples due to lead smearing, the grinding step will be excluded. In accordance with this QAPP, the laboratory will perform Gy's method (commonly referred to as slabcake subsampling) and increase the digestion mass to 5 grams. All fractions of the samples shall be archived (sieved and unsieved) until the relative percent difference (RPD) between field duplicates can be assessed. If RPDs are problematic, the sample processing methodology will be reevaluated. Samples collected for explosives analysis using EPA Method SW8330B will be processed as per this method's appendix A. Sample aliquots will be processed together until the procedure differs between metals and explosives.

6.2.3 Reporting

The results of sampling and analyses will be presented in a report that will discuss details of the investigation, an evaluation of site conditions, and present appropriate recommendations regarding site status and subsequent additional characterization and/or remediation, if needed.

7.0 References

Note: Numbers in brackets identify the corresponding Administrative Record reference ID.

Harding ESE/IT, 2001. *Draft Final Basewide Range Assessment Work Plan and Contractor Quality Control Plan, Small Arms and Multi-Use Ranges, Former Fort Ord, California.* July. [BW-2085A]

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_____, 2009. *Final Record of Decision Amendment Site 39, Former Fort Ord, California*. August. [RI-041E]

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Tables

**Table 1. Former Ranges Within or Overlapping Unit 31
Unit 31 Reconnaissance Results and Work Plan
Basewide Range Assessment
Former Fort Ord, California**

Historical Area Number	Range Number/Name	Former Use Summary
31	Range 31, Platoon Attack Course, Demolition Range	This range is documented on historical maps beginning in 1964. A 1973 SOP indicates use as Demolition Range. A 1990 SOP indicates mixed weapons use. Range control records indicate that construction of the Platoon Attack Course occurred in 1974 or 1975, and range SOPs indicate associated use from at least 1980 to 1993.
31A	Range 31A, STT Range 23	Limited historical documentation is available. A 1961 training map shows the presence of STT Range 23.
68	Submachine Gun DSMTD	This range is only shown on the July 1956 Construction Priority Map. No other documentation has been identified. Actual use is unknown, but it appears to have been intended for small arms use.

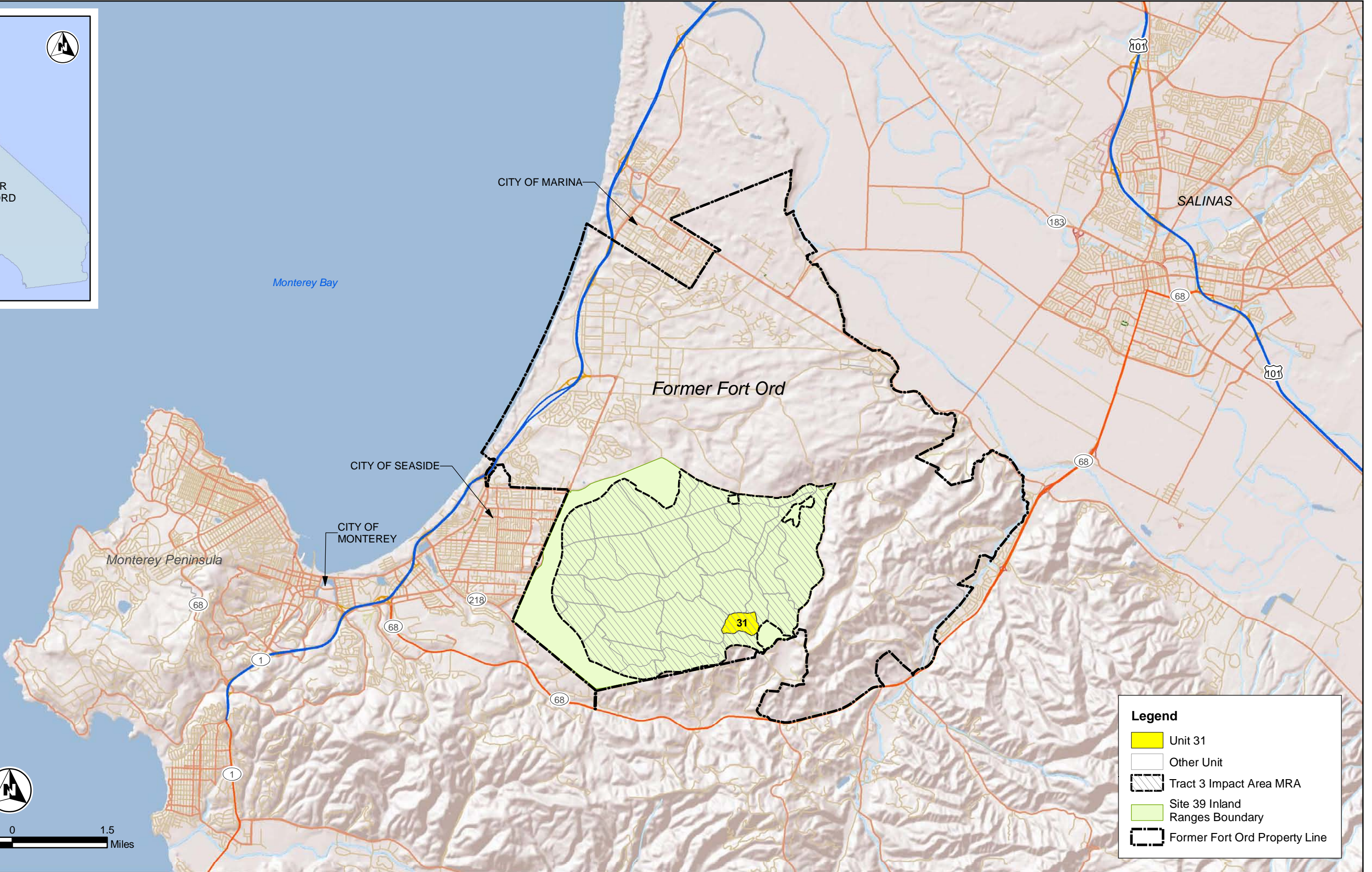
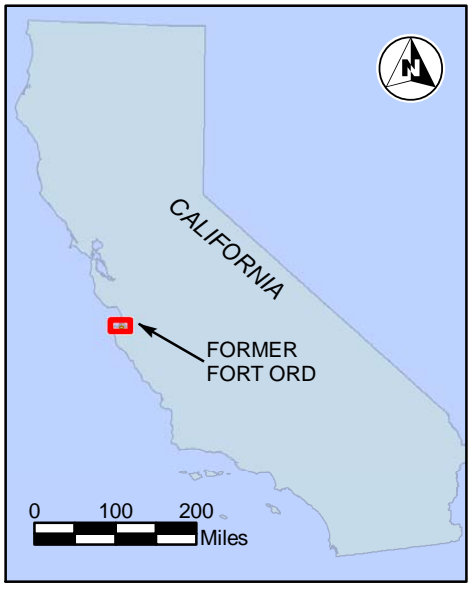
Range information based on data presented in the *Final Comprehensive Basewide Range Assessment Report* (Shaw, 2012).

**Table 2. Basis for Proposed Sampling Locations
Unit 31 Reconnaissance Results and Work Plan
Basewide Range Assessment
Former Fort Ord, California**

Unit	Proposed Location	Proposed Analyses*	Basis for Sampling
31	31-1	Lead	Former target vicinity
31	31-2	Lead	Former firing point
31	31-3	Lead	Former firing point
31	31-4	Lead	Impact berm
31	31-5	Lead	Former firing point
31	31-6	Lead	Lead accumulation area
31	31-7	Lead	Impact berm
31	31-8	Lead	Impact berm
31	31-9	Lead	Former firing point
31	31-10	Lead	Former firing point
31	31-11	Lead	Lead accumulation area
31	31-12	Lead	Lead accumulation area
31	31-13	Lead	Lead accumulation area
31	31-14	Lead	Lead accumulation area
31	31-15	Lead	Former firing point
31	31-16	Lead	Lead accumulation area
31	31-17	Lead	Lead accumulation area
31	31-18	Lead	Former target vicinity
31	31-19	Lead	Former firing point
31	31-20	Lead	Former firing point
31	31-21	Lead	Former target vicinity
31	31-22	Lead	Former target vicinity
31	31-23	Lead	Former firing point
31	31-24	Lead	Lead accumulation area
31	31-25	Lead	Former target vicinity
31	31-26	Lead	Former target vicinity
31	31-27	Lead	Former target vicinity
31	31-28	TNT/RDX/HMX, Lead	Lead accumulation area, MD accumulation area
31	31-29	TNT/RDX/HMX, Lead	Lead accumulation area, MD accumulation area
31	31-30	Lead	Lead accumulation area
31	31-31	Lead	Lead accumulation area
31	31-32	Lead	Lead accumulation area
31	31-33	Lead	Lead accumulation area
31	31-34	Lead	Lead accumulation area
31	31-35	TNT/RDX/HMX, Lead	Possible target area
31	31-36	TNT/RDX/HMX, Lead	Possible target area
31	31-37	TNT/RDX/HMX, Lead	Possible target area
31	31-38	TNT/RDX/HMX	Apparent explosion crater
31	31-39	TNT/RDX/HMX	Apparent explosion crater
31	31-40	TNT/RDX/HMX	Apparent explosion crater
31	31-41	TNT/RDX/HMX	Apparent explosion crater
31	31-42	TNT/RDX/HMX	Apparent explosion crater
31	31-43	TNT/RDX/HMX	Apparent explosion crater

* Analytical/preparatory methods 8330B for TNT/RDX/HMX and 6010C for lead as specified in the Site 39 QAPP, Appendix B, Work The analytes are selected based on specifications in the Site 39 ROD Amendment.

Figures



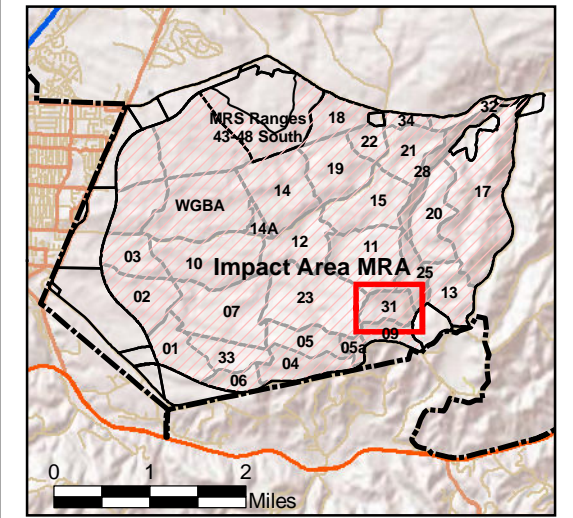
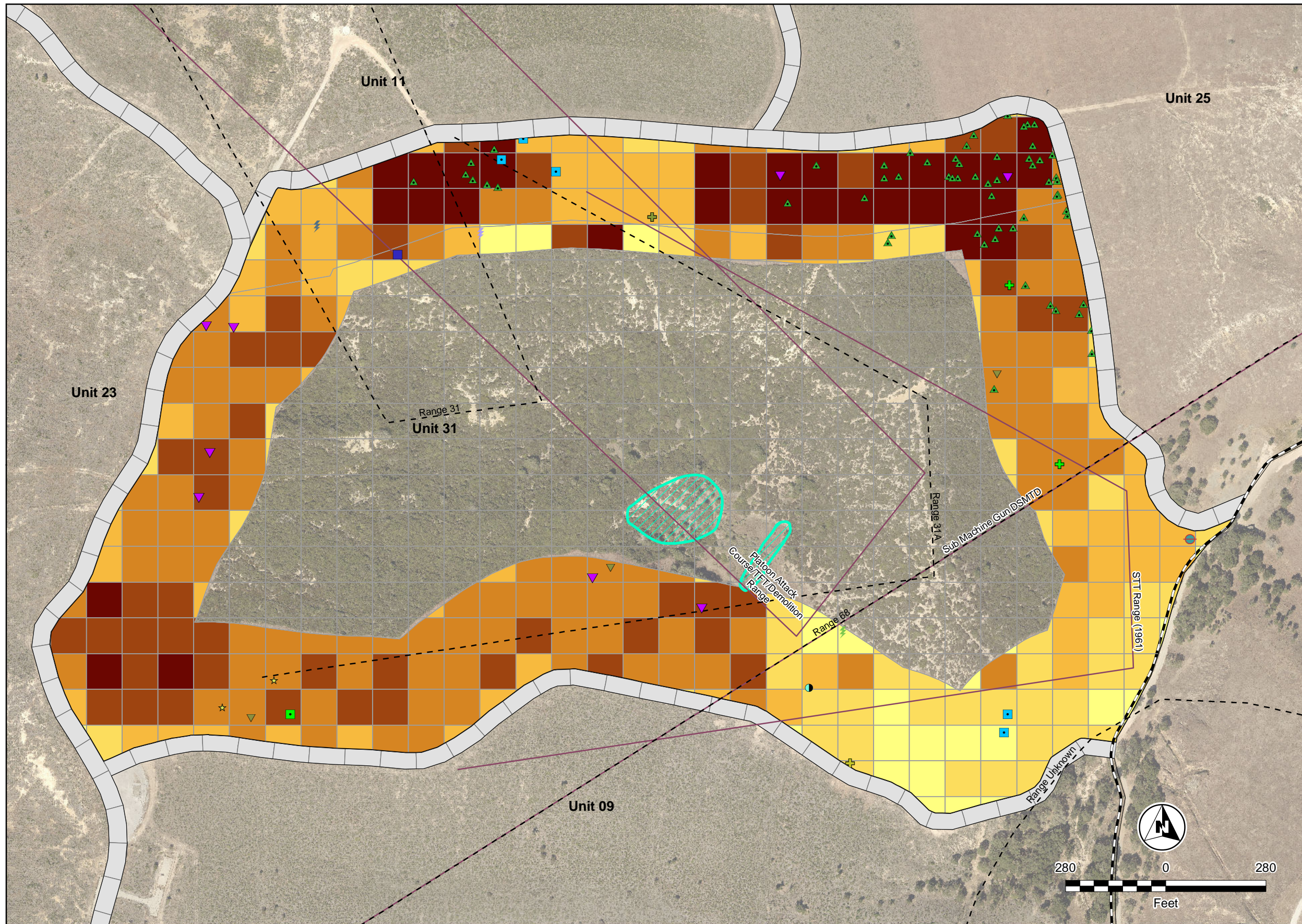
Legend

- Unit 31
- Other Unit
- Tract 3 Impact Area MRA
- Site 39 Inland Ranges Boundary
- Former Fort Ord Property Line

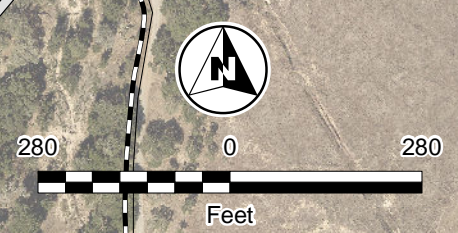
**Site Evaluation Results and Work Plan for Additional Investigation
 Basewide Range Assessment Investigation Unit 31
 Former Fort Ord, California**

Figure 1
 Location Map



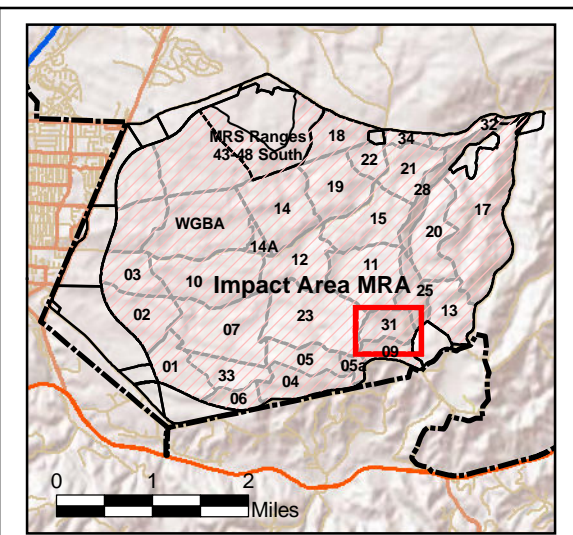
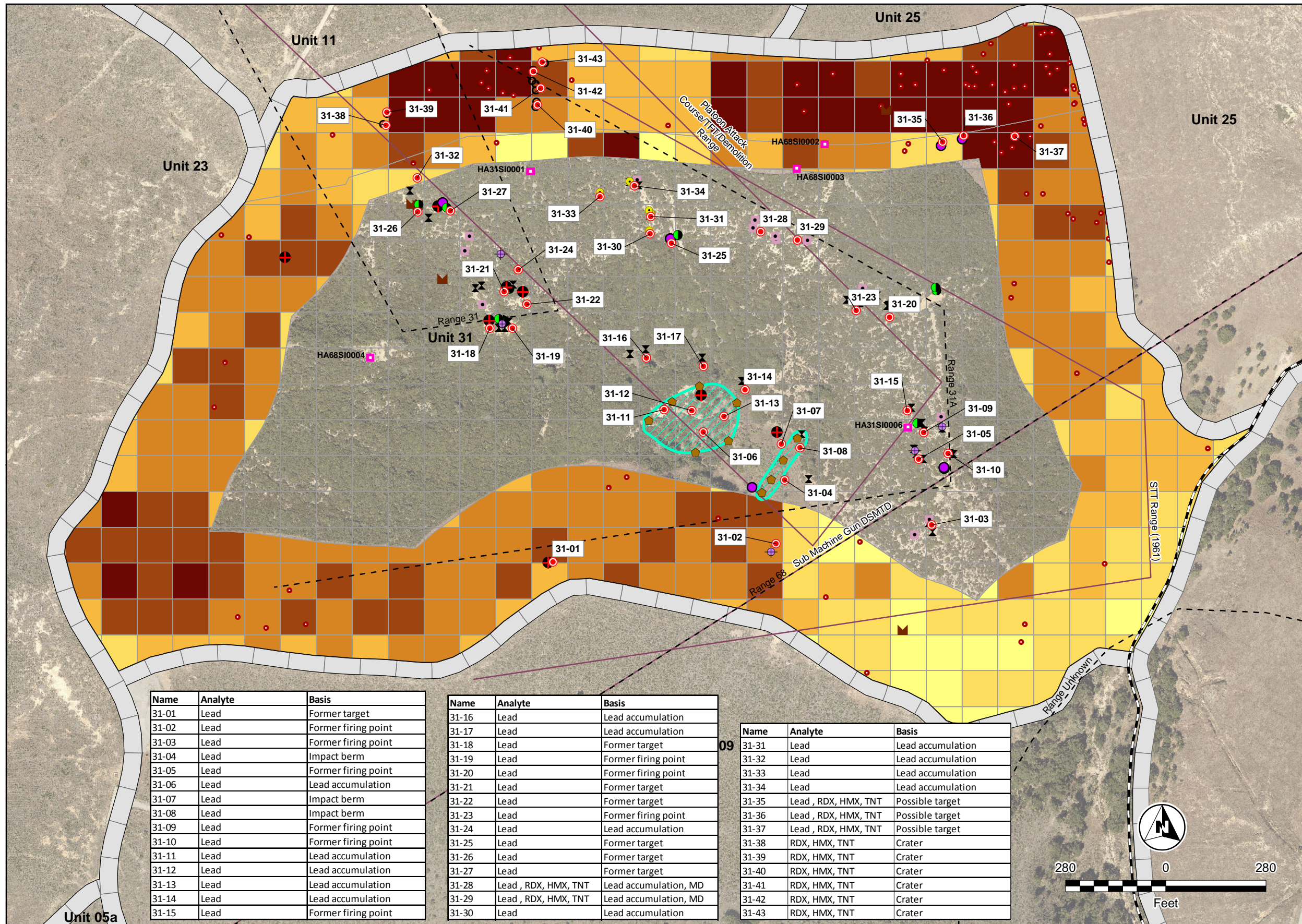


- Legend**
- Cap, blasting, electric, M6 (1)
 - ⚡ Fuze, grenade, hand, M215 (1)
 - ⚡ Fuze, grenade, hand, M217 (1)
 - ⚡ Fuze, grenade, igniting, M201 (1)
 - ⊕ Grenade, hand, practice, MK II (1)
 - ⊕ Grenade, hand, smoke, M18 series
 - Projectile, 155mm, shrapnel, MK 1
 - ▼ Projectile, 37mm, low explosive, MK I (8)
 - ▼ Projectile, 37mm, low explosive, MK II (3)
 - ★ Projectile, 40mm, practice, M781 (2)
 - ⊕ Projectile, 60mm, mortar, high explosive, M49 series (2)
 - Projectile, 75mm, Shrapnel, MK I (5)
 - Projectile, 75mm, high explosive, MK I (1)
 - ▲ Projectile, 81mm, mortar, high explosive, M43 series (59)
 - Rocket, 2.36inch, high explosive antitank, M6 (1)
 - - - Historical Range Fan/Area
 - Historical Area (HA)
 - ▨ Berm
 - ▭ Fuel Break Road
 - ▭ Impact Area MRA
- Weight of MD/Grid**
- 0 - 5 lbs MD
 - 5 - 25 lbs MD
 - 25 - 50 lbs MD
 - 50 - 100 lbs MD
 - 100 - 150 lbs MD
 - 150 - 340 lbs MD



Site Evaluation Results and Work Plan for Additional Investigation
 Basewide Range Assessment Investigation Unit 31
 Former Fort Ord, California

Figure 2
 Recovered MEC Items



- Legend**
- Proposed Sample Location (see note)
 - GPS Features**
 - ◆ Berm
 - Crater
 - ⊕ Firing Point
 - Lead Accumulation
 - MD
 - Mound
 - ✕ Small Arms Casing or Bullets
 - ⊕ Target
 - ▭ Trench
 - Wood Debris
 - ▲ Prior Location of UXO with Sensitive Fuze
 - Other MEC
 - Sample Location
 - - - Historical Range Fan/Area
 - Historical Area (HA)
 - ▭ Berm
 - ▭ Fuel Break Road
 - ▭ Impact Area MRA
 - Weight of MD/Lead**
 - 0 - 5 lbs MD
 - 5 - 25 lbs MD
 - 25 - 50 lbs MD
 - 50 - 100 lbs MD
 - 100 - 150 lbs MD
 - 150 - 340 lbs MD

Name	Analyte	Basis
31-01	Lead	Former target
31-02	Lead	Former firing point
31-03	Lead	Former firing point
31-04	Lead	Impact berm
31-05	Lead	Former firing point
31-06	Lead	Lead accumulation
31-07	Lead	Impact berm
31-08	Lead	Impact berm
31-09	Lead	Former firing point
31-10	Lead	Former firing point
31-11	Lead	Lead accumulation
31-12	Lead	Lead accumulation
31-13	Lead	Lead accumulation
31-14	Lead	Lead accumulation
31-15	Lead	Former firing point

Name	Analyte	Basis
31-16	Lead	Lead accumulation
31-17	Lead	Lead accumulation
31-18	Lead	Former target
31-19	Lead	Former firing point
31-20	Lead	Former firing point
31-21	Lead	Former target
31-22	Lead	Former target
31-23	Lead	Former firing point
31-24	Lead	Lead accumulation
31-25	Lead	Former target
31-26	Lead	Former target
31-27	Lead	Former target
31-28	Lead , RDX, HMX, TNT	Lead accumulation, MD
31-29	Lead , RDX, HMX, TNT	Lead accumulation, MD
31-30	Lead	Lead accumulation

Name	Analyte	Basis
31-31	Lead	Lead accumulation
31-32	Lead	Lead accumulation
31-33	Lead	Lead accumulation
31-34	Lead	Lead accumulation
31-35	Lead , RDX, HMX, TNT	Possible target
31-36	Lead , RDX, HMX, TNT	Possible target
31-37	Lead , RDX, HMX, TNT	Possible target
31-38	RDX, HMX, TNT	Crater
31-39	RDX, HMX, TNT	Crater
31-40	RDX, HMX, TNT	Crater
31-41	RDX, HMX, TNT	Crater
31-42	RDX, HMX, TNT	Crater
31-43	RDX, HMX, TNT	Crater



**Site Evaluation Results and Work Plan for Additional Investigation
Basewide Range Assessment Investigation Unit 31
Former Fort Ord, California**

Figure 3
Proposed Sample Locations, GPS Site Features and MD Recovered

Site Photographs



Unit 31 Photos
1. Upper Left: Target posts and bullet fragments on berm
2. Upper Right: Bullet fragments
3. Lower Left: Drum used as target



Unit 31 Photos

- 4. Upper Left: Pop-Up target box
- 5. Upper Right: Bullet and bullet fragment accumulation area
- 6. Lower Left: Firing point shell casing accumulation area



Unit 31 Photos:
7. Bullet fragment accumulation on berm