Revised

Site-Specific Explosives Safety Hazard Assessment
Potrero Canyon Unit (Lockheed Martin Beaumont Site 1)
Beaumont, California

Prepared for:

LOCKHEED MARTIN

TETRA TECH

301 E. Vanderbilt Way, Suite 450
San Bernardino, California 92408

TC# 23521-01.0404 / April 2012

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LOCKHEED MARTIN

April 5, 2012

Mr. Daniel Zogaib
Southern California Cleanup Operations
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

Subject: Submittal of the Revised *Site-Specific Explosives Safety Hazard Assessment, Potrero Canyon Unit (Lockheed Martin Beaumont Site 1), Beaumont, California*

Dear Mr. Zogaib:

Please find enclosed one hard copy and two CDs of the Revised *Site-Specific Explosives Safety Hazard Assessment, Potrero Canyon Unit (Lockheed Martin Beaumont Site 1), Beaumont, California*, revised in accordance with the Responses to DTSC Comments (Dated 01/30/2012) on the Site-Specific Explosive Safety Hazard Assessment, Potrero Canyon Unit (Lockheed Martin Beaumont Site 1) Beaumont, California, approved on March 19, 2012. DTSC comments, Lockheed Martin responses, and DTSC approval of the responses are attached to this letter.

In the meantime, if you have any questions regarding this submittal, please contact me at 818-847-9901 or brian.thorne@lmco.com.

Sincerely,

Brian T. Thorne
Remediation Project Lead

Attachment: DTSC Comments (Dated 01/30/2012), Lockheed Martin responses to DTSC Comments, and DTSC approval of Lockheed's responses

Enclosure: Revised *Site-Specific Explosives Safety Hazard Assessment, Potrero Canyon Unit (Lockheed Martin Beaumont Site 1), Beaumont, California*

Copy: Eddy Konno, Department of Fish and Game (electronic copy)
Mark Pavelka, U.S. Fish and Wildlife Service (electronic copy)
Gene Matsushita, LMC (electronic)
Sally Drinkard, CDM (electronic copy)
Jack McIlrath, CDM (electronic copy)
Tom Villeneuve, Tetra Tech (electronic copy)
Alan Bick, Gibson Dunn (electronic copy)

BUR086 Trans-Beau 1 revised ESHA

RESPONSES TO DTSC COMMENTS (DATED 01/30/2012) ON THE SITE-SPECIFIC EXPLOSIVE SAFETY HAZARD ASSESSMENT POTRERO CANYON UNIT (LOCKHEED MARTIN BEAUMONT SITE 1) BEAUMONT, CALIFORNIA

TETRA TECH, INC

Technical Comments		
Comment	**Response**	**Proposed Action**
1. Pg 2-16, Table 2-15: Under "C Portability", Column "B Moderate", it appears B, C and D should read C, D and E based on the bullets under the second note. The same under Column "C High" for the 4th row D should read E.	The scores presented in the table follow the protocols used for the Adak Final ESHA. Some of the notes were confusing in that some of the letter scores in parentheses were scores for the combinations described while in a few cases the parenthetic letters were a redundant indicator of the Portability category.	The notes will be changed to overcome the confusion.
2. Pg 3-9, Table 3-3: Following "Types of MEC" what is the basis for the second sentence of the comment?	The comment is intended to indicate that these sites should be considered for the general ICs since they fall within the range in Area A.	The text will be changed to provide the basis and state the intent.
3. Pg C-34, Table 17: Lists burster tubes under types of MEC "Types of MEC" but they are not Listed on C-33. Were these a MEC Hazard?	These items could not be opened for inspection but were disposed of as if they were MEC. Although it was not known if reactive material was present or possible to estimate the quantity of reactive material that may have been in the burster tubes, the risk should be similar to that for the primers in the 20mm target projectiles.	They will be added to the scoring sheet for this area, plus an additional explanation noting that although it was not known for certain if reactive material was present, or if present, how much of that material may have been in the burster tubes, the risk should be similar to that for the primers in the 20mm target projectiles.

RESPONSES TO DTSC COMMENTS (DATED 01/30/2012) ON THE SITE-SPECIFIC EXPLOSIVE SAFETY HAZARD ASSESSMENT POTRERO CANYON UNIT (LOCKHEED MARTIN BEAUMONT SITE 1) BEAUMONT, CALIFORNIA

TETRA TECH, INC

Minor (Administrative) Comments		
Comment	**Response**	**Proposed Action**
4. Pg 2-6, Table 2-2: Factor Score B, Description 7th line Change "delectability" to "detectability"	Concur.	The correction will be made
5. Pg 3-3, 2nd Para: First line "inform" ?	The line has been modified to clarify the contribution the CSM made to the ESHA	”helped to inform “ will be replaced with “supports”
6. Pg 3-10, Table 3-4 and pg C-8: Under "accessible area" is "slumping" supposed to refer to "sloughing"?	Concur.	“Slumping” will be changed to “sloughing”.
7. Pg 3-16, 2nd Para, 3rd line: after "16.2 acre area — it appears the beginning of the next sentence is missing.	Concur.	The word “This” will be inserted at the beginning of the sentence.
8. Pg 3-25 1st line: add a "d" to "an"	The words “in an” were inadvertently left from an earlier edit. They should be removed to make the sentence read correctly.	The sentence will read “over the AOC along lines spaced at 2.5 feet.”
9. Pg 3-42 12th line: Delete "The" before "three additional"	Concur.	The word “The” will be removed.

REVISED

SITE-SPECIFIC EXPLOSIVES SAFETY HAZARD ASSESSMENT
POTRERO CANYON UNIT (LOCKHEED MARTIN BEAUMONT SITE 1), BEAUMONT, CALIFORNIA

Prepared for:

Lockheed Martin Corporation

Prepared by:

Tetra Tech, Inc.

April 2012

Ron Marnicio
Project Manager

Thomas Villeneuve
Beaumont Site Manager

FOREWARD

The munitions and explosives of concern (MEC) hazard assessment methodology presented in this document is based upon explosive safety hazard assessment (ESHA) methodology developed for use on the former Adak Naval Air Station, Adak Island, Alaska. This ESHA methodology was developed cooperatively by a project team that included representatives of the United States Environmental Protection Agency (EPA), the Alaska Department of Environmental Conservation (ADEC), the United States Navy, Tetra Tech EC, Inc., native stakeholders and other consultants employed by the regulatory agencies. The ESHA methodology is part of an overall framework for assessing and managing potential threats to human health and the environment due to the presence of MEC. Other methodologies that were considered focus on establishing priorities for cleanup among competing sites. These other methods do not provide an appropriate framework for effectively evaluating differing levels of residual MEC-related hazard in the context of sites like the Potrero Canyon Unit, also known as Lockheed Martin Corporation's (LMC's) Beaumont Site1, where MEC assessment or removal has already been conducted and the value of additional measures is being evaluated. The ESHA methodology was modified slightly from the original ESHA methodology to accommodate site-specific, physical and MEC characteristics which affect accessibility and exposure scenarios at the Potrero Canyon Unit. The hazard assessment methodology and results presented in this document are qualitative in nature. Letter scores are assigned to the areas being assessed. However, these letter scores were subjectively developed based upon technical expertise and experience from previous MEC projects over the past 15 years. The assessment is intended only to assist in determining in a qualitative/subjective manner which areas of concern (AOCs) at the Potrero Canyon Unit have the highest relative residual hazard and which AOCs might, therefore, benefit most from some additional response, such as institutional controls.

EXECUTIVE SUMMARY

In late 2003, approximately 94% of Lockheed Martin Corporation's (LMC's) Beaumont Site 1, (the Site) near Beaumont, California, was sold to the State of California. The portion of the Site that was sold, now named the Potrero Canyon Unit, is being managed by the California Department of Fish and Game (CDFG). CDFG intends to use the property as a wildlife conservation area and to allow use of the property for limited public recreation.

During the active industrial life of the Site from 1960 until 1974, LMC used the facility for solid propellant mixing, testing, and incineration, as well as for ballistics testing. The company utilized explosives in their work; however, most munitions used on site were reportedly practice rounds that did not contain high explosives (HE). In 1970, LMC began offering their test services to outside parties. The company also leased property to Aerojet Corporation and allowed General Dynamics to conduct testing on site on several occasions. There are indications that some of the activities conducted by these two companies involved testing/firing of HE munitions.

In 2005, two small belts of 20mm link ammunition were found at a stream crossing in Operational Area D on site. Personnel from the Riverside County Sheriff's Department Hazardous Devices Team responded to the Site and examined the munitions. The officers dispatched were uncertain whether the ammunition was live (containing an explosive charge), so it was explosively disposed of in place. As a result of the discovery of these apparently discarded munitions, LMC undertook a series of activities to identify and remove residual explosive hazards related to munitions and explosives of concern (MEC) at the Site. Over the course of the next two years, two assessments and an MEC removal were conducted at the Site. Following completion of this work in 2007, the California Department of Toxic Substances Control (DTSC) requested that follow-on actions be evaluated to effectively manage the residual hazard due to MEC that might remain at the Site. Tailoring and implementing an explosive safety hazard assessment (ESHA) for the Potrero Canyon Unit were the first steps in defining a set of follow-on institutional controls (ICs) or other actions to help reduce or mitigate the potential explosive hazard to future site users.

In 2010, after some munitions debris was found during a nearby drilling operation, a third MEC evaluation was performed in the former burn pit area (BPA) that had reportedly been cleaned and closed in 1993. This site, located in Operational Area C, had not been previously evaluated for MEC since an extensive and documented effort had been conducted in 1993 to locate, excavate,

and remove the contents of the burn pits historically used to dispose of excess, waste, or off-spec rocket propellant. Although no MEC were found in the BPA, this area was also addressed in the ESHA. Application of the tailored hazard assessment methodology has resulted in documentation intended to help both current and future land users and/or owners understand the explosive safety management rationale adopted for each area of concern (AOC) at the Site (i.e., which AOCs warrant further action(s) and the types of actions versus which AOCs warrant no further action [NOFA]).

Six qualitative explosive safety letter scores (A, B1, B2, C, D and E) were developed through application of the Potrero Canyon Unit ESHA to analyses of available historical and field data. AOCs receiving an "A" score are, relatively speaking, the least hazardous areas and pose little or no future MEC risk with respect to the identified future use for wildlife management and limited public recreation. Those AOCs that would receive an "E" score would be relatively more hazardous areas in which to conduct these same activities. The "B" score developed for the Adak ESHA was divided into two possible outcomes for the Potrero Canyon Unit: "B1" and "B2". The "B1" score reflects a level of explosive hazard that could be appropriately mitigated with site-wide ICs or measures (e.g., MEC awareness training), while "B2" reflects a slightly greater explosive hazard level that might be managed more effectively with additional AOC-specific ICs or measures (e.g., restrictions on excavation or warning signs). This more detailed breakdown of scores was not needed for the Adak ESHA, as site-wide ICs had already been implemented at the time that method was developed. The relative scores are developed through the evaluation of the physical and MEC characteristics of an AOC, and public recreation characteristics and features that determine what types of hazards may be present and how likely it is that the public may be exposed to those hazards. Four hazard factors are considered in the assessment.

1. MEC Search/Removal Status
   (i.e., what is known about the likelihood for, and distribution of, MEC present in the AOC);
2. MEC Characteristics
   (i.e., the explosive properties of the MEC associated with the AOC);
3. MEC Accessibility
   (i.e., the potential for direct contact with MEC items present in the AOC);
4. Public Exposure
   (i.e., the nature of public access and the activities anticipated to be performed in the AOC).

The subfactors incorporated into these four major hazard factors and the relative role of each input is discussed in detail in the body of this document. However, in general, these factors reflect the following premises about MEC hazards at the Potrero Canyon Unit:

- AOCs where MEC are known or indicated to be present create more potential for explosive hazards than AOCs where MEC have been purposefully searched for and have not been found, or where all known MEC in the AOC have been removed.
- Different types of MEC present more or less potential to detonate if disturbed, and, if detonated, can produce a range of potential consequences.
- The potential for explosive hazards is created when energetic MEC are located at a depth in the ground where they would be disturbed by the activities likely to be performed in the AOC.
- There is greater potential for explosive hazards when the opportunity for public exposure is greatest (e.g., when people interact with the land more intensively or where the AOC is easier to access and utilize).

The Potrero Canyon Unit ESHA was applied to each of twenty-eight AOCs defined during previous assessment and removal actions. These AOCs were delineated based on historical information and field data, and represent areas where different types of MEC-related activities may have taken place. -Each AOC has a unique set of physical and MEC characteristics that contribute to the relative residual explosive hazard for that AOC. These characteristics influence the types of follow-on actions that may be appropriate to further reduce or mitigate potential explosive hazards.

Four of the 28 AOCs at the Site received an ESHA score of B2 indicating that these AOCs pose a relatively greater risk for residual MEC and explosives hazard. These AOCs may benefit from AOC-specific ICs or actions to reduce or mitigate potential residual explosives hazard. One AOC received a B1 score (Area H – Landfill AOC) based on the suspected presence of small arms ammunition (7.62mm). This AOC should be considered for site-wide ICs at a minimum. The remaining 23 AOCs received an A score indicating that follow-on actions are not required based on relative residual explosives hazard. The Potrero Canyon Unit ESHA scores for the 28 AOCs at the Site are summarized in Table ES-1.

Follow-on actions will be discussed in the Remedial Action Plan for the Site, which will be prepared at a later date. It should be noted that follow-on actions may be considered for all AOCs at the Potrero Canyon Unit based on criteria other than the ESHA score. AOCs that contain inert

munitions that resemble HE munitions may be perceived by the public as inherently dangerous. As such, these AOCs may benefit from the application of site-wide ICs such as an MEC awareness program or an informational kiosk.

Table ES- 1 Summary of Potrero Canyon Unit ESHA Results

Operational Area	AOC Name	ESHA Score
A	Gun Mount (Firing Point)	A
A	Impact Target Area	B2
A	Debris Fields	B2
A	Streambed	B2
B	Phalanx Gun Mount (Firing Point)	A
B	Phalanx Target Berm	A
B	Bazooka Impact Area	A
B	Blue Motor Burn Pit	A
B	Motor Washout Area	A
C	Former Burn Pit Area (BPA)	A
D	Terraced Projectile Landing Zone (TPLZ)	A
D	TPLZ Firing Point	A
D	End of TPLZ Range Fan	A
D	Small Test Area	A
D	Class A Storage	A
D	Control Trailer Area	A
D	Streambed	B2
F	Igniter Magazine	A
F	Motor Washout Area	A
G	Firing Point	A
G	Inner Range Fan	A
G	Fixed Target Zone	A
G	Upper Range	A
G	Mobile Target Impact Area	A
G	Streambed	A
H	Landfill	B1
I	Incendiary Bomb Test Area (IBTA)	A
I	Airstrip	A

Hazard Scores	Management Options
(Lowest Relative Hazard Levels) A B1	 No Further Action (NOFA) based on relative hazard Consider Site-Wide ICs
B2	Consider AOC-Specific ICs
C D E (Highest Relative Hazard Levels)	Consider Additional Evaluation Consider removal (Surface or Subsurface) Consider Removal (Surface or Subsurface)

ABBREVIATIONS AND ACRONYMS

4WD	four-wheel drive
ADEC	Alaska Department of Environmental Conservation
AOC	area of concern
bgs	below ground surface
BPA	burn pit area
CAD	cartridge actuated device
CDFG	California Department of Fish and Game
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
EOD	explosives ordnance disposal
EPA	United Stated Environmental Protection Agency
ESHA	explosives safety hazard assessment
frag	fragmentation
HDT	Riverside County Sheriff's Department Hazardous Device Team
HE	high explosive(s)
IBTA	Incendiary Bomb Test Area
IC	institutional control
IR3M	Interim Range Rule Risk Methodology
LMC	Lockheed Martin Corporation

LPC	Lockheed Propulsion Company
MC	munitions components[1]
MEC	munitions and explosives of concern
MEC HA	Munitions and Explosives of Concern Hazard Assessment Methodology
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEW	Net Explosive Weight
NOFA	no further action
RAP	Remedial Action Plan
SMER	Supplemental MEC Evaluation and Removal
Spec	specification
TNT	trinitrotoluene
TPLZ	Terraced Projectile Landing Zone
TP	target practice
UXO	unexploded ordnance

Note:

1. This definition of the acronym "MC" is specific to the Beaumont project and is different from the typical definition used for MEC projects.

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SECTION 1 INTRODUCTION

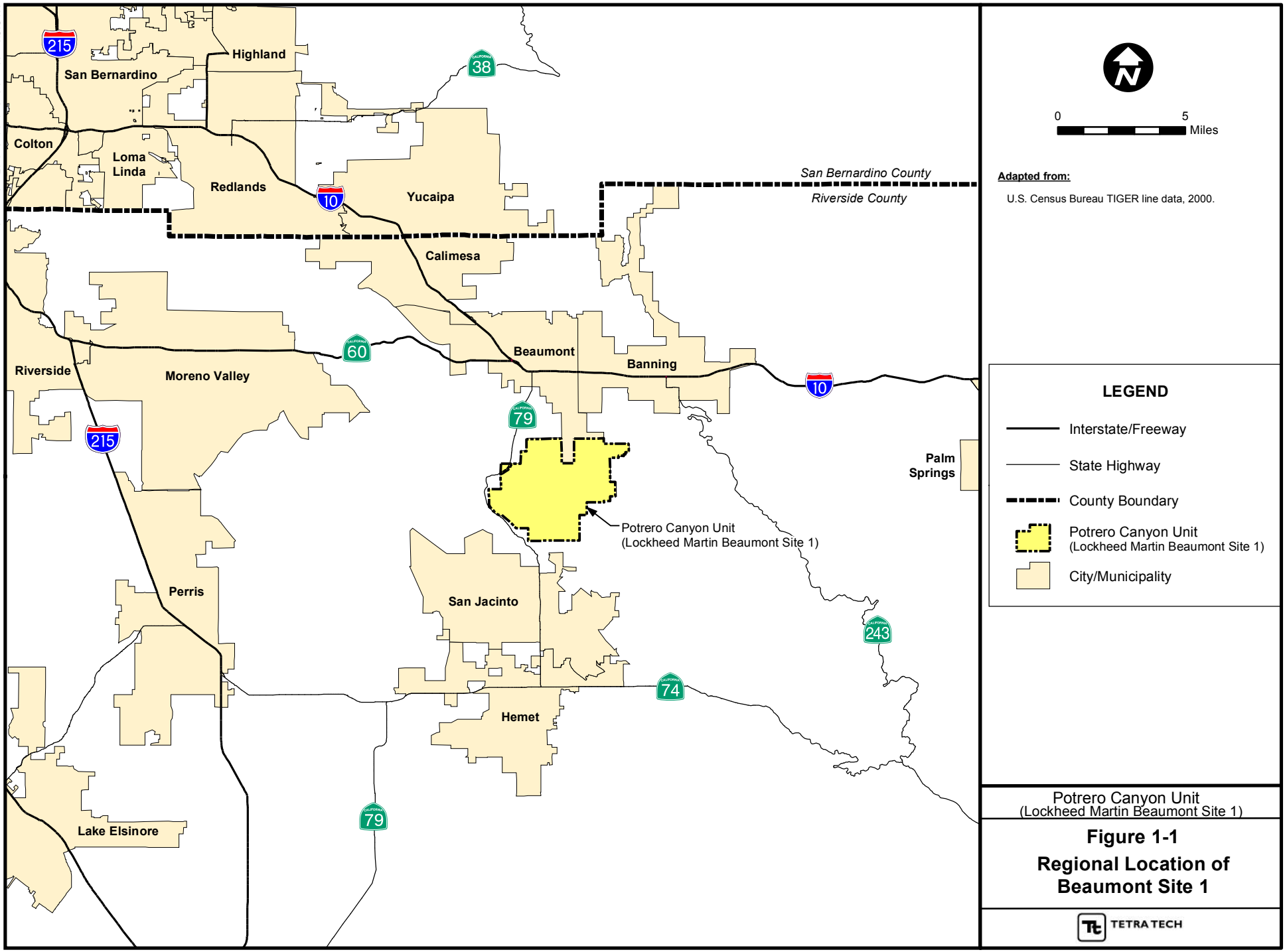
This document presents the methodology used to conduct an explosive safety hazard assessment (ESHA) of residual munitions and explosives of concern (MEC) hazard at the Potrero Canyon Unit, also called Lockheed Martin Corporation's (LMC's) Beaumont Site No. 1 (the Site) near Beaumont, California (see Figure 1-1), and the results of that assessment.

In late 2003, approximately 94% of the Site was sold to the State of California. This portion of the Site is being managed by the California Department of Fish and Game (CDFG). CDFG intends to use the property as a wildlife conservation area and to allow use of the property for limited public recreation.

During the active industrial life of the Site from 1960 until 1974, LMC used the facility for solid propellant mixing, testing, and disposal, as well as for ballistics testing. The company utilized explosives in their work; however, most munitions used on site were reportedly practice rounds that did not contain high explosives (HE). In 1970, LMC began offering their test services to outside parties. LMC also leased property to Aerojet Corporation and allowed General Dynamics to conduct testing on site on several occasions. There are indications that some of the activities conducted by these two companies involved testing/firing of HE munitions.

In 2005, two small belts of 20mm link ammunition were found at a stream crossing in Operational Area D. Personnel from the Riverside County Sheriff's Department Hazardous Devices Team responded to the Site and examined the munitions. The officers dispatched were uncertain whether the ammunition was live (i.e., containing an explosive charge), so the items were explosively disposed of in place. As a result of the discovery of these apparently discarded munitions, LMC undertook a series of activities to identify and remove residual MEC-related hazards at the Site.

Initially, LMC performed a rapid response to assess and, if necessary, mitigate immediate MEC-related hazards potentially present on site. This response was followed by a more formal MEC evaluation to identify less immediately hazardous MEC-related conditions potentially present at the Site. Both of these actions, referred to as the Phase I MEC Evaluation, were performed in 2005. To facilitate these initial actions, a list of areas of concern (AOCs) was compiled to focus the assessment in areas most likely to pose MEC hazards. Twenty-seven AOCs were identified. Although some slight modifications to the AOC boundaries were made after the Phase I Evaluation, the AOCs established during this phase of work were carried forward into subsequent


X:\GIS\Lockheed 25241_01_0404\Region.mxd
215
Highland
San Bernardino
38
Colton
Loma
Linda
Redlands
10
Yucaipa
San Bernardino County
Riverside County
Calimesa
60
Beaumont
Banning
Riverside
Moreno Valley
10
79
215
Palm
Springs
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Perris
San Jacinto
243
74
Hemet
79
Lake Elsinore
0
5
Miles
Adapted from:
U.S. Census Bureau TIGER line data, 2000.
LEGEND
Interstate/Freeway
State Highway
County Boundary
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
City/Municipality
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Figure 1-1
Regional Location of
Beaumont Site 1
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phases of work (as appropriate) to ensure clarity and consistency. During the Phase I Evaluation, a conceptual site model (CSM) for the Site was also developed. The CSM is a schematic representation of the links between the potential sources of munitions at various locations on site and the opportunities for direct contact exposure to MEC by individuals or groups conducting activities at those locations. The CSM is discussed in more detail in Section 3.1, as it is the basis for the selection of the default MEC characteristics assumed for each AOC in the hazard assessment and for evaluation of the relative hazard reduction realized through the MEC assessment and removal activities performed at the Site prior to the hazard assessment.

Based on the results of the Phase I MEC Evaluation and a review of the available historical information, it was determined that follow-on work would be necessary to adequately address the MEC issues at the Site. This follow-on work was designated as the Phase II MEC Evaluation and was conducted in 2005, immediately following the Phase I Evaluation.

The Phase II MEC Evaluation revealed that although most of the 27 AOCs defined at that time contained little (if any) residual MEC hazard, five AOCs required supplemental evaluation to verify that no significant risk was present. It was also determined during the Phase II MEC Evaluation that the historical test range in Operational Area A would require removal of HE munitions associated with past testing activities; however, the limits of this range (Area A - Target Impact Area AOC) needed to be more accurately defined. Following the further definition, a Remedial Action Workplan (RAW) was prepared and approved by DTSC for the removal of munitions in Area A. The identified supplemental evaluation and removal activities, which were conducted between August 2006 and April 2007, were designated as the Supplemental MEC Evaluation and Removal (SMER). The work conducted during the SMER established that little (if any) residual MEC hazard was present in three of the remaining AOCs. A fourth AOC was cleared during the SMER since there was not conclusive evidence that MEC had not been used in this AOC. Removal of MEC at the range in Area A was also performed, completing the then-necessary physical assessment and removal of MEC at the Site.

During a 2009 drilling project in the former burn pit area (BPA) in Operational Area C at the Site, several suspect items (potential MEC) were found. While the burn pit debris and obvious contamination had reportedly been removed from the BPA during a 1993 project, it appeared that some inert munitions waste might still be present. Accordingly, LMC conducted an evaluation of a representative portion of the BPA to determine if there was potential for MEC to be present and if any further action would be warranted in this area. The BPA was then designated as the twenty-eighth AOC. (See Figure 1-2.)

X:\GIS\Lockheed 25241_01_0404\AOCs.mxd

Impact Target Area

Area A
Eastern Aerojet Range (Avanti)

Debris Field

Streambed

Gun Mount

Area I
Western Aerojet Range

Airstrip AOC

Area B
Rocket Motor Production Area

Airstrip AOC

Bazooka Impact Area

Phalanx Gun Mount

Blue Motor Burn Pit

Incendiary Bomb Test Area

Area F
LPC Test Services Area

Motor Washout Area

Phalanx Target Berm

Area C
Burn Pit Area

Class A Storage

Area H
Sanitary Landfill

Igniter Magazine

Washout Area

End of TPLZ Range Fan

Burn Pit Area

Landfill

TPLZ Firing Point

Control Trailer

Streambed

Firing Point and Inner Range Fan

Streambed

Small Test Area

Fixed Target Zone

Area D
LPC Ballistics Test Range

Mobile Target Impact Area

Upper Range Area

Area G
Helicopter Weapons Test Area

0 1,000 2,000 Feet

Adapted from:

April 2007 aerial photograph.

LEGEND

- MEC Area of Concern (AOC)
- Conservation Easement Boundary
- Potrero Canyon Unit (Lockheed Martin Beaumont Site 1)
- Historical Operational Area Boundary

Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)

Figure 1-2

Historical Operational Areas and MEC AOCs

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SECTION 2 HAZARD ASSESSMENT METHODOLOGY

2.1 ADAK ESHA TEMPLATE

The MEC hazard assessment methodology presented in this document is based upon explosives safety hazard assessment (ESHA) methodology developed for use on the former Adak Naval Air Station, Adak Island, Alaska. This ESHA methodology was developed cooperatively by a project team that included representatives of the United States Environmental Protection Agency (EPA), the Alaska Department of Environmental Conservation (ADEC), the United States Navy, Tetra Tech EC, Inc., native stakeholders and other consultants employed by the regulatory agencies. The ESHA methodology is part of an overall framework for assessing and managing potential threats to human health and the environment due to the presence of MEC. Other methodologies that were considered focus on establishing priorities for cleanup among competing sites. These other methods do not provide an appropriate framework for effectively evaluating differing levels of residual MEC-related hazard in the context of sites like Beaumont Site1, where MEC assessment or removal has already been conducted and the value of additional measures is being evaluated. The ESHA methodology was adapted slightly from the original ESHA methodology to accommodate site-specific, physical and MEC characteristics which affect accessibility and exposure scenarios at the Site.

The evaluation of potential threats associated with the release of hazardous chemicals can be addressed through established risk assessment procedures under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). However, CERCLA had (and still has) no special consensus provisions for dealing with MEC hazards, and the processes that had been developed for hazardous chemical substances do not lend themselves directly to this type of contamination. In addition, no guidance or consensus as to an acceptable quantitative risk or hazard range had been established for MEC. The Adak ESHA relates primarily to the presence of MEC. Risk experts, MEC specialists, and stakeholders for Adak Island spent more than two years developing a hazard assessment process for MEC that was consistent with CERCLA principles and acceptable to all parties including the governing agencies. The team surveyed and evaluated the diverse set of tools that were available for screening and assessing MEC-related hazards and risk to determine what approach was best suited to Adak. Some of these tools that were critically evaluated are identified in Table 2-1.

Table 2-1 Selected MEC Hazard Assessment Frameworks and Methodologies that Were Reviewed

MEC RISK ASSESSMENT METHODOLOGIES	YEAR PUBLISHED
MIL-STD-882C Risk Assessment Methodology (DOD, 1993)	1993
Ordnance and Explosives Cost-Effectiveness Risk Tool (OECert) Methodology (QuantiTech, 1995)	1995
Risk Assessment Procedures for Ordnance and Explosives Sites (Draft ETL 1110-1-165) (USACE, 1995)	1995
Fort Meade Risk Assessment Methodology (Hill, et al, 1996)	1996
NAVEODTECHDIV Methodology (NAVEOD, 1996a and b)	1996
Draft R3M Qualitative Risk Evaluation Methodology (1997 Working Draft of the R3M) (R3Ma, 1997)	1997
Draft R3M Streamlined Risk Evaluation Methodology (1997 Working Draft of the R3M) (R3Mb, 1997)	1997
Kaho' olawe Site Characterization Hazard Assessment Methodology (USACE, 1998)	1998
Interim Range Rule Risk Methodology (IR3M): Deliberative Draft Version - May 1999 (R3M, 1999)	1999
Statistical Assessment of Risk and Sampling (STARS) (QuantiTech, 1999)	1999
January 2000 and March 2000 Draft Interim Range Rule Risk Methodologies (R3m, 2000a and b)	2000

The Adak team selected the Draft Interim Range Rule Risk Methodology (IR3M) as the starting point and general framework for development of the Adak methodology. A brief description of the IR3M is presented below. The IR3M was being developed in response to the Department of Defense's (DoD's) proposed Range Rule. The proposed Range Rule defined a comprehensive process for managing, assessing, and communicating risk at former ranges located within the United States. Under the proposed Range Rule, the DoD (along with the EPA, state and tribal regulatory authorities, and a wide variety of stakeholders) developed the IR3M as a systematic, logical process for effectively managing risks posed by unexploded ordnance (UXO) and other constituents that may be found at former military training areas. The IR3M process was developed to include steps to ensure the protection of people and the environment by providing decision-makers with the tools and information necessary to:

- Gather sufficient, accurate data to make informed decisions.
- Weigh factors to make informed decisions concerning response actions.
- Keep stakeholders involved in the risk management process.
- Begin taking proactive action to reduce risk associated with MEC and other constituents.

The IR3M approach applied the principles of EPA's data quality objective process, the National Contingency Plan (NCP) and CERCLA, together with DoD's explosive safety requirements and other applicable federal, state, and local laws and regulations. The Draft IR3M risk assessment

processes were revised and refined to develop a qualitative site-specific MEC hazard assessment framework that made use of a combination of quantitative and qualitative inputs. This framework reflected established scientific and engineering principles (e.g., MEC characteristics, weapons system deployment practices, consideration of geology and topography) and was supplemented, where necessary, by the best professional judgment of the project team and their technical support.

2.2 POTRERO CANYON UNIT ESHA METHODOLOGY

The Potrero Canyon Unit ESHA was developed from the Adak ESHA methodology by refining and modifying the basic elements to reflect site-specific characteristics and the specific features of the Site that influence accessibility for exposure.

The inputs to the Potrero Canyon Unit ESHA methodology are both quantitative (e.g., the Level of Public Activity [Intrusion Depth]) and qualitative (e.g., the Ease of Access to various areas of the Site). However, the overall framework and the hazard assessment scoring are qualitative in nature. The assessment has the objective of assigning relative scores to qualitative estimates of the potential MEC hazard for each AOC at the Site and not defining quantitative measures of known risk. Figure 2-1 shows the logical flowchart for the Potrero Canyon ESHA methodology. The elements of the methodology are discussed in detail in the following sections.

Figure 2-1 delineates the four primary hazard factors for each AOC evaluated using the Potrero Canyon Unit ESHA.

1. MEC Search/Removal Status
   (i.e., what is known about the likelihood and distribution of MEC present in the AOC);
2. MEC Characteristics
   (i.e., the explosive properties of the MEC);
3. MEC Accessibility
   (i.e., the potential for direct contact with MEC items);
4. Public Exposure
   (i.e., the nature of public access and the activities performed in the AOC).

The selection of these factors reflects the following premises about MEC hazards at the Site:

- AOCs where MEC are known or indicated to be present create more potential for explosive hazards than AOCs where MEC have been purposefully searched for and have not been found or where all known MEC in the AOC have been removed.

Figure 2-1 Flowchart of the ESHA Methodology for the Potrero Canyon Unit

MEC SEARCH/REMOVAL STATUS HAZARD FACTOR	MEC CHARACTERISTICS HAZARD FACTOR	MEC ACCESSIBILITY HAZARD FACTOR	PUBLIC EXPOSURE HAZARD FACTOR
SUBFACTOR • **MEC Search/Removal Status**	• **SUBFACTORS** • **MEC Hazard Severity** (includes MEC Type and Fuzing) • **Amount of Energetic Material** (Impact Scale)	**SUBFACTORS** • **Level of Public Activity** (Intrusion Depth) • **Depth Below Ground Surface** • **Migration/Erosion Potential** (Due to Natural Processes)	**SUBFACTORS** • **Frequency of Public Access** (includes Ease of Access and Current and/or Future Land Use) • **Intensity of Public Activity** (Energy Imparted to the Ground) • **Portability**
⇓	⇓	⇓	⇓
⇓	**MEC Characteristics Weighting Factors and Scoring Rules**	**MEC Accessibility Weighting Factors and Scoring Rules**	**Public Exposure Weighting Factors and Scoring Rules**
⇓	⇓	⇓	⇓
QUALITATIVE MEC SEARCH/REMOVAL STATUS SCORE	**QUALITATIVE MEC CHARACTERISTICS SCORE**	**QUALITATIVE MEC ACCESSIBILITY SCORE**	**QUALITATIVE PUBLIC EXPOSURE SCORE**
⇓	⇓	⇓	⇓
Explosives Safety Hazard Weighting Factors and Scoring Rules			
⇓			
EXPLOSIVES SAFETY HAZARD CATEGORY			

(Lowest Relative Hazard Levels)	**Management Options: NOFA / Institutional Controls**
A **B1**	**NOFA based on relative hazard** **Consider Site-Wide Institutional Controls (ICs)**
B2	**Consider AOC-Specific ICs**
C **D** **E** **(Highest Relative Hazard Levels)**	**Management Options: "Evaluate Follow-On Field Activities"** **Consider Additional Evaluation** **Consider Removal (Surface or Subsurface)** **Consider Removal (Surface or Subsurface)**

- Different types of MEC present more or less potential to detonate if disturbed, and, if detonated, can produce a range of potential consequences.

- The potential for explosive hazards is created when energetic MEC are located at a depth in the ground where they would be disturbed by the activities likely to be performed in the AOC.

- There is greater potential for explosive hazards when the opportunity for public exposure is greatest (e.g., when people interact with the land more intensively or where the AOC is easier to access and utilize).

2.2.1 Hazard Subfactors

Hazard subfactors are the individual risk-related elements believed to influence the primary factors. For example, MEC accessibility depends on the depth of the MEC items, the migration potential (e.g., will the MEC move over time and become more accessible?), and the level of public intrusion (e.g., will individuals dig to the depth of the MEC for any reason?). If all MEC are located well below the ground surface, then the MEC are generally considered to be relatively less accessible, unless intrusive activities may be performed in the AOC that would lead to contact with and exposure to this MEC. The breakdown of each primary hazard factor into subfactors for the ESHA methodology is provided below:

	PRIMARY HAZARD FACTORS		HAZARD SUBFACTORS
1)	MEC Search/Removal Status	←	MEC Search/Removal Status
2)	MEC Characteristics	←	MEC Hazard Severity (Type and Fuzing, if known)
		←	Amount of Energetic Material (Impact Scale)
3)	MEC Accessibility	←	Level of Public Activity (Intrusion Depth)
		←	Depth Below Ground Surface
		←	Migration / Erosion Potential
4)	Public Exposure	←	Frequency of Public Access (Ease of Access and Current and/or Future Land Use)
		←	Intensity of Public Activity (Energy Imparted to the Ground)
		←	Portability

The subfactors have varying degrees of importance (weight) in determining the influence of the primary factors in the overall hazard for the Site. -The factors are also inter-related. For example, the depth of MEC is not as critical in determining potential exposure in AOCs where no intrusive activities will occur. The following sections describe the subfactors in more detail and provide an explanation of the weighting factors or scoring rules applied to develop the overall quantitative score for the primary factors, and ultimately the overall score for the AOC.

2.2.2 MEC Search/Removal Status Hazard Factor

The MEC Search/Removal Status Hazard Factor does not have subfactors. It is a determination of whether or not MEC are thought to be present. Given the singularity of this determination, no qualitative weighting factors or scoring rules are required to develop the overall score for the MEC Search/Removal Status Hazard Factor. The qualitative categories of the MEC Search/Removal Status and their associated scores are presented in Table 2-2.

Table 2-2 MEC Search/Removal Status Factor Category Definitions [1]

Factor Score	Category	Description
A	MEC Not Found or MEC Detected and Removed	One of the following conditions must be true to assign a score of "A" to an AOC: MEC are not detected during a 100% geophysical survey. MEC are only detected below the projected activity intrusion depth [2] during a 100% geophysical survey. MEC are detected during a 100% geophysical survey and are removed [3]. MEC are not detected during a <100% geophysical survey approved [4] for the designated AOC type.
B	MEC Detected and Removed; Residual Possible Beyond Approved Removal Specifications	One of the following conditions must be true to assign a score of "B" to an AOC: MEC are detected above the projected activity intrusion depth during a 100% geophysical survey and are removed; however, potential exists for residual MEC based on undiscovered sources, small MEC items (low detectability at depth), or other reasons. MEC are detected above the projected activity intrusion depth during a 100% instrument aided sweep of accessible areas within the AOC; however, potential exists for residual MEC due to undiscovered sources, small MEC item size (low detectability at depth), or lack of accessibility for assessment.
C	MEC Known or Indicated to be Present	One of the following conditions must be true to assign a score of "C" to an AOC: MEC are detected above the projected activity intrusion depth during a 100% geophysical survey and are not removed. MEC are detected during a <100% geophysical survey approved [4] for the designated AOC type and are not removed. MEC associated with the designated AOC type are detected during a <100% geophysical survey approved [4] for the designated AOC type.

NOTES:

[1] The current formulation of this factor reflects the desire to make use of a qualitative metric of the indicated presence or apparent lack of MEC in an AOC and to make the most use of the quantitative results from the field investigation efforts performed to date. The factor has been designed to account for slight uncertainties regarding residual MEC in AOCs where circumstances not related to field staff performance may have resulted in the presence of residual MEC.

[2] For purposes of this assessment, the indicated presence of MEC below the projected activity intrusion depth should consider the potential for vertical (upward) MEC migration as described in Table 2-8.

[3] Removal of detected MEC may be performed during any phase of site investigation or remediation (e.g., site preparation, field sampling, expedited response actions, or response actions.)

[4] "Approved" search methodology means approved by the California Department of Toxic Substances Control in the Work Plans submitted for this project.

2.2.3 MEC Characteristics Hazard Factor

The MEC Characteristics Hazard Factor is defined in terms of two subfactors.

- MEC Hazard Severity
- Amount of Energetic Material

Each of these subfactors is defined and described in Table 2-3. The qualitative weighting factors and scoring rules used to develop the overall quantitative score for the MEC Characteristics Hazard Factor also are presented.

MEC Hazard Severity Subfactor

The qualitative categories of the MEC Hazard Severity subfactor and their associated scores are presented in Table 2-3.

Table 2-3 MEC Hazard Severity Subfactor Category Definitions

Subfactor Score	Category [1]	Description
A	No Explosive Hazard	Non-energetic objects including munitions components (MC), such as fragmentation (frag) and practice ordnance projectiles without spotting charges, which present no explosive hazard in the event of disturbance or exposure
B	Negligible Hazard	Complete and ready to fire small arms ammunition (including blanks) 0.50 caliber or less (including the projectile, case, powder and primer) [2]
C	Marginal Hazard	Ordnance and energetic items that have not been deployed as designed or have been subjected to attempted disposal by discarding or burial
D	Critical Hazard	All MEC and energetic items in any configuration that have been deployed and failed to function as designed. This category includes all fuzed, armed, and dud fired items, with the exception of the Catastrophic Hazard MEC in Category E and items that have been subjected to attempted disposal by detonation or burning.
E	Catastrophic Hazard	Highest hazard MEC including MEC items with highly sensitive fuzing (such as 40mm anti-personnel projectiles), emplaced minefields, and chemical warfare materiel.

NOTE:

[1] The basic subfactor definitions used in the Adak ESHA have been modified to specifically address the types of MEC or related debris at the Potrero Canyon Unit.

[2] Large buried caches of small arms ammunition would be assessed as MEC Hazard Severity Category "C".

Amount of Energetic Material (Impact Scale) Subfactor

The qualitative categories of the Amount of Energetic Material subfactor and their associated scores are presented in Table 2-4.

MEC Characteristics Weighting Factors and Scoring Rules

The qualitative scoring matrix and implied weighting factors for the MEC Characteristics Hazard Factor are presented in Table 2-5.

Table 2-4 Amount of Energetic Material (Impact Scale) Subfactor Category Definitions

Subfactor Score	Category	Description
A	**< 0.5 pounds NEW [1,3]**	Per individual item [2]
B	**0.5 to 1.0 pounds NEW**	Per individual item
C	**1 to 10 pounds NEW**	Per individual item
D	**10 to 100 pounds NEW**	Per individual item
E	**> 100 pounds NEW**	Per individual item

NOTES:

[1] NEW = Net Explosive Weight per individual MEC item

[2] Based on the MEC item with the largest NEW found in the AOC, if multiple MEC types are found or are anticipated

[3] Many of the munitions at the Potrero Canyon Unit were experimental and do not have marks or mods to identify them. The NEW was estimated based on similar munitions found in the Hazard Classification of United States Military Explosives and Munitions, an explosives ordnance disposal (EOD) Identification Guide, a specific EOD 60-Series publication, the Enhanced International Deminers' Guide to UXO Identification, Recovery and Disposal (also known as ORDATA),--and or other reliable sources.

Table 2-5 MEC Characteristics Weighting Factors and Scoring Rules [1]

MEC Hazard Severity - High Weighting
Amount of Energetic Material - Low Weighting

	Amount of Energetic Material (Impact Scale)				
MEC Hazard Severity ↓	**A <0.5 pounds NEW**	**B 0.5 to 1.0 pounds NEW**	**C 1 to 10 pounds NEW**	**D 10 to 100 pounds NEW**	**E >100 pounds NEW**
A - No Explosive Hazard [2]	A	***Not Possible by Definition***			
B - Negligible Hazard	B	***Not Possible by Definition***			
C - Marginal Hazard	C	C	C	D	D
D - Critical Hazard	D	D	D	E	E
E - Catastrophic Hazard	E	E	E	E	E

NOTES:

[1] The scoring for the MEC Characteristics Hazard Factor is primarily weighted toward (determined by) the MEC Hazard Severity of the energetic MEC items that were found, as characterized by both MEC type and the presence/absence of fuzing. Only a relatively minor adjustment is made to reflect the weight of energetic material contained in an item of the largest MEC type found (i.e., the heaviest 2 categories of items--i.e., individual NEW greater than 10 pounds-- are given an additional score point).

[2] Situations judged to present no explosives safety hazard have been assigned the lowest score of "A".

[3] If removal involves the removal of all known MEC items, the MEC Characteristics score for the AOC is based on the type of MEC that was previously found in the AOC.

2.2.4 MEC Accessibility Hazard Factor

The MEC Accessibility Hazard Factor is defined in terms of three subfactors.

- Level of Public Activity
- Depth Below Ground Surface
- Migration / Erosion Potential

Each of these subfactors is defined and described below. The qualitative weighting factors and scoring rules used to develop the overall quantitative score for the MEC Accessibility Hazard Factor also are presented.

Level of Public Activity (Intrusion Depth) Subfactor

The qualitative categories of the Level of Public Activity subfactor and their associated scores are presented in Table 2-6.

Table 2-6 Level of Public Activity Subfactor Category Definitions

Subfactor Score	Category [1]	Description
A	Non-Intrusive	On the surface only
B	Minor Intrusions	Activity on the surface or disturbance of the ground (e.g., by hand tools) to maximum of 1 foot below ground surface (bgs)
C	Moderate Intrusions	Ground disturbance with equipment to maximum of 2 feet bgs
D	Significant Intrusions	Ground disturbance with equipment to maximum of 4 feet bgs
E	Highly Intrusive	Ground disturbance to greater than 4 feet bgs

NOTES:

[1] Subfactor category and score are assigned on the basis of current and projected future land use and the activities anticipated for the AOCs as identified for the projected future uses. (See Appendix A.)

Depth Below Ground Surface Subfactor

The qualitative categories of the Depth Below Ground Surface subfactor and their associated scores are presented in Table 2-7.

Table 2-7 Depth Below Ground Surface Subfactor Category Definitions

Subfactor Score	Category [2]
A	All energetic MEC items > 10 feet bgs [1]
B	All energetic MEC items > 4 feet bgs [1]
C	All energetic MEC items > 2 feet bgs
D	All energetic MEC items > 1 foot bgs
E	Any energetic MEC items < 1 foot bgs

NOTES:

[1] A judgment of the presence or absence of energetic MEC items at depths of 4 feet or more below the ground surface should consider the performance of the geophysical investigation and data interpretation process relative to the site conditions in the AOC.

[2] Depth should be based on actual field measurements of energetic MEC items found. This subfactor should not be estimated if no energetic MEC items (e.g., only frag) are found.

[3] The shallowest energetic MEC item found in the AOC determines the Depth Below Ground Surface category for that AOC.

Migration/Erosion Potential (Due to Natural Processes) Subfactor

The qualitative categories of the Migration/Erosion Potential subfactor and their associated scores are presented in Table 2-8.

Table 2-8 Migration/Erosion Potential Subfactor Category Definitions

Subfactor Score	Category	Description [1,2]
A	Very Stable	MEC will not migrate.
B	Moderate	MEC may surface over a long period of time and/or through recurring natural events (e.g., freeze-thaw processes, erosion/stream transport, and wind action). Extreme natural events (e.g., earthquakes, tsunamis, mudslides) may cause migration.
C	Significant	Recurring and extreme natural events will bring MEC to the surface within a reasonable period (e.g., 5 years).

NOTES:

[1] Migration should be judged relative to the potential for MEC to surface within the AOC or be transported into the AOC such that public exposure to, and contact with, the MEC item is a possibility.

[2] The most common migration/erosion processes to consider at the Site are believed to be the following:
Stream flow causing normal erosion and redistribution of sediments over time
High velocity stream flow during flash floods resulting in rapid erosion from stream banks and or significant redistribution of sediments,
Wind erosion causing slow redistribution of site soils

MEC Accessibility Weighting Factors and Scoring Rules

The qualitative scoring matrix and implied weighting factors for the MEC Accessibility Hazard Factor are presented in Table 2-9.

Table 2-9 MEC Accessibility Weighting Factors and Scoring Rules [1, 3]

Level of Public Activity - High Weighting Depth Below Ground Surface - High Weighting Migration / Erosion Potential - Low to Moderate Weighting (Site-Specific)				
		MIGRATION / EROSION POTENTIAL (Due to Natural Processes)		
LEVEL OF PUBLIC ACTIVITY (Intrusion Depth) ↓	DEPTH BELOW GROUND SURFACE ↓	A Very Stable	B Moderate	C Significant
	A All Items > 10 feet bgs	A	A	E
A	B All Items > 4 feet bgs	A	A	E
Non-Intrusive	C All Items > 2 feet bgs	B	B	E
(Surface Only)	D All Items > 1 foot bgs	B	D	E
	E Any Item < 1 foot bgs [2]	E	E	E
	A All Items > 10 feet bgs	A	A	E
B	B All Items > 4 feet bgs	A	A	E
Minor Intrusion	C All Items > 2 feet bgs	B	C	E
(< 1 foot bgs)	D All Items > 1 foot bgs	C	D	E
	E Any Item < 1 foot bgs [2]	E	E	E
	A All Items > 10 feet bgs	A	A	E
C	B All Items > 4 feet bgs	B	C	E
Moderate Intrusion	C All Items > 2 feet bgs	C	D	E
(< 2 foot bgs)	D All Items > 1 foot bgs	E	E	E
	E Any Item < 1 foot bgs [2]	E	E	E
	A All Items > 10 feet bgs	A	A	E
D	B All Items > 4 feet bgs	C	D	E
Significant Intrusion	C All Items > 2 feet bgs	E	E	E
(< 4 foot bgs)	D All Items > 1 foot bgs	E	E	E
	E Any Item < 1 foot bgs [2]	E	E	E
	A All Items > 10 feet bgs	C	C	E
E	B All Items > 4 feet bgs	E	E	E
Highly Intrusive	C All Items > 2 feet bgs	E	E	E
(> 4 foot bgs)	D All Items > 1 foot bgs	E	E	E
	E Any Item < 1 foot bgs [2]	E	E	E

NOTES:

[1] The default scoring for the MEC Accessibility Hazard Factor is primarily weighted toward (determined by) the minimum depth at which the MEC items are found relative to the maximum intrusion depth associated with the activities anticipated for the current or future land use in the AOC. Adjustments are made on an AOC-specific basis to reflect the potential for migration or erosion in the AOC. These adjustments are used to effectively reduce the minimum depth at which MEC items may be found in the AOC.

[2] The MEC Accessibility Hazard Factor score should be "E" any time an MEC item is found on, or sticking up out of, the surface.

[3] Description of MEC Accessibility Scoring Factors:
E → Any MEC found at a depth less than the maximum projected intrusion depth
E → Any MEC within 1 foot of the ground surface
E → Any case where the Migration/Erosion Potential is judged to be "Significant"
D → The shallowest MEC are projected to migrate or erode to a depth within the maximum projected intrusion depth.
C → The shallowest MEC are found or are projected to migrate or erode to a depth equal to the maximum projected intrusion depth.
B → The shallowest MEC are found at, or are projected to migrate to, a depth < 2 feet below the maximum projected intrusion depth.
A → The shallowest MEC are found at, or are projected to migrate to, a depth > 2 feet below the maximum projected intrusion depth.
Adjustment is made if the Migration/Erosion Potential is judged to be "Very Stable". When the Migration/Erosion Potential is judged to be "Moderate", the Depth Below Ground Surface is assumed to effectively be reduced by 1 foot.

2.2.5 Public Exposure Hazard Factor

The Public Exposure Hazard Factor is defined in terms of three subfactors.

- Frequency of Public Access
- Intensity of Public Activity
- Portability

Each of these subfactors and components is defined and described below. The qualitative weighting factors and scoring rules used to develop the overall quantitative score for the Public Exposure Hazard Factor also are presented.

Frequency of Public Access Subfactor

The Frequency of Public Access subfactor for an AOC is defined in terms of both the Ease of Access to the AOC and its Current (and projected) Future Land Use. These components are discussed below.

Ease of Access Component

The qualitative categories of the Ease of Access component of the Frequency of Public Access subfactor and their associated scores are presented in Table 2-10.

Table 2-10 Frequency of Public Access Subfactor / Ease of Access Component Category Definitions

Subfactor Score	Category [2,4]	Description
A	Inaccessible [3]	Area with a slope greater than 30%, or an area completely surrounded by area with a slope greater than 30%
B	No Established Road or Trail access	All cases that are not Category A or Categories C to E Areas with rugged terrain or features such as boulders or thick sand that discourage entry
C	AOC Served by an Established Trail or Unimproved Road with Limited or no Maintenance	An established trail or unimproved road with limited or no maintenance leads up to or passes through the AOC.
D	AOC Served by an Unimproved Road	An unimproved road that is maintained passes through or within 1/8 mile of the AOC [5]
E	AOC Served by an Improved [1] Road	A road that has an improved surface passes through or within 1/8 mile of the AOC boundary. [5]

NOTES:

[1] An improved road has a concrete, asphalt, or aggregate surface that is routinely maintained. An improved road is assumed to be usable by regular cars and trucks (not necessarily requiring a four-wheel drive (4WD) vehicle).

[2] Based on aerial photographs, maps and observations of the Site for maintained or unmaintained roads and established trails

[3] Based on estimated slopes, given that there is no accurate topographic data available for the Site

[4] If an AOC has the features or characteristics of multiple categories, it should be assigned the highest letter score from the set of applicable options.

[5] The distance "within 1/8 mile of an AOC boundary" was derived from the assumption that a person would typically access an improved or unimproved road and would drive as close as possible to the destination before getting out of the vehicle. The distance of 1/8 mile [~220 yards] was considered the farthest one might reasonably venture on foot after leaving a vehicle.

Current and/or Future Land Use Component

The qualitative categories of the Current and/or Future Land Use component of the Frequency of Public Access subfactor and their associated scores are presented in Table 2-11.

Table 2-11 Frequency of Public Access Subfactor / Current and/or Future Land Use Component Category Definitions

Subfactor Score	Category	Description
A	Recreational or Wildlife Management Land Use Not Near Facility Entry Points	AOCs more than ½ mile from the main gate of the former facility
B	Recreational or Wildlife Management Land Use Near Facility Entry Points or Having a Desirable Use	AOCs within ½ mile of the main gate of the former facility or AOCs that have owner-identified desirable uses such as dove hunting
C	Aviation / Commercial / Marine Industrial / Public Facilities Land Use or Occupational Lodging	Potential caretaker lodging facility may be constructed in the future along with wildlife unit maintenance facilities. [1]
D	Residential Land Use	Not currently anticipated [2]

NOTES:

[1] A small number of CDFG workers may be stationed and boarded at a possible future on-site facility to manage and maintain the preserve.

[2] If the Site is later sold and developed for non-wildlife management purposes, the residual explosive hazard will need to be re-evaluated and additional assessment or removal may be necessary to demonstrate the suitability of the various AOCs for future land uses that may be more intensive or intrusive.

Frequency of Public Access Subfactor Scoring

The Frequency of Public Access scoring is based on a combination of the Ease of Access and Current and/or Future Land Use component scores, as shown in Table 2-12.

Intensity of Public Activity (Energy Imparted to the Ground) Subfactor

The qualitative categories of the Intensity of Public Activity subfactor and their associated scores are presented in Table 2-13.

Portability Subfactor

The qualitative categories of the Portability subfactor and their associated scores are presented in Table 2-14.

Table 2-12 Frequency of Public Access Subfactor Weighting Factors and Scoring Rules

Ease of Access Component - High Weighting Current and/or Future Land Use Component - High Weighting				
	CURRENT AND/OR FUTURE LAND USE			
EASE OF ACCESS ↓	A Recreation or Wildlife Management Land Use Not Near Facility Entry Points	B Recreation or Wildlife Management Land Use Near Facility Entry Points or AOCs Having Desirable Uses	C Aviation / Commercial / Marine Industrial / Public Facilities Land Use	D Residential Land Use
A - Inaccessible	No Public Access Projected For this Category	No Public Access Projected For this Category	No Public Access Projected For this Category	No Public Access Projected For this Category
B - No Established Road or Trail access	A	A	Not Considered Plausible	Not Considered Plausible
C - AOC Served by an Established Trail or Un-improved Road with Limited or no Maintenance	A	B	C	D
D - AOC Served by an Unimproved Road	B	C	D	E
E - AOC Served by an Improved Road	Not Plausible for this AOC [1]	D	E	E

NOTES:

[1] Currently a single improved roadway enters the Site. However, this roadway does not serve any of the AOCs evaluated in the ESHA. It is not likely that additional improved roadways will be constructed for the currently anticipated future use.

Table 2-13 Intensity of Public Activity Subfactor Category Definitions

Subfactor Score	Category [1]	Description [2]
A	Low	Typically associated with activities such as limited window (duration) hunting, hiking, dog walking or wildlife observations
B	Moderate	Typically associated with activities such as off-road driving by a wildlife manager, researcher or un-authorized site user
C	High	Typically associated with activities such as excavation or multi-vehicle parking on an unpaved surface

NOTES:

[1] Subfactor category and score are assigned on the basis of current and projected future land use and the activities anticipated for the AOCs based on the future land use (See Appendix A).

[2] The frequency of intrusive activities (such as excavation) is a factor in selecting an intensity category for an AOC.

Table 2-14 Portability Subfactor Category Definitions

Subfactor Score	Category	Description [1]
A	Very Low	Not portable or portable only using a motorized vehicle
B	Low	Portable by one or more adults without mechanical assistance
C	Easily Portable	Portable by a child

NOTES:
[1] The weight, size, and configuration of an MEC item are assumed to define its portability.

Public Exposure Weighting Factors and Scoring Rules

The qualitative scoring matrix and implied weighting factors for the Public Exposure Hazard Factor are presented in Table 2-15.

Table 2-15 Public Exposure Weighting Factors and Scoring Rules [1, 2]

Frequency of Public Access - High Weighting
Intensity of Public Activity - High Weighting
Portability - Low Weighting

	PORTABILITY								
	A - Very Low			B - Low			C - Easily Portable		
Intensity of Public Activity (Energy Imparted to the Ground) → Frequency of Public Access ↓	A Low	B Moderate	C High	A Low	B Moderate	C High	A Low	B Moderate	C High
A - Least Frequent	A	A	B	A	A	B	A	A	B
B - Less Frequent	A	A	B	A	B	B	A	B	C
C - Nominal	B	B	B	B	C	C	B	C	D
D - More Frequent	C	C	C	C	D	D	C	D	D
E - Most Frequent	C	D	D	D	E	E	D	E	E

NOTES:

[1] The scoring for the Public Exposure Hazard Factor is primarily weighted toward (determined by) the Frequency of Public Access, with relatively minor adjustments made to reflect the Intensity of the current or projected future Public Activities (with respect to imparting energy to the ground) and the Portability of the MEC found in the AOC.

[2] Description of MEC Accessibility Scoring Factors:

- Scores for the "Least Frequent" category of Frequency of Public Access (for all categories of Intensity of Public Activity and Portability) are A, unless the Intensity of Public Activity is "High" in which case the score is B.
- Scores for the "Less Frequent" category of Frequency of Public Access (for all categories of Intensity of Public Activity and Portability) are A, except for certain combinations where the Intensity of Public Activity is "Moderate" or "High". If the Intensity of Public Interaction is "High" but the Portability is "Very Low" or if the Intensity of Public Interaction is "Moderate" or "High" and the Portability is "Low", the score is B. If the Intensity of Public Interaction is "Moderate" and the Portability is "Easily Portable", the score is B, while the combination of a "High" Intensity of Public Interaction and "Easily Portable" items is a C.
- Scores for the "Nominal" category of Frequency of Public Access (for all categories of Intensity of Public Activity and Portability) are B, unless the Intensity of Public Activity is "Moderate" or "High" and the Portability is "Low". The score for these combinations is C. When the Portability is "Easily Portable", a "Moderate" Intensity of Public Interaction is scored a C, while a "High" Intensity of Public Interaction is scored a D.
- Scores for the "More Frequent" category of Frequency of Public Access (for all categories of Intensity of Public Activity and Portability) are C, unless the Intensity of Public Activity is "Moderate" or "High" and the Portability is "Low" or "Easily Portable". The score for all of these particular combinations is a D.
- Scores for the "Most Frequent" category of Frequency of Public Access (for all categories of Intensity of Public Activity and Portability) are D except for the case of "Low" Intensity of Public Interaction and "Very Low" Portability which is scored a C, unless the Portability is "Low" or "Easily Portable" and the Intensity of Public Activity is "Moderate" or "High". The score for these latter combinations is E.

2.2.6 Overall ESHA Weighting Factors and Scoring Rules

After all of the primary hazard factors have been scored using the criteria, weightings, and rules described in the previous sections, the output scores were considered relative to the matrix in Table 2-16 to calculate the overall qualitative explosive hazard score. Table 2-16 also identifies the potential follow-on actions that may be considered for each AOC based on the overall hazard score developed. Evaluation of the feasibility and relative benefit of these potential actions is presented in the RAP.

Table 2-16 ESHA Weighting Factors and Scoring Rules

MEC Presence / Absence ..... High Weighting
MEC Characteristics ..... High Weighting
MEC Accessibility ..... High Weighting
Public Exposure ..... High Weighting
(See Appendix B for a Scoring Sheet to use with this table)

		PUBLIC EXPOSURE														
		A Least Potential Exposure			B			C			D			E Most Potential Exposure		
		MEC SEARCH/ REMOVAL STATUS			MEC SEARCH/ REMOVAL STATUS			MEC SEARCH/ REMOVAL STATUS			MEC SEARCH/ REMOVAL STATUS			MEC SEARCH/ REMOVAL STATUS		
MEC CHARAC-TERISTICS ↓	MEC ACCESSIBILITY ↓	A Not Found or Detected and Removed	B Detected and Removed; Potential Residual	C Known or Indicated to be Present	A Not Found or Detected and Removed	B Detected and Removed; Potential Residual	C Known or Indicated to be Present	A Not Found or Detected and Removed	B Detected and Removed; Potential Residual	C Known or Indicated to be Present	A Not Found or Detected and Removed	B Detected and Removed; Potential Residual	C Known or Indicated to be Present	A Not Found or Detected and Removed	B Detected and Removed; Potential Residual	C Known or Indicated to be Present
	A Least Potential for Contact	All cases where the MEC Characteristics Score is "A" will result in an Overall Hazard Score of "A".														
	B															
A Least Hazard	C															
	D															
	E Most Potential for Contact															
	A Least Potential for Contact	All cases where the MEC Characteristics Score is "B" will result in an Overall Hazard Score of "B1".														
	B															
B	C															
	D															
	E Most Potential for Contact															
	A Least Potential for Contact	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C
	B	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C
C	C	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C	B1	C	D
	D	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	D	B1	C	D
	E Most Potential for Contact	B1	B2	C	B1	B2	C	B1	C	D	B1	B2	D	B1	D	E
	A Least Potential for Contact	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C
	B	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	D	B1	C	D
D	C	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	D	B1	C	D
	D	B1	B2	C	B1	B2	C	B1	C	D	B1	B2	E	B1	D	E
	E Most Potential for Contact	B1	B2	C	B1	C	D	B1	C	D	B1	B2	E	B1	D	E
	A Least Potential for Contact	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C	B1	B2	C
	B	B1	B2	D	B1	C	D	B1	C	D	B1	B2	D	B1	C	D
E Most Hazard	C	B1	B2	D	B1	C	D	B1	C	D	B1	B2	D	B1	C	D
	D	B1	B2	D	B1	C	D	B1	D	E	B1	B2	E	B1	D	E
	E Most Potential for Contact	B1	B2	D	B1	C	D	B1	D	E	B1	B2	E	B1	D	E

NOTE: Green shaded scores are the "A"s and "B1"s, which would result in the AOC being recommended for either No Further Action or evaluation of site-wide institutional controls based on relatively low residual explosive hazard. B2 scores shaded yellow would result in consideration of AOC-specific institutional controls based upon perceived slightly higher residual explosive hazard as a result of an AOC-specific condition or characteristic. Orange shaded scores are the "C"s, "D"s and "E"s, which would result in the AOC being considered for additional assessment, removal, or other engineering or physical response actions to mitigate a relatively higher level of residual explosive hazard. The three category levels are included to provide a rough qualitative scale for judging the degree to which the various candidate actions reduce or mitigate the level of explosives hazard.

Explosive Hazard Category	**General Management Response Options (Actual responses to be Identified through AOC-specific evaluation in the RAP)**
A (Lowest Relative Hazard Level)	No Further Action based on relative explosive hazard
B1	Consider Site-Wide Institutional Controls
B2	Consider AOC-Specific Institutional Controls
C D E (Highest Relative Hazard Level)	Evaluate follow-on assessment, removal, or other hazard reduction or mitigation actions

SECTION 3 SITE AND BACKGROUND DATA FOR THE ESHA

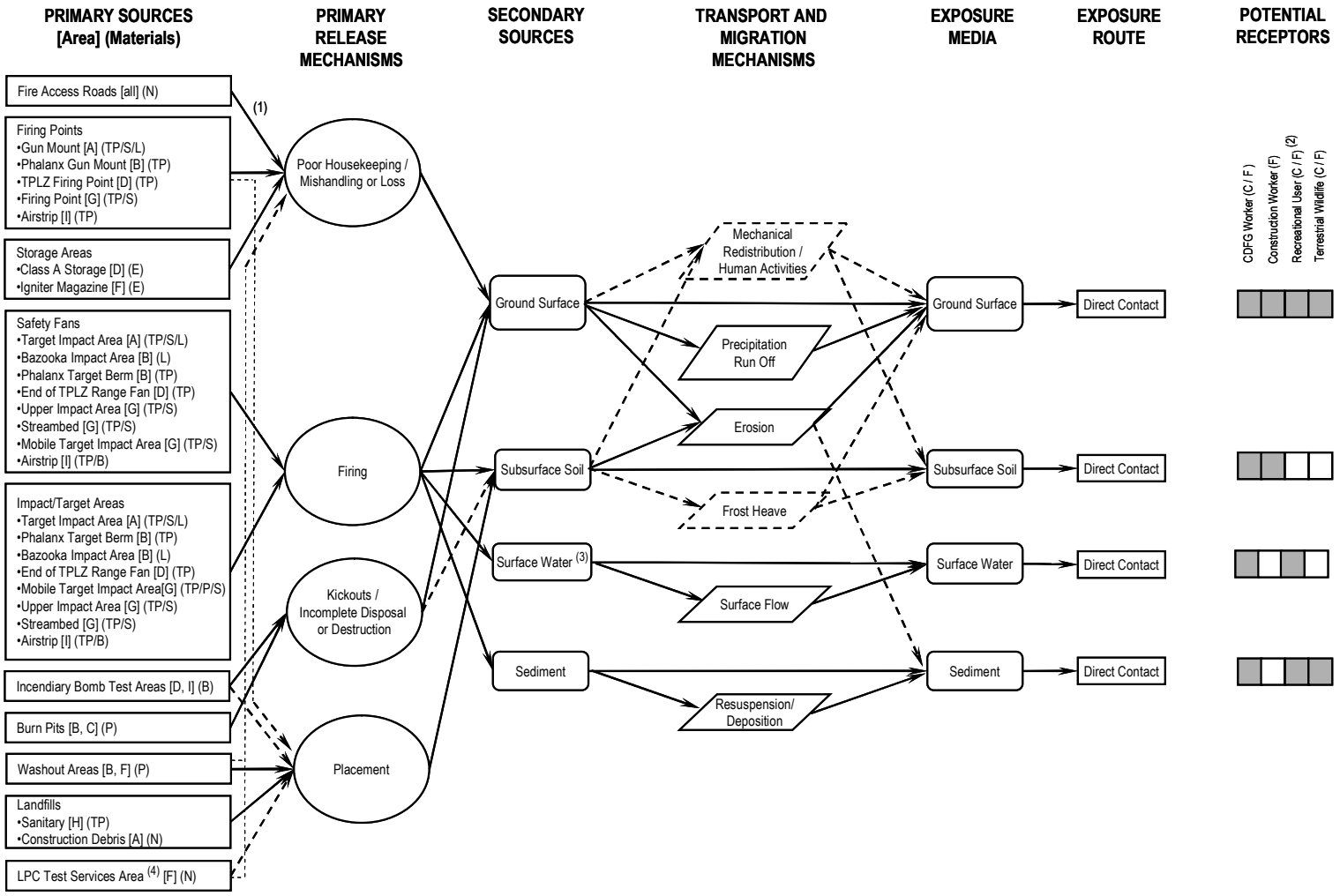
This section presents the conceptual site model (CSM) developed for the Potrero Canyon Unit during the Phase I Evaluation, along with AOC summaries incorporating a brief description of the physical and MEC characteristics for each AOC on site as they are presently understood based on the available historical information, field data, and observations. The information in this section served as a basis for selecting the inputs to the Site ESHA to determine the relative, qualitative level of MEC-related explosives hazard posed by the various AOCs at the Site.

3.1 INITIAL CONCEPTUAL SITE MODEL

The initial CSM for the Site reflected all of the physical, operational, land use, and MEC data available at the end of the Phase I MEC Evaluation. The CSM is a schematic representation of the links between the potential sources of munitions at various locations on site and the opportunities for direct contact exposure to MEC by individuals or groups conducting activities at those locations. The CSM presented in Figure 3-1 focused on the explosive hazards of any MEC potentially present at that time relative to the safety of people (site users) and terrestrial wildlife. Potential impacts due to chemical components of the MEC were not addressed in this CSM. The ballistics testing activities that occurred at the Site are the principal source of the MEC depicted in the CSM. AOCs that may have been affected included the former test ranges (firing points, range fans, and impact areas), the former MEC storage areas, streambeds adjacent to test areas, and potential undesignated disposal areas. MEC may have been released from the historical MEC use, storage, and disposal areas as the result of firing, kickout/incomplete disposal, placement, or poor housekeeping practices.

Generally, MEC released at the Site would have gone into the surface or possibly the shallow subsurface soil. The exception would be the various streambeds on site that are located near the other MEC use, storage, or disposal areas. At these locations, MEC could have been released to the water and/or sediments.

Figure 3-1. Conceptual Site Model for the Site 1 ESHA



NOTES:
(1) Dashed boxes or lines indicate a potential source area or linkage that requires further verification.
(2) Examples would be hikers, dog walkers, mountain bikers and hunters.
(3) Some creeks are ephemeral (seasonal).
(4) Igniter magazine with squibs was used in this area.
C = Current Receptor
F = Potential Future Receptor

MATERIALS ASSOCIATED WITH AREAS:
(TP) Target Practice Rounds
(S) Solid Shapes (Aluminum or Steel) or Simulants
(P) Propellant
(L) Live Ammunition
(B) Incendiary Bombs
(E) Explosives
(U) Unknown Materials Potentially Used
(N) No documented Use of MEC

Once released into the environment, MEC may migrate or be transported by various mechanisms. The principal mechanisms for the Potrero Canyon Unit are erosion, rainfall run off, surface water flow, and re-suspension in stream flow. Mechanical redistribution of soil during past tilling or construction activities is also a mechanism for transport of MEC. The result of these mechanisms is a potentially different distribution of MEC than what may have existed at the time of release.

The CSM supports the ESHA by providing data regarding the anticipated types of media that may be affected by MEC and the depth to which those media may be contaminated. Along with the field data collected during the assessment and removal activities conducted at the Site, this data supported evaluation of the likelihood that anticipated future activities would result in contact between people or wildlife and potentially contaminated media. A summary of the anticipated future uses of the site and their associated activities are presented in Appendix A.

3.2 AOC DATA SUMMARIES

This section contains a summary of the physical and MEC data available for each of the 28 AOCs at the Site. These summaries provide a snapshot of each AOC with the current understanding of the potential for residual MEC to be present, and the characteristics of the AOC that would affect potential exposure to that MEC. These characteristics include things such as vehicular access to the AOC, terrain and vegetation (relative to limiting or encouraging access), and the potential for erosion in the AOC that may lead to exposure to residual MEC. The AOCs are organized by Operational Area. There are eight Operational Areas (A, B, C, D, F, G, H, and I) with one or more MEC AOCs within each area. Tables summarizing the physical, environmental, and MEC characteristics of each AOC are presented below. A figure indicating the location of the AOCs within each Operational Area is also presented in the following discussions.

3.2.1 Area A - Gun Mount (Firing Point)

This AOC consists of a flat pad graded into the base of a small hill where a truck-mounted weapons system that was tested on the Area A range was reportedly positioned. Firing was controlled from a small concrete instrumentation building located behind a concrete barrier just south of the gun location. The gun was fired in a northerly direction up a broad valley adjacent to the eastern side of Potrero Creek. Remnants of a concrete pad were present in the AOC at the time of the 2005/2006 investigation, along with corrugated metal sheeting and other debris that may

have been associated with the pad for the gun or the instrument building. No evidence of the concrete barrier was found.

During the 2005/2006 investigation, digital geophysical mapping (DGM) was conducted over this AOC along lines spaced at 2.5 feet. This line-spacing ensured 100% coverage of the area to acquire 2-dimensional (2-D) data. Approximately 0.92 acres were mapped. Analysis of the mapping data yielded 127 subsurface anomalies in the AOC. Ninety-three anomalies were selected for investigation based upon the selection criteria identified for the investigation. One piece of 30mm frag was found in the AOC. No MEC were found.

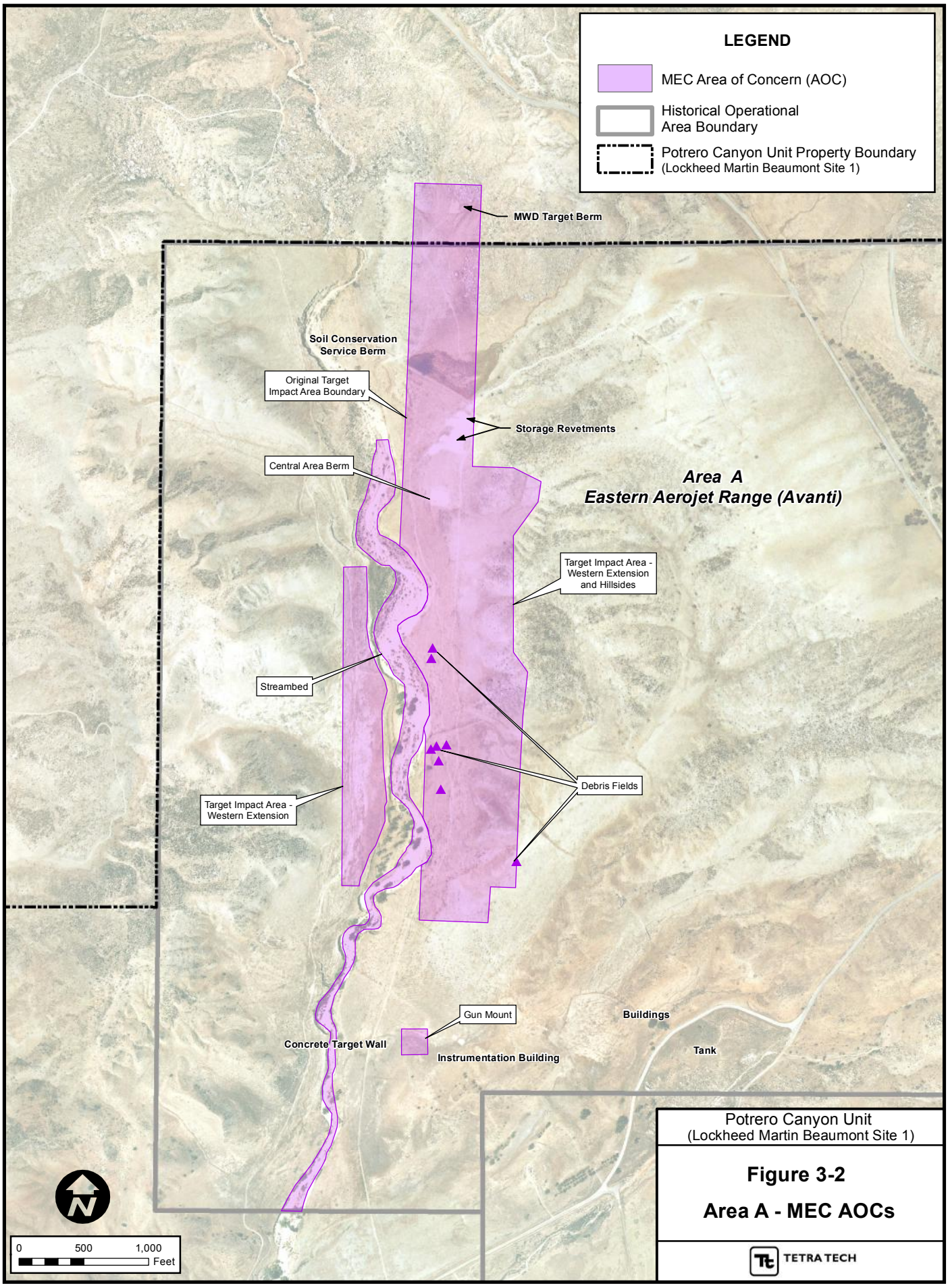
The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-1 below. A map indicating the location of this AOC and others located in Area A is presented in Figure 3-2.

Table 3-1 Characteristics of Area A - Gun Mount (Firing Point)

AOC Size:	0.9 acres
Access:	Unimproved road ~0.6 miles south of the AOC. Rutted trail from unimproved road runs near this AOC.
Accessible Area:	0.9 acres
Area Investigated:	0.9 acres; DGM of all area; investigation of all identified anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	Moderately steep hill with relatively flat pad cut into the northern base (gun pad)
Erosion:	Low erosion
Vegetation:	Thick grass and weeds up to 6 feet tall that discourage passage, particularly when dry. If the trail into this AOC is not mowed to provide access to local groundwater monitoring wells, it is not safe to drive a vehicle into the AOC since the driver would not be able to see over the vegetation.
Types of MEC:	None found
Types of MC:	One piece of 30mm frag was found at this location.
DGM = Digital Geophysical Mapping	

3.2.2 Area A - Impact Target Area

This AOC is a former test range for experimental, long-range 27.5mm and 30mm weapons systems. The guns were truck-mounted and fired from the south end of range toward steel plate targets which had earthen berms behind them. Historical records indicate that inert 30mm ammunition and 27.5mm Bush Master ammunition with spotting charges (2 grams black powder) were fired on this range. A former employee reported that HE 30mm rounds were fired on this range as well.


Path: X:\GIS\Lockheed 25241_01_0404\Op_Area_A_r1.mxd
LEGEND
MEC Area of Concern (AOC)
Historical Operational Area Boundary
Potrero Canyon Unit Property Boundary
(Lockheed Martin Beaumont Site 1)
MWD Target Berm
Soil Conservation Service Berm
Original Target Impact Area Boundary
Storage Revetments
Central Area Berm
Area A
Eastern Aerojet Range (Avanti)
Target Impact Area - Western Extension and Hillsides
Streambed
Debris Fields
Target Impact Area - Western Extension
Gun Mount
Buildings
Concrete Target Wall
Instrumentation Building
Tank
0
500
1,000
Feet
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Figure 3-2
Area A - MEC AOCs
TETRA TECH

The 2005/2006 investigation in the Target Impact Zone was conducted in two parts. The first part of the investigation covered 24 acres located between 3,500 and 5,500 feet up-range (north) from the identified firing point. This area was selected based upon the recollections of a former LMC employee who assisted with testing at this range. The investigation was conducted using Mag & Dig techniques along 25 transects running parallel to the direction of fire for the range (south to north). The transects were spaced approximately 21 feet apart. The initial transects covered about 5.7 acres within the 24-acre investigation area.

After the first round of evaluation was completed, the former LMC employee familiar with this area stated that, in spite of his earlier recollections, he now felt the selected evaluation area was too far from the gun mount. Based on this new information, a second round of investigation was conducted. The 29.6-acre area for this second phase of investigation extended between 1,500 feet and 3,500 feet north of the firing point. The area was investigated using DGM and intrusive investigation. The lanes for mapping were spaced approximately 50 feet apart. Two lines of geophysical data were acquired within each 5-foot-wide lane providing 2-D data for interpretation. These transects covered about 3.6 acres within the 29.6-acre investigation area.

Four hundred and five anomalies were identified and evaluated during the Phase I Mag & Dig investigation. An additional 221 subsurface anomalies were initially identified during the Phase II DGM. One hundred and twenty-five of the Phase II anomalies were selected for investigation based upon the selection criteria identified for the investigation. In total, three 30mm high explosive (HE) rounds and 36 munitions components including 30mm target practice (TP) projectiles, projectile scrap, and frag were found in this area.

Based on the recovery of HE munitions, this AOC was further delineated and cleared during follow-on work in 2007/2008. Approximately 25 acres near the periphery of the range and surrounding a potential target berm at the far north end of the range were investigated using DGM along transects or Mag & Dig techniques in areas that were inaccessible for mapping. The entire periphery area investigated was eliminated from further consideration based upon the findings. The remaining 66.6 acres within the range area were the focus of a removal action using 100% DGM to identify subsurface anomalies meeting the identified removal criteria. DGM was conducted using a towed array of five instruments to maximize detection capabilities and ensure as complete a removal of potential HE munitions as possible based on current technologies.

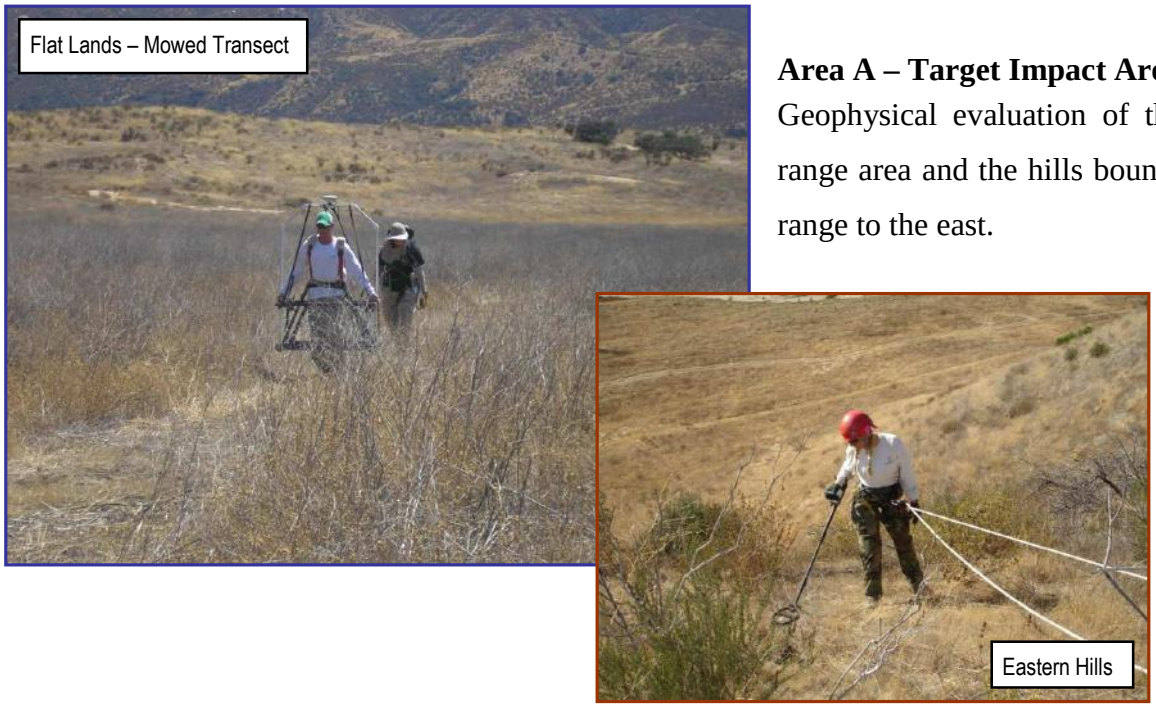
In the areas eliminated from further consideration, 272 subsurface anomalies were identified using DGM, and 202 of these anomalies were selected for investigation based upon the identified selection criteria. An additional 17 anomalies were investigated on the steep hillsides on the eastern periphery of the range, and 337 anomalies were investigated in and near the potential target berm at the north end of the range. A total of 23 MC were found mostly consisting of frag located near the base of the hills east of the range. This is consistent with kickout from the range. No MEC were found.

During the range removal action 4,315 subsurface anomalies were identified and 2,039 of these anomalies were removed. Eleven 30mm HE projectiles were removed, along with 192 MC including inert 27.5mm and 30mm projectiles and associated scrap, one inert 76mm rocket, and several 16mm tungsten penetrators. Detection capability during the removal was limited to approximately one foot based on the relatively small size of the munitions used in this AOC.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-2 below. A map indicating the location of this AOC and others located in Area A is presented in Figure 3-2.

Table 3-2 Characteristics of Area A - Impact Target Area

AOC Size:	~80 acres
Access:	Unimproved road ½ mile south. Rutted trail runs into this AOC from the south. Very steep, rutted trail runs into this AOC from the north (not advisable even with 4WD).
Accessible Area:	66.6 acres
Area Investigated:	87.7 acres were investigated. 66.6 acres in the range were evaluated using DGM along transects followed by full DGM and investigation of all anomalies meeting selection criteria. 21.1 acres east and west of range were evaluated using DGM along transects and investigation of anomalies meeting selection criteria. Radial transects were investigated on the hills east of range using Mag & Dig techniques.
Area Cleared:	66.6 acres were cleared of detectable MEC using full DGM and removing all anomalies meeting selection criteria.
Terrain:	Relatively flat valley floor with steep hills to the east and north. The hills to the north are very rocky. Deep, wide stream ravine to the west with nearly vertical bank slopes.
Erosion:	Low erosion with the exception of the stream banks near the debris fields, which have collapsed and deposited material from portions of some fields in the streambed
Vegetation:	Thick grass and weeds up to six feet tall that discourage passage to, from, and through the range, particularly when dry; thinner, shorter grass on the hillsides.
Types of MEC:	30mm HE projectiles
Types of MC:	Inert 27.5mm and 30mm projectiles and associated scrap; one inert 76mm rocket; several 16mm tungsten penetrators. Several former probable targets sites were also found based on debris.
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	



Area A – Target Impact Area
Geophysical evaluation of the main range area and the hills bounding the range to the east.

3.2.3 Area A - Debris Fields

This AOC consists of several debris fields (pits) within the Area A Target Impact Area. These debris fields contained steel plates and angle iron, concrete, and metal debris. Initially, it was postulated that these sites might be former target locations and that the target debris had been buried after the targets were dismantled. Follow-on field data supported this assumption. The debris fields were found in the center of the range (based on MEC and MC distribution), and the materials found were confirmed by a former employee to be the types of materials used to construct the historical targets. MC associated with 27.5mm and 30mm munitions were also found in these areas.

During the 2005/2006 investigation the three areas comprising the Debris Field AOC were evaluated using Mag & Dig techniques, in which handheld metal detectors are used to identify subsurface metallic anomalies that may be MEC-related. In two of the debris fields, Mag & Dig was conducted in lifts using a backhoe for excavation of larger items such as pieces of concrete or steel framing. The top 18 inches of soil was cleared of metallic items (as possible) and the backhoe was then used to excavate a 12—inch lift of soil. This process was repeated until the desired depth of evaluation was reached. The third field was evaluated using simple Mag & Dig of individual targets. It was not necessary to use the backhoe and dig in lifts at this location since no large

anomalies were present. The area investigated in the three debris field areas totaled approximately 0.003 acres. Thirty-four anomalies were evaluated in order to characterize the debris fields; however a number of these anomalies consisted of multiple items. No MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-3 below. A map indicating the location of this AOC and others located in Area A is presented in Figure 3-2.

Table 3-3 Characteristics of Area A – Debris Field

AOC Size:	~0.05 acres
Access:	Unimproved road ~0.6 miles south. Rutted trail runs near the AOC from the north.
Accessible Area:	~0.05 acres
Area Investigated:	~0.05 acres; tiered Mag & Dig assessment and investigation to allow general inspection of large quantities of debris (some farm related; some target related)
Area Cleared:	~0.05 (cleared as part of the range area)
Terrain:	Relatively flat. Several debris fields are located near the streambed, whose nearly vertical and unstable banks limited investigation.
Erosion:	Low erosion with the exception of the stream banks near the debris fields which have collapsed and deposited material from portions of some fields in the streambed
Vegetation:	Thick grass and weeds up to six feet tall that discourage passage to, from, and through the range
Types of MEC:	None found. However, because these sites are within the range they should be evaluated for residual hazard accordingly, and included in the ICs for Area A.
Types of MC:	Scrap and frag associated with 27.5 mm and 30mm projectiles
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

Area A - Debris Field Excavation.
The area has been mowed and burned over by a wildfire which reduced the normal amount of vegetation significantly.

3.2.4 Area A – Streambed

This AOC is a large ephemeral streambed adjacent to the western side of the Area A Target Impact Area AOC. The streambed has high (10-15 feet), nearly vertical banks in the main range area transitioning to low, moderately sloped banks near the road crossing south of Area A. No MEC or MC have been found in this AOC. However there are indications that at least one former target position has eroded into the streambed over time. Like other ephemeral streams on site, this stream is prone to occasional flash flooding that significantly redistributes sediments.

During the 2005/2006 investigation this AOC was evaluated using Mag & Dig techniques. The accessible portions of the streambed were evaluated beginning approximately 4,700 feet north of the gun mount and extending approximately 1,200 feet south of the gun mount, past several major depositional areas in the streambed. The UXO team walked the AOC aligned across the streambed with team members spaced at about 5–foot intervals. Approximately 19.6 acres were surveyed in the streambed, providing nearly 100% coverage of the AOC. Small portions of the AOC were not evaluated due to hazards associated with sandy soil sloughing off steep embankments. Seven hundred and twenty-six subsurface anomalies were identified and evaluated in the streambed. No MEC or related materials were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-4 below. A map indicating the location of this AOC and others located in Area A is presented in Figure 3-2.

Table 3-4 Characteristics of Area A – Stream Bed

AOC Size:	19.6 acres
Access:	By foot from crossing at unimproved road south of Area A
Accessible Area:	~18.6 acres. Areas near steep banks are unsafe for evaluation due to sloughing hazards.
Area Investigated:	~18.6 acres; full Mag & Dig assessment and investigation of all subsurface metallic anomalies.
Area Cleared:	N/A
Terrain:	The streambed is relatively flat although it is very irregular due to sediment deposits of varying depth and size. Banks are nearly vertical near the Area A Target Impact Area.
Erosion:	Heavy erosion occurs in the streambed during occasional flash floods. The location of the streambed has changed significantly over the 40+ years since the Lockheed facility closed.
Vegetation:	Light scrub and sagebrush in the streambed; brush and grass along moderately sloped bank areas to the south of the range
Types of MEC:	None found
Types of MC:	None found
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.5 Area B - Phalanx Gun Mount (Firing Point)

This AOC consists of a flat pad near the intersection of two unimproved roads where a Phalanx gun (Gatling-type gun) was test fired. The gun reportedly fired 20mm and 30mm practice rounds. The testing was conducted over a brief period of time after the Lockheed facility closed. Practice rounds were fired in a southeasterly direction toward a large earthen target berm.

During the 2005/2006 investigation this AOC was evaluated using DGM and intrusive investigation. Mapping lanes were spaced at approximately 2.5 feet to provide 100% coverage of the area to acquire 2-D data. Approximately 0.92 acres were mapped. One hundred and eighty three anomalies were identified. Eighty-six anomalies were selected for evaluation. Seven pieces of munitions related scrap (number and distribution pattern not indicative of disposal) were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-5 below. A map indicating the location of this AOC and others located in Area B is presented in Figure 3-3.

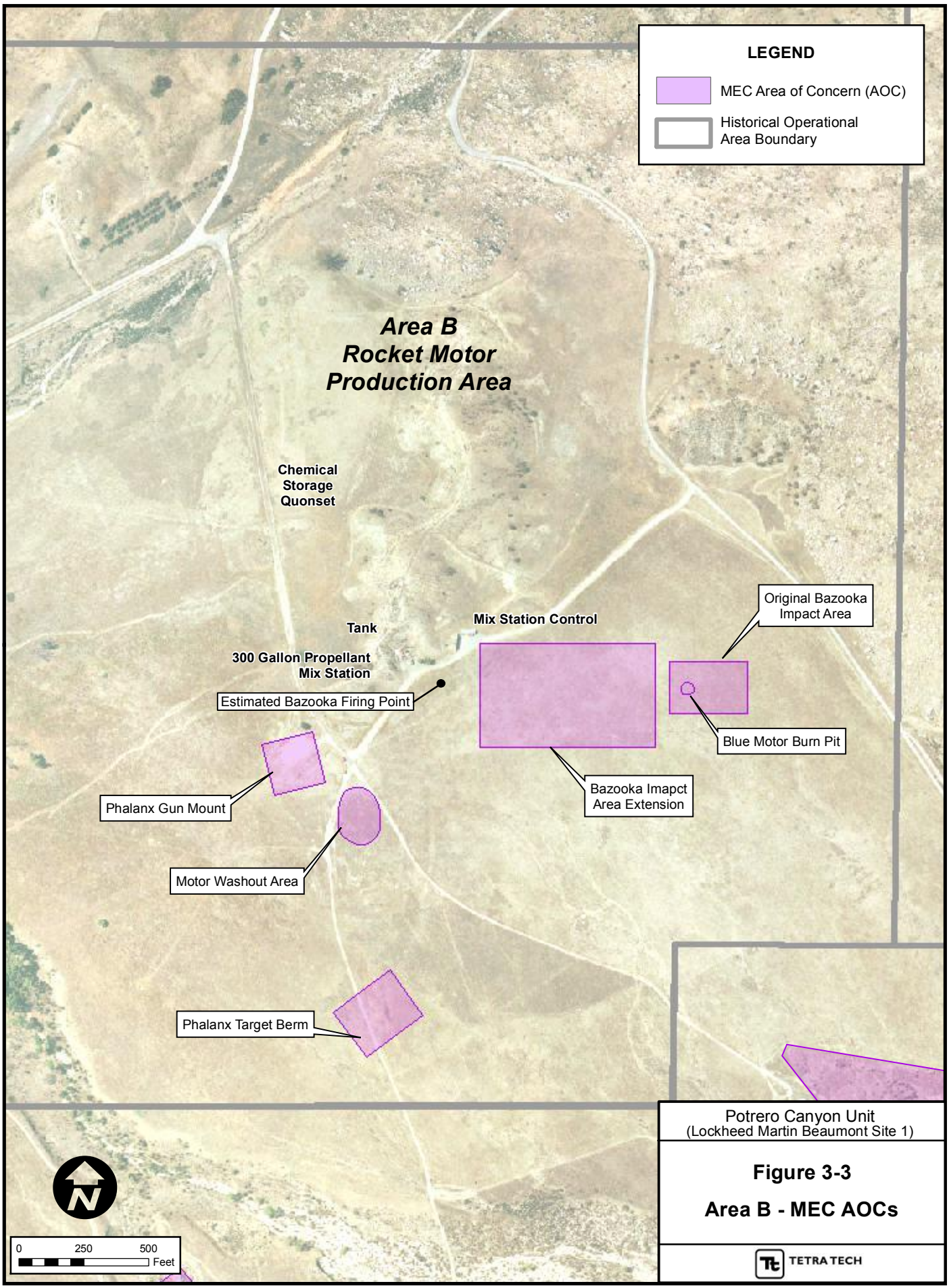
Table 3-5 Characteristics of Area B - Phalanx Gun Mount (Firing Point)

AOC Size:	0.9 acres
Access:	Unimproved roads run beside AOC.
Accessible Area:	0.9 acres
Area Investigated:	0.9 acres; full DGM and investigation of all anomalies meeting selection criteria.
Area Cleared:	N/A
Terrain:	Relatively flat. Pad area is elevated slightly above surrounding ground surface.
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to three feet tall that discourage entry when vegetation is dry
Types of MEC:	None found
Types of MC:	Seven pieces of munitions related scrap (number and distribution pattern not indicative of disposal)
DGM = Digital Geophysical Mapping	

3.2.6 Area B - Phalanx Gun Target Berm

This AOC is a target berm used for testing a rapid fire Phalanx Gatling gun. The berm is a large irregular mound that was formed by pushing up soil from surrounding areas. The depressions where soil was harvested are still visible surrounding the berm. Because the Phalanx is a Gatling gun, it was anticipated that the berm would contain large quantities of the reportedly inert projectiles used in the testing.

During the 2005/2006 investigation this AOC was evaluated using DGM and intrusive investigation in flat areas and a project-specific 5-point sampling technique on the berm itself


X:\GIS\Lockheed 25241_01_0404\Op_Area_B.mxd
LEGEND
MEC Area of Concern (AOC)
Historical Operational Area Boundary
Area B
Rocket Motor
Production Area
Chemical Storage Quonset
Tank
300 Gallon Propellant Mix Station
Mix Station Control
Original Bazooka Impact Area
Estimated Bazooka Firing Point
Blue Motor Burn Pit
Bazooka Imapct Area Extension
Phalanx Gun Mount
Motor Washout Area
Phalanx Target Berm
0 250 500 Feet
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Figure 3-3
Area B - MEC AOCs
TETRA TECH

where mapping was not possible. Geophysical data was acquired in flat areas along lines spaced at 2.5 feet. This line spacing ensured 100% coverage of the area to acquire 2-D data. Approximately 0.8 acres were mapped in the flat areas surrounding the identified Phalanx Target Berm. One hundred and forty-six anomalies were identified for individual intrusive investigation. In addition, five areas on the berm were investigated using a five-point sampling procedure to characterize general conditions (related to potential MEC) within the berm. This involved intrusive investigation of one point on each of the four sides of the berm and one point atop the berm, where an area approximately 3 feet in diameter and 2 feet deep was excavated to characterize general conditions. Over 100 inert projectiles or pieces of related scrap were found during sampling of the berm. Several inert projectiles were also found in the area surrounding the berm. No MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-6 below. A map indicating the location of this AOC and others located in Area B is presented in Figure 3-3.

Table 3-6 Characteristics of Area B - Phalanx Gun Target Berm

AOC Size:	1.4 acres
Access:	Unimproved road runs beside the berm.
Accessible Area:	~0.8 acres
Area Investigated:	0.8 acre plus; all accessible areas around berm assessed using DGM and all anomalies meeting selection criteria investigated. Five-point sampling using Mag & Dig techniques was conducted on the faces and top of the berm using hand-held metal detectors.
Area Cleared:	N/A
Terrain:	Relatively flat surrounding the berm which has steep faces.
Erosion:	Moderate erosion potential due to the steepness of the berm.
Vegetation:	Tall grass and weeds up to 3 feet tall that discourage entry when dry.
Types of MEC:	None found
Types of MC:	Inert 20mm and 30mm projectiles and associated mechanically generated scrap (e.g., broken projectiles).
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.7 Area B - Bazooka Impact Area

This AOC consists of the flat area east of the former propellant mixing station and within about 1,250 feet of the old bunker at that location. Reportedly a one-time test was conducted during which a Viper Bazooka was fired at steel targets in the field east of the mixing station. The initial investigation of the Bazooka Impact Area was conducted in two phases. The first phase was conducted in the area initially identified as the probable AOC based on the information available at the time. This area was investigated using Mag & Dig techniques. Approximately 1.4 acres

were surface swept to identify any debris that might be indicative of a target area. Subsurface targets were intrusively investigated to determine whether any evidence of the former targets (such as steel frames) were present. Following the first round of investigation, information was located regarding the performance capabilities of the Viper Bazooka. The new information indicated that the initial AOC was located too far from the known firing point for the testing. Supplemental area (6.2 acres) was added to the AOC and evaluation of this area began. The entire area was not completed due to time constraints. Ultimately, Mag & Dig was completed on six, 15-foot-wide lanes along the northern edge of the AOC. During the 2007/2008 investigation evaluation of the supplemental area in this AOC was completed by conducting DGM over the area and intrusively investigating anomalies which met the selection criteria identified for the investigation.

During the initial evaluation, 79 subsurface anomalies were identified and excavated. Fifteen anomalies were excavated in the supplemental evaluation area. No MEC were found. Several pieces of aluminum frag were found that may be indicative of the breakup of bazooka rockets; however, their origin was not definitively determined.

During the 2007/2008 investigation aluminum and steel frag of unknown origin (possibly associated with rockets fired or steel targets used on the range) was discovered along with one large caliber primer and one cartridge actuated device (CAD)-like item. These two lone items were not considered indicative of undocumented testing or large-scale disposal in the AOC.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-7 below. A map indicating the location of this AOC and others located in Area B is presented in Figure 3-3.

Table 3-7 Characteristics of Area B - Bazooka Impact Area

AOC Size:	7.6 acres
Access:	Unimproved road runs within 1/8 mile of this AOC.
Accessible Area:	7.6 acres
Area Investigated:	7.6 acres; full Mag & Dig investigation in initial area; full DGM and investigation of anomalies meeting selection criteria in expansion area determined to be most likely location of target.
Area Cleared:	100% investigation represents an effective MEC removal of the AOC to approximately 1 foot.
Terrain:	Relatively flat
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3 feet tall discourage entry when dry.
Types of MEC:	None found
Types of MC:	Aluminum and steel frag of unknown origin (possibly associated with rockets fired or steel targets used on the range), one large caliber primer, and one cartridge actuated device (CAD)-like item
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.8 Area B - Blue Motor Burn Pit

This AOC is thought to be within the Bazooka Impact Area previously described (See Section 3.2.7). Reportedly four blue rocket motors were disposed of in this AOC by burning in a small pit. No other disposal events are known to have taken place in this AOC.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-8 below. A map indicating the location of this AOC and others located in Area B is presented in Figure 3-3.

Table 3-8 Characteristics of Area B - Blue Motor Burn Pit

AOC Size:	~.005 acres
Access:	Unimproved road runs within 1/8 mile of this AOC.
Accessible Area:	~.005 acres
Area Investigated:	~.005 acres
Area Cleared:	100% investigation as part of the Bazooka Impact Area represents effective MEC removal of the AOC to approximately 1 foot.
Terrain:	Relatively flat
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3 feet tall discourage entry when dry
Types of MEC:	None found
Types of MC:	None found

3.2.9 Area B - Motor Washout Area

This AOC consists of a small flat area used to wash waste propellant from rocket motor casings. In 1986, some small chucks of propellant were found during a site walk at this location.

During the 2005/2006 investigation this AOC was evaluated by performing a surface sweep to identify any chunks of propellant that might be present. No intrusive evaluation was conducted based on the fact that the propellant washout was performed in a lined basin and there is no evidence that MEC or munitions components were ever present in the area. Approximately 0.7 acres were surface swept providing 100% coverage of the identified Washout Area AOC. No propellant or residue was noted.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-9 below. A map indicating the location of this AOC and others located in Area B is presented in Figure 3-3.

Table 3-9 Characteristics of Area B - Motor Washout Area

AOC Size:	0.7 acres
Access:	Unimproved road runs beside this AOC.
Accessible Area:	0.7 acres
Area Investigated:	0.7 acres; metal detector-aided visual sweep for rocket propellant or MEC debris
Area Cleared:	N/A
Terrain:	Fla.
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3 feet tall that form nearly impenetrable barrier when dry
Types of MEC:	None found
Types of MC:	None found
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.10 Area C – Former Burn Pit Area (BPA)

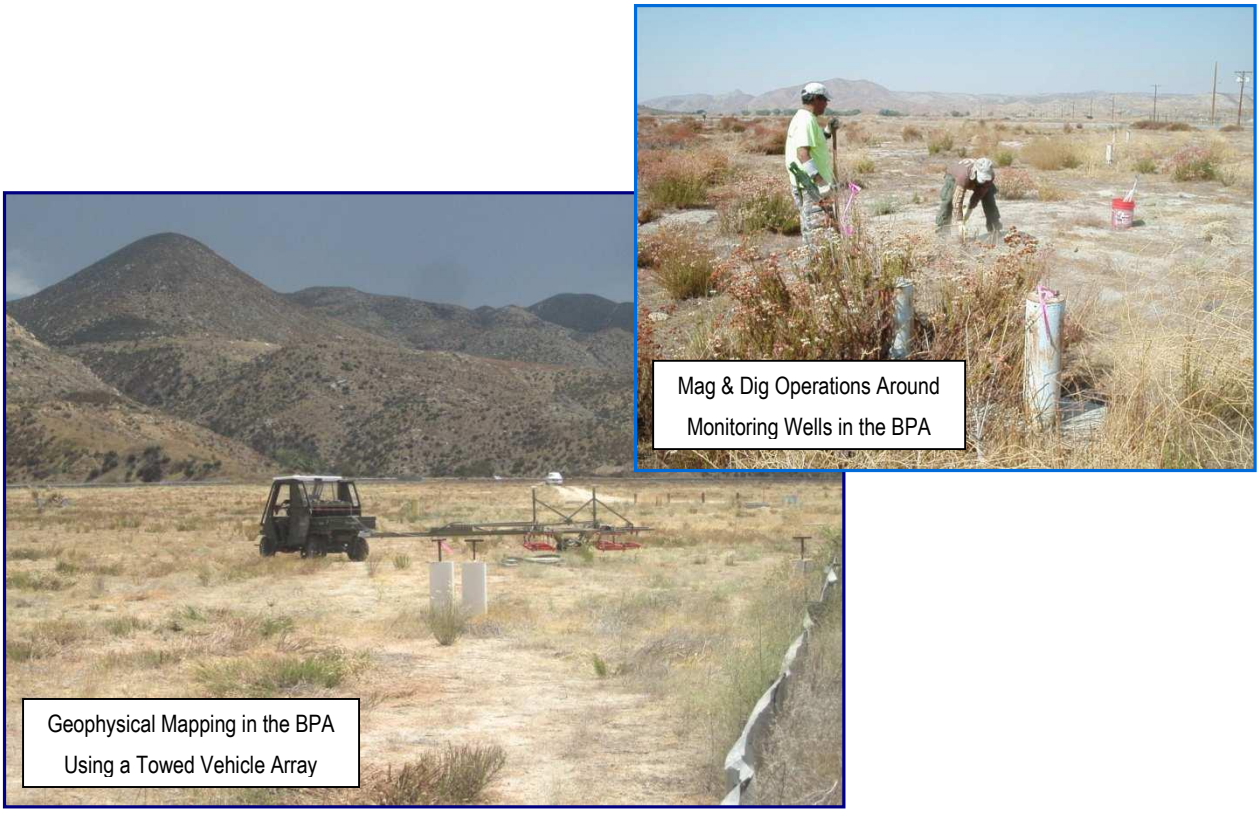
This AOC was historically used for burning excess, waste, or off-spec rocket propellant. The area AOC is located down range of the phalanx gun target berm. It was reportedly cleaned and closed in 1993 when an extensive effort was made to locate, excavate, and remove burn pit debris from former burn pit trenches. During a 2009 drilling event in this AOC, several pieces of munitions debris were discovered. The area was added to the list of AOCs, and an evaluation was conducted to determine the potential for MEC to be present. The BPA was first investigated in 2009. The initial evaluation (Phase I) was only partially completed due to the large amount of metallic debris detected in the area. This unanticipated condition precluded assessment of the planned area within the original scope.

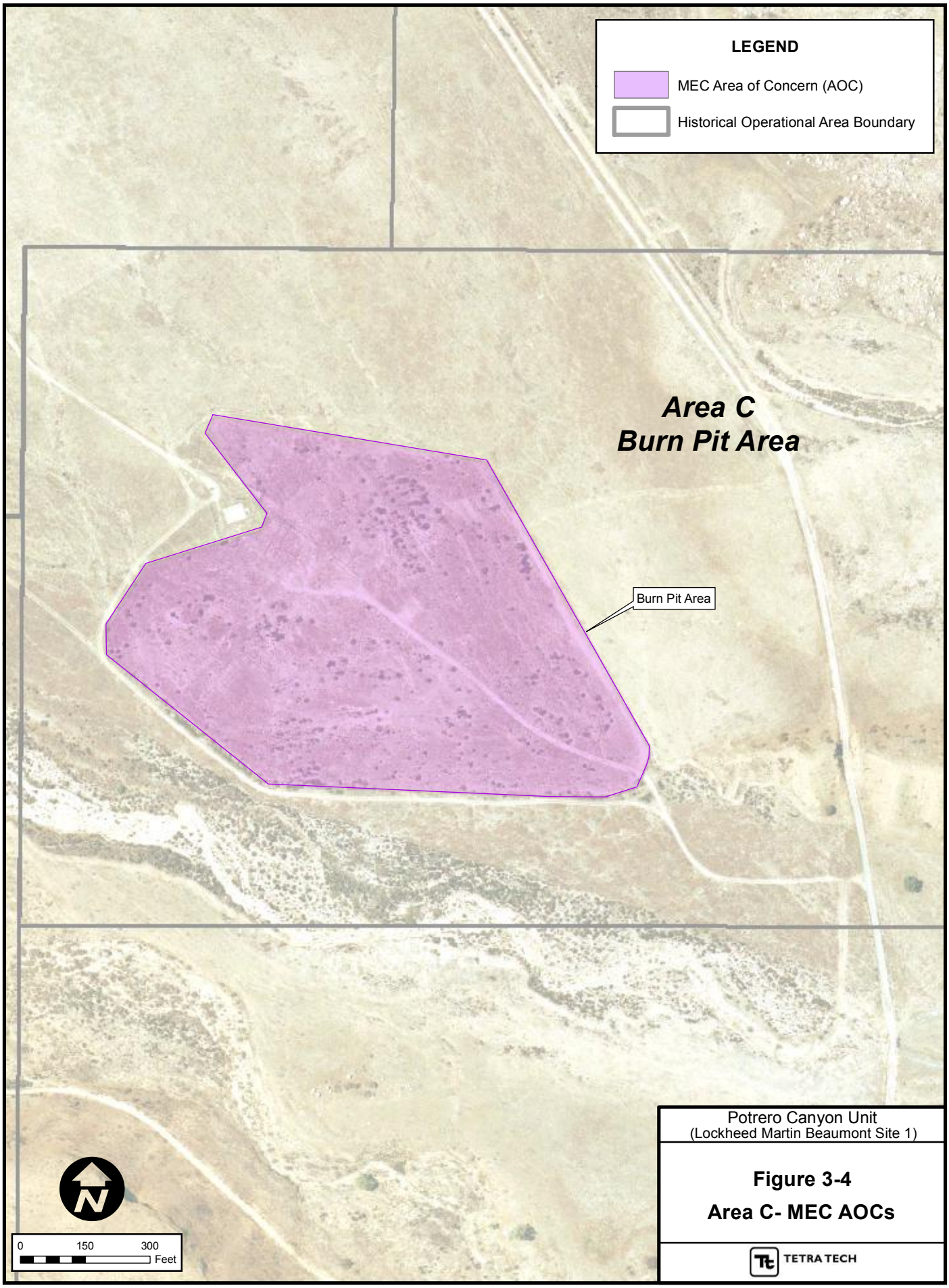
The Phase II Evaluation in this AOC was conducted using DGM-guided intrusive investigation as the primary methodology to determine the nature of subsurface metallic anomalies throughout the 16.2 acre area. This methodology was used to evaluate several small areas that were inaccessible for DGM. The evaluation area was prepared by conducting a 100% surface removal (as possible). The area (with the exception of a reinforced concrete slab) was then geophysically mapped where possible and a representative number of anomalies falling within the selection criteria were intrusively investigated. Initially five percent of the anomalies in the appropriate size range for 20mm to 40mm projectiles were selected for evaluation, along with all of the anomalies falling in the appropriate size range for the large munitions that were reportedly tested at the Potrero Canyon Unit (5-inch, 105mm and 155mm). The small anomalies were selected semi-randomly with an emphasis on selecting those anomalies which produced signals most closely resembling simulant munitions buried in the instrument verification strip for the investigation. An additional five percent of the small anomalies were selected for evaluation in areas of the AOC where mapping data indicated that there was a high density of metallic anomalies. This technical approach resulted in higher levels of data for areas that contained higher numbers of metallic anomalies and thus

would be expected to have a higher probability of containing MEC, if present. Since it is difficult to determine the size of a subsurface metallic anomaly using hand-held metal detectors, all detected anomalies in the Mag & Dig areas were intrusively investigated to determine their nature. It is not possible to determine the exact number of acres intrusively investigated in the BPA; however, the methodology employed was specifically designed to adequately sample the area, yield comprehensive characterization data, and reveal the presence of potential MEC.

Nineteen pieces of munitions debris were found but no MEC were recovered. In general, the type and location of the debris suggested small-scale incidental disposal of 30mm shell casings and expended CAD-like items. The small amount of frag found may have resulted from infrequent explosive testing in areas surrounding the AOC. Simulated blow-out panels for the propellant mixers were stress tested in nearby areas and one test involving a large-caliber Army bomb modified to produce an incendiary effect was also conducted in Area D, which is near enough to the AOC to have resulted in the presence of incidental frag.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-10 below. A map indicating the location of this AOC in Area C is presented in Figure 3-4.

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LEGEND
MEC Area of Concern (AOC)
Historical Operational Area Boundary
Area C
Burn Pit Area
Burn Pit Area
0
150
300
Feet
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Figure 3-4
Area C- MEC AOCs
TETRA TECH

Table 3-10 Characteristics of Area C – Former Burn Pit Area (BPA)

AOC Size:	16.8 acres including a buffer to ensure complete evaluation.
Access:	Unimproved road runs beside the AOC; unimproved access road runs to the interior of the AOC.
Accessible Area:	~16.7 acres (Concrete pad at the west edge prevents access to areas beneath.)
Area Investigated:	~16.7; full DGM in accessible areas and investigation of a representative number of anomalies meeting selection criteria. A small ravine was investigated using Mag & Dig techniques.
Area Cleared:	N/A
Terrain:	Relatively flat
Erosion:	Low erosion potential due to the flat terrain
Vegetation:	Grass and weeds up to 2-feet tall that discourage entry when dry, and sparse sagebrush
Types of MEC:	None found
Types of MC:	Empty, inert 30mm shell casings, spent CADs, potential rocket base, solid inert 30mm projectile (possibly from the phalanx gun testing), and several small pieces of potential frag of unknown origin.
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.11 Area D - Terraced Projectile Landing Zone (TPLZ)

This AOC is a backstop for ballistics testing of reportedly inert, large caliber munitions. It consists of two steep hillsides with multiple terraces, which are located behind a small target berm. Field investigation supported the reported use. However, other uses were indicated as well, such as machine gun testing.

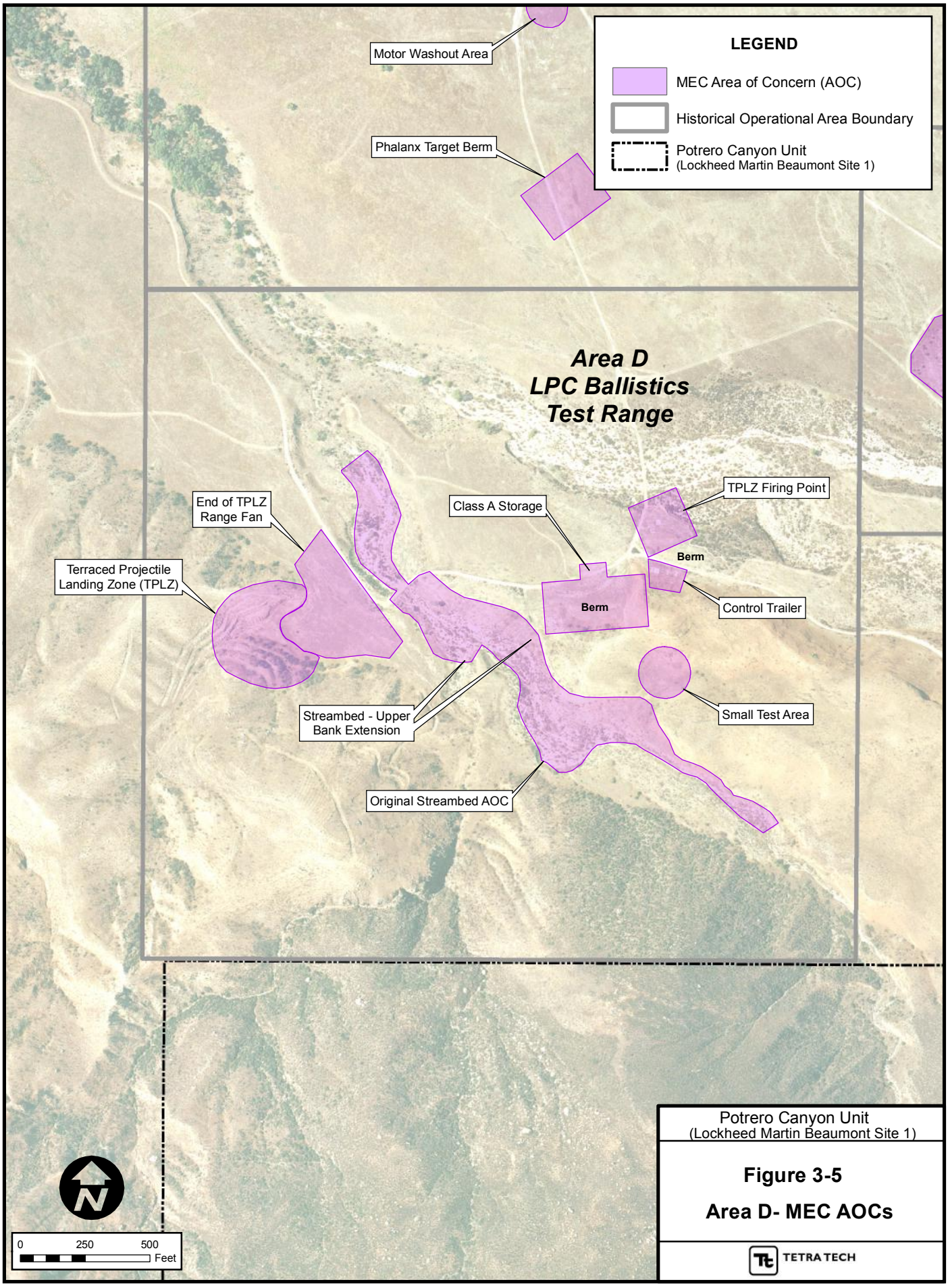
This AOC was investigated during 2005/2006 using Mag & Dig techniques. The main reason for selecting Mag & Dig evaluation was the inaccessibility of the TPLZ. The terraces in this area are relatively narrow (4- to 5-feet wide), there are shrubs and small trees at some locations, and the terraces must be reached by climbing a steep hill. This AOC is approximately 2.7 acres in size including the terraces and the steep slopes between the terraces. About 60% of the terrace area was accessible for evaluation.

Twenty-five targets were evaluated during the investigation. Scrap from inert projectiles was found, but no MEC were recovered.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-11 below. A map indicating the location of this AOC in Area D is presented in Figure 3-5.

Table 3-11 Characteristics of Area D - Terraced Projectile Landing Zone (TPLZ)

AOC Size:	2.7 acres
Access:	Unimproved road ¼ mile north
Accessible Area:	~1.9 acres
Area Investigated:	~1.9 acres; Mag & Dig in accessible areas on terraces
Area Cleared:	N/A
Terrain:	Very steep and rugged except terraces cut in hillsides
Erosion:	Moderate based on slope
Vegetation:	Sagebrush and scrub with some grass
Types of MEC:	None found
Types of MC:	Scrap from inert projectiles (37mm, 40mm and 5-inch)
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	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LEGEND
MEC Area of Concern (AOC)
Historical Operational Area Boundary
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Motor Washout Area
Phalanx Target Berm
Area D
LPC Ballistics
Test Range
End of TPLZ
Range Fan
Class A Storage
TPLZ Firing Point
Berm
Terraced Projectile
Landing Zone (TPLZ)
Berm
Control Trailer
Streambed - Upper
Bank Extension
Small Test Area
Original Streambed AOC
N
0
250
500
Feet
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Figure 3-5
Area D- MEC AOCs
TETRA TECH

3.2.12 Area D - TPLZ Firing Point

This AOC was a site where 37mm, 40mm 155mm, and 5-inch guns were test fired. There was also a ballistic tunnel at this location that was used to photograph projectiles during firing. Reportedly, only target practice rounds with inert projectiles were fired from this location. Investigation supported this assumption.

During the 2005/2006 investigation DGM was used to survey TPLZ Firing Point. Line spacing for the mapping was 2.5 feet and ensured 100% coverage of the accessible areas mapped to acquire 2-D data. Approximately 0.8 acres of the 0.92 acres within the AOC were mapped, providing 87% coverage of the AOC.

For this AOC, 167 anomalies were initially identified in accordance with the approved selection criteria. All 167 anomalies were initially selected for evaluation; however, there was a great deal of debris in this AOC and anomalies appeared to be clustered together in many areas. The site-specific five-point approach was used to reduce the number of anomalies/anomaly locations evaluated to 101. Four pieces of frag of unknown origin were found in this AOC. These may have resulted from bomb and mine testing in the small canyon southeast of this site (See Section 3.2.14)

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-12 below. A map indicating the location of this AOC in Area D is presented in Figure 3-5.

Table 3-12 Characteristics of Area D – TPLZ Firing Point

AOC Size:	0.8 acres
Access:	Unimproved road runs beside AOC
Accessible Area:	~0.78 acres; ballistics tunnel foundation and small steep berm still present resulting in small areas inaccessible for investigation
Area Investigated:	~0.78 acres; DGM and investigation of anomalies meeting selection criteria in all accessible areas
Area Cleared:	N/A
Terrain:	Relatively flat except for a small berm near the center of the AOC
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub
Types of MEC:	None found
Types of MC	Four pieces of frag of unknown origin. May have been kickout from the bomb and mine testing in the small canyon southeast of this site. (See Section 3.2.14.)
DGM = Digital Geophysical Mapping	

3.2.13 Area D - End of TPLZ Range Fan

This AOC is the range fan area surrounding, and including, the target berm just in front of the TPLZ where target practice projectiles fired from the 37mm, 40mm, 155mm, and 5-inch guns at this test range would have impacted.

During 2005/2006 this AOC was investigated using DGM and intrusive investigation of subsurface anomalies meeting the approved selection criteria. Geophysical data was acquired along lines spaced at 2.5 feet. Approximately 3.7 acres were mapped, providing 100% coverage of the identified AOC.

During the 2005/2006 investigation a potential unreported target stand was found. The potential target stand area contained long, jagged frag indicative of potential HE munitions use. However, no MEC were found. As a precaution, this potential target stand was re-evaluated in 2007/2008 to ensure that no MEC were present. The area was geophysically mapped and all anomalies meeting the selection criteria were intrusively investigated.

For this AOC, 340 anomalies were initially identified. All 340 were selected for evaluation. During the target stand investigation in 2007/2008, 93 additional anomalies were identified. Sixty-three of these anomalies were selected for investigation based upon the approved selection criteria. No MEC were found during either phase of investigation. During the initial investigation, 142 MC were found including scrap from inert projectiles (37mm, 40mm and 5-inch), scrap from a Light Anti-Armor Weapon (LAW) rocket launcher, and a machine gun stand. During the target stand investigation, nine MC were found. These items were primarily long, jagged frag consistent with the breakup of large caliber HE munitions.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-13 below. A map indicating the location of this AOC in Area D is presented in Figure 3-5.

Table 3-13 Characteristics of Area D - End of TPLZ Range Fan

AOC Size:	2.9 acres
Access:	Unimproved road runs beside AOC.
Accessible Area:	2.9 acres
Area Investigated:	2.9 acres; DGM and investigation of anomalies meeting selection criteria; re-evaluation of potential target area using DGM and removal of all metallic anomalies detected
Area Cleared:	N/A
Terrain:	Generally flat except for the target berm
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub mixed with grass
Types of MEC:	None found
Types of MC:	Scrap from inert projectiles (37mm, 40mm and 5-inch); also scrap from a LAW rocket launcher and a machine gun stand
DGM = Digital Geophysical Mapping	

3.2.14 Area D - Small Test Area

This AOC is a small box canyon where incendiary bomb and mine testing were reportedly conducted. Large amounts of small frag supported this assumption. However, the AOC also contained large quantities of metal scrap, such as auto parts, nails, and screws that may be the result of general disposal in this AOC.

This AOC was investigated using DGM-guided intrusive investigation. Geophysical data was acquired over the AOC along lines spaced at 2.5 feet. Approximately 0.5 acres were mapped, providing 100% coverage of the identified Small Test Area AOC.

For this AOC, 273 anomalies were initially identified. However, there was a great deal of debris in the area and anomalies appeared to be clustered together in many areas. The site-specific five-point sampling approach was used to reduce the number of anomalies/anomaly locations investigated to 169. Copious small frag was present in the area, but no MEC were found. The frag is consistent with the mine and/or bomb testing historically conducted in this area.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-14 below. A map indicating the location of this AOC in Area D is presented in Figure 3-5.

Table 3-14 Characteristics of Area D - Small Test Area

AOC Size:	0.5 acres
Access:	Unimproved road/trail runs into this AOC.
Accessible Area:	0.5 acres
Area Investigated:	0.5 acres; initial Mag & Dig investigation followed by full DGM and investigation of anomalies meeting selection criteria; representative sampling of several debris pits
Area Cleared:	N/A
Terrain:	Relatively flat with steep side walls
Erosion:	Low erosion
Vegetation:	Primarily tall grass
Types of MEC:	None found
Types of MC:	Large amounts of small frag consistent with reports of mine and bomb tests in this area
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.15 Area D - Class A Storage Area

This AOC consisted of three small buildings used to store Class A explosives associated with research and testing performed at the Site. The buildings were located behind a short berm 3- to 4-feet tall. It is not known exactly what materials were stored here.

This AOC was investigated in 2005/2006 using DGM-guided intrusive investigation of subsurface anomalies meeting the approved selection criteria. Geophysical survey data was acquired over the

AOC along lines spaced at 2.5 feet. Approximately 2 acres were mapped providing 100% coverage of the AOC. After the geophysical mapping in this AOC was complete, both the geophysical staff and the UXO staff indicated that the physical and man-made features (or lack thereof) suggested that this area was not the location of the former Class A Storage magazines, but may actually have been the site where a 0.50 caliber machine gun was fired at rocket motors placed in front of a backstop berm. Based on the observations of the staff and their review of the data, the AOC was re-designated as the 0.50 Caliber Gun Mount and Berm. The investigation moved forward on this premise and the geophysical data was interpreted using dig criteria for a 0.50 caliber target.

Following the 2005/2006 evaluation, the former Area D supervisor visited the Site and shared his recollections of the work that was conducted at various locations in Area D. This employee indicated that the area in question was indeed the former Class A Storage and an alternate area identified by the geophysicists and UXO field team was the site of his control trailer, a storage shed, and a small building used to store ammunition used in Area G. Based on the new information, this AOC was re-instated as the Class A Storage and the area to the northeast was renamed as the Control Trailer AOC.

For this AOC, 325 anomalies were initially identified. One hundred and sixty were selected for evaluation based upon the approved selection criteria. The AOC contained hundreds of pieces of metal scrap including nails and wire. A large steel plate or box was found in the roadway running through the area, however it was not excavated since this would have destroyed the road. Thirteen pieces of frag of unknown origin were found. This frag may have been deposited as a result of testing in the small canyon behind this area (see previous section). No MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-15 below. A map indicating the location of this AOC in Area D is presented in Figure 3-5.

Table 3-15 Characteristics of Area D - Class A Storage Area

AOC Size:	2 acres
Access:	Unimproved road runs through the AOC.
Accessible Area:	2 acres
Area Investigated:	2 acres; DGM with investigation of anomalies meeting selection criteria except in berm area
Area Cleared:	N/A
Terrain:	Relatively flat except for a small berm in front of the historical building pads
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub with tall grass
Types of MEC:	None found
Types of MC:	Thirteen pieces of frag of unknown origin. May have been deposited as a result of testing in the small canyon behind this area (see previous section)
DGM = Digital Geophysical Mapping	

3.2.16 Area D - Control Trailer Area

This AOC was the site of a trailer where the controls for the TPLZ Firing Point across the road were located. A large conduit runs under the road from the trailer to the firing point. Two small buildings east of the trailer were reportedly used to store small arms ammunition or other items. Three concrete slabs were located, thus confirming the reported number of buildings in this AOC.

DGM-guided intrusive investigation was selected for this AOC. Geophysical survey data was acquired over the AOC along lines spaced at 2.5 feet. Approximately 0.3 acres were mapped providing 100% coverage of the AOC.

For this AOC, 76 anomalies were initially identified. Forty-two were selected for intrusive investigation based upon the approved selection criteria. Several small pieces of aluminum frag or scrap of unknown origin were found. The pieces of aluminum were too small to determine whether they were explosively or mechanically created; however, frag may have been deposited in this AOC as a result of testing performed in the small canyon behind this AOC (See Section 3.2.14). No MEC were located.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-16 below. A map indicating the location of this AOC in Area D is presented in Figure 3-5.

Table 3-16 Characteristics of Area D - Control Trailer Area

AOC Size:	0.3 acres
Access:	Unimproved road runs beside AOC
Accessible Area:	0.3 acres
Area Investigated:	0.3 acres; DGM and investigation of anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	Relatively flat; steep hill behind the AOC
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub with tall grass
Types of MEC:	None found
Types of MC:	Several pieces of small aluminum frag or scrap of unknown origin
DGM = Digital Geophysical Mapping	

3.2.17 Area D – Streambed

This AOC is an ephemeral streambed, where the 20mm belted target-practice ammunition that precipitated the MEC assessment and removal at the Site was found in 2005. The ammunition was found during repair of a road crossing. There is no documented historical MEC use for this AOC.

It is located near sites that were "reportedly" used for testing incendiary bombs and landmines (in enclosed boxes), for storing Class A explosives, and for testing large caliber guns. No 20mm munitions are known to have been used near this AOC and no source of these munitions was found.

The streambed and bank areas were swept with Schonstedt metal detectors and all contacts were dug during the initial site evaluation. Later in 2005/2006, a more extensive portion of the streambed and surrounding area was evaluated using Mag & Dig techniques suitable for the rugged steep terrain and sometimes thick vegetation. The evaluation area began 700 feet southeast of the small test area (See Section 3.2.14) and extended 550 feet beyond the stream crossing where the initial 20mm find was made. The UXO team walked the AOC aligned across the streambed with team members spaced at about 3–foot intervals. Approximately 5.1 acres were evaluated providing near 100% coverage of this AOC. During the 2007/2008 investigation additional portions of the upper bank area along the stream were evaluated using Mag & Dig techniques in an effort to locate a possible upstream source area for target practice munitions previously found in the streambed.

During Phase I, fifty-three anomalies were evaluated. Several 20mm target practice rounds (with primers) and inert 20mm projectiles were found, along with several burster tubes from large caliber projectiles. A few pieces of thick frag found may be associated with bomb testing in a small canyon nearby (See Section 3.2.14). A former employee indicated the burster tubes likely came from salvage work (propellant) on eight large-caliber rounds in a nearby AOC. During Phase II, six MEC items were found in this area including two 20mm practice rounds, three 20mm casings with primers, and one primer assembly for a large caliber munition. The 20mm ammunition found in this AOC was consistent with the munitions that may have been used in the phalanx gun testing in Area B; however, there were no known storage or disposal areas for this ammunition on site.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-17 below. A map indicating the location of this AOC in Area D is presented in Figure 3-5.

Table 3-17 Characteristics of Area D - Streambed

AOC Size:	Unknown since a source area was not identified along the stream
Access:	Unimproved road runs through streambed. It is poorly maintained and rough (4WD only).
Accessible Area:	N/A
Area Investigated:	8.2 acres in the streambed and along the upper banks above the channel using Mag & Dig techniques; second phase expanded search area for munitions source.
Area Cleared:	N/A
Terrain:	The streambed is relatively flat although it is very irregular due to sediment deposits of varying depth and size. The upper bank areas are moderately to steeply sloped.
Erosion:	Heavy erosion occurs in the streambed and nearby floodplain during occasional flash floods.
Vegetation:	Occasional scrub in the streambed with prominent sagebrush and scrub along the banks
Types of MEC:	20mm target practice rounds and projectiles; several burster tubes from large caliber projectiles – presence or quantity of reactive material unknown
Types of MC:	Scrap associated with 20mm ammunition and a few pieces of heavy frag generated explosively. Frag may have originated in the small test canyon (See Section 3.2.14)
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.18 Area F - Igniter Magazine

This AOC consists of a small igniter magazine reportedly located in the Lockheed Propulsion Company (LPC) Test Services Area. The magazine was reportedly a 55-gallon drum cut in half that was hinged to form a closed storage container for squibs (small igniting charges) that were used in this AOC. The structure was not found; however a large area was examined in order to ensure that the structure was not present and there was not a detectable waste pit near the site.

This AOC was evaluated during 2005/2006 by performing a surface sweep to identify any residual squibs or indications that they were disposed of near the former storage barrel. No intrusive evaluation was conducted based on the fact that there was no evidence to suggest that any residual MEC was buried in this area. Approximately 0.7 acres were surface swept providing 100% coverage of the identified Igniter Magazine AOC. No evidence of the magazine or MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-18 below. A map indicating the location of this AOC in Area F is presented in Figure 3-6.

Table 3-18 Characteristics of Area F - Igniter Magazine

AOC Size:	0.1 acres
Access:	Unimproved road runs within 1/8 mile of this AOC.
Accessible Area:	0.1 acres
Area Investigated:	0.1 acres; metal detector-aided search for former magazine (split barrel with hinges)
Area Cleared:	N/A
Terrain:	Moderate undulating slope in this general area
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3-feet tall, sagebrush and scrub
Types of MEC:	None found
Types of MC:	None found
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

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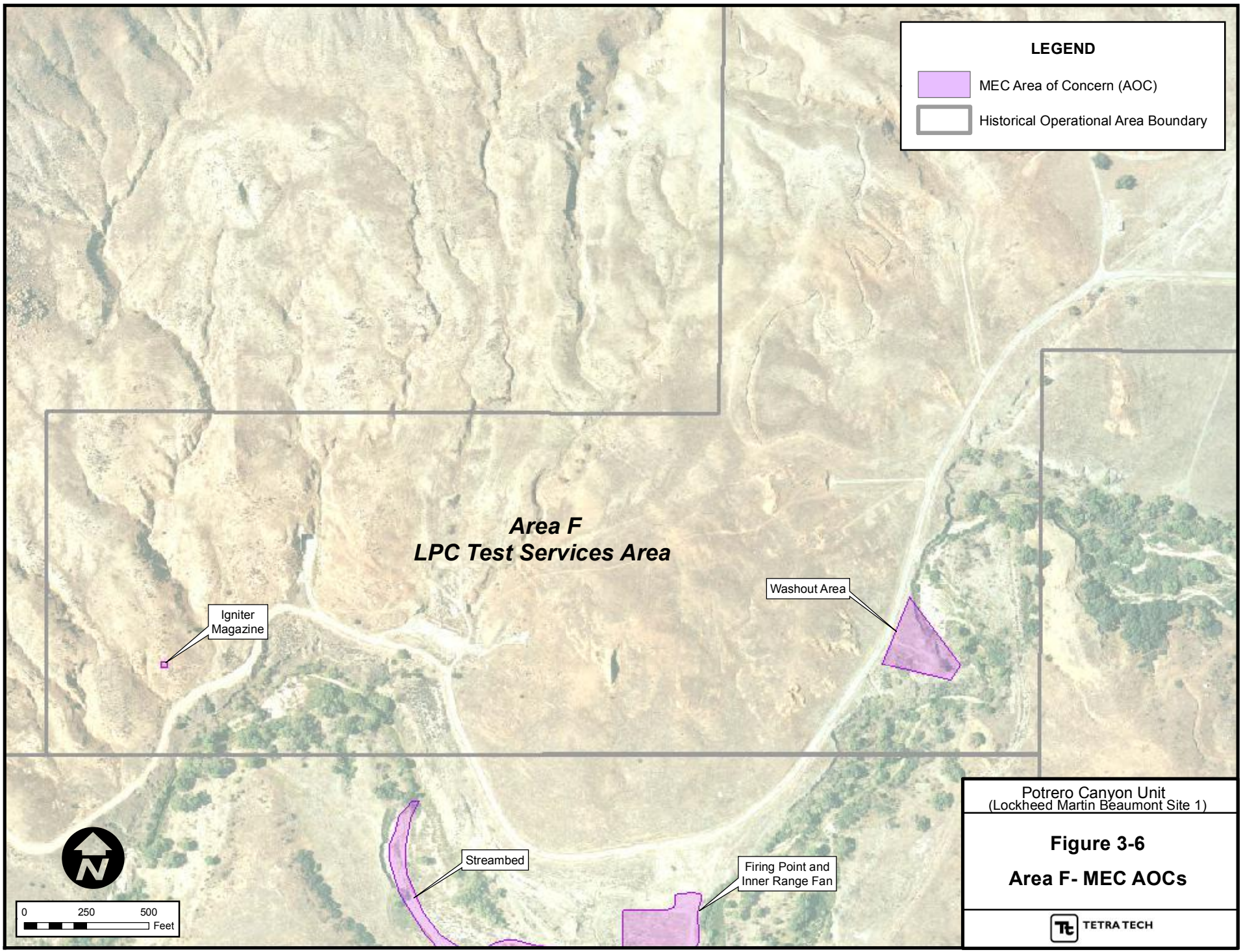

Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)

Figure 3-6

Area F- MEC AOCs

TETRA TECH

3.2.19 Area F - Motor Washout Area

This AOC consists of a small flat area used to wash waste propellant from rocket motor casings. In 1986, some small chucks of propellant were found during a site walk.

During the 2005/2006 investigation, this AOC was evaluated by performing a surface sweep to identify any chunks of propellant that might be present. No intrusive evaluation was conducted based on the facts that the propellant washout was performed in a lined basin and there is no evidence that MEC or munitions components are present in the area. Approximately 1.2 acres were surface swept providing 100% coverage of the identified Washout Area AOC. No propellant or residue was noted in 2005/2006.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-19 below. A map indicating the location of this AOC in Area F is presented in Figure 3-6.

Table 3-19 Characteristics of Area F - Motor Washout Area

AOC Size:	0.7 acres
Access:	Unimproved road runs beside this AOC.
Accessible Area:	0.7 acres
Area Investigated:	0.7 acres; metal detector-aided visual sweep for rocket propellant or MEC-related debris
Area Cleared:	N/A
Terrain:	Site slopes moderately toward Potrero Creek to the southeast.
Erosion:	Generally low erosion, creek could erode flanks of bluff during significant storm event
Vegetation:	Tall grass and weeds up to 3-feet tall that discourage entry when dry
Types of MEC:	None found
Types of MC:	None found

3.2.20 Area G - Firing Point

This AOC consists of a flat pad area at the edge of the plateau beside Potrero Creek where tower-mounted guns and a helicopter with guns were used to test delivery systems for rapid fire air-to-ground weapons, 7.62mm, 30mm, and 40mm guns were tested here. Reportedly only practice munitions or small arms ammunition were used in this AOC and investigation results supported this report.

During the 2005/2006 investigation, this AOC was evaluated using DGM. Geophysical data was acquired over the AOC along lines spaced at 2.5 feet. Approximately 2.3 acres were mapped providing 100% coverage of the AOC. Part of this area was eventually placed in a separate AOC based upon anecdotal information from a former LMC employee familiar with this area (see

Section 3.2.21). Ultimately, 0.2 acres was evaluated in the Firing Point AOC, providing 100% coverage of the now accurately delineated firing point.

For this AOC, 40 anomalies were initially identified. All 40 were considered primary and were intrusively evaluated. Two inert 40mm projectiles (aluminum heads only) and one 30mm casing were found. No MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-20 below. A map indicating the location of this AOC in Area G is presented in Figure 3-7.

Table 3-20 Characteristics of Area G - Firing Point

AOC Size:	0.2 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	0.2 acres
Area Investigated:	0.2 acres; initial Mag & Dig followed by DGM and investigation of anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	Relatively flat but south of the AOC there is a drop off to a second plateau above the creek.
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3-feet tall that discourage entry when dry
Types of MEC:	None found
Types of MC:	Two inert 40mm projectiles (aluminum heads only) and one 30mm casing
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.21 Area G - Inner Range Fan

This AOC consists of a small rectangular plateau beside Potrero Creek. It is located between the firing point and the range itself; however, it may have been littered with munitions debris or items used in the other range areas.

During 2005/2006, this AOC was evaluated using DGM-guided intrusive investigation. Geophysical survey data was acquired over the AOC along lines spaced at 2.5 feet. Approximately 1.5 acres were evaluated in the Inner Range Fan AOC, providing 100% coverage of the identified AOC.

For this AOC, 172 anomalies were initially identified. All 172 targets were selected for evaluation based upon the approved selection criteria. Inert 40mm projectiles and scrap from inert 30mm and 40mm projectiles were recovered. No MEC were found.

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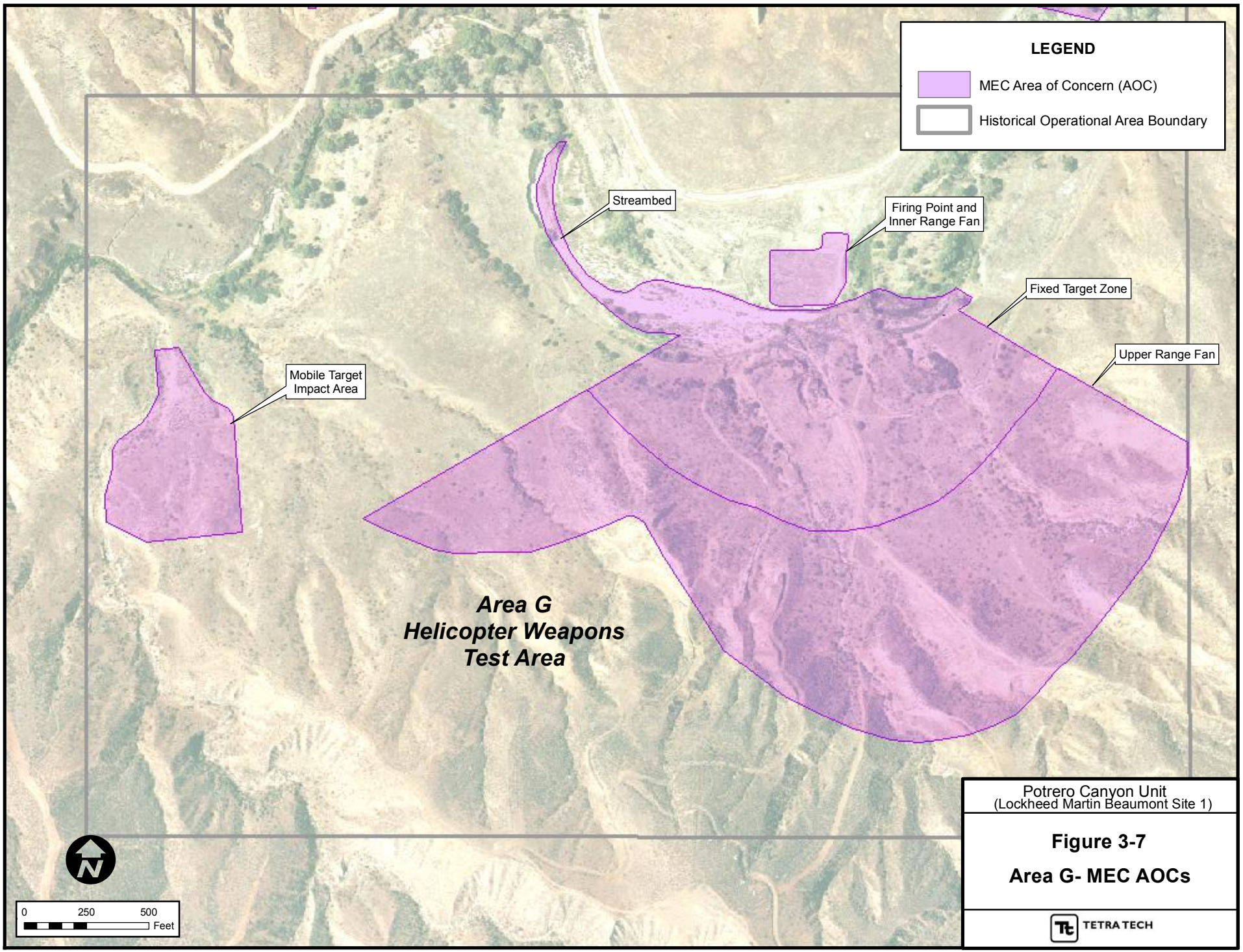

Potrero Canyon Unit
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Figure 3-7

Area G- MEC AOCs

TETRA TECH

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-21 below. A map indicating the location of this AOC in Area G is presented in Figure 3-7.

Table 3-21 Characteristics of Area G - Firing Point

AOC Size:	1.5 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	1.5 acres
Area Investigated:	1.5 acres; DGM with investigation of anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	Relatively flat with a short steep bank to the north (between this AOC and the firing point) and a steep drop off to the creek on the south
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 4-feet tall that discourage entry when dry
Types of MEC:	None found
Types of MC:	Inert 40mm projectiles and scrap from inert 30mm and 40mm projectiles
DGM = Digital Geophysical Mapping	

3.2.22 Area G - Fixed Target Zone

This AOC consists of a broad fan-shaped area where fixed targets were positioned to take advantage of the natural backstop created by the steep surrounding hills.

The 2005/2006 investigation in this AOC was conducted using Mag & Dig techniques along each of eleven radial transects. The transects were constructed by extending radial lines from the firing point to the upper limit of the fixed target zone. The portion of the lines falling within the AOC became the investigation transects. The transects used to evaluate the Fixed Target Zone AOC covered 0.9 acres. This accounts for 3.6 percent of the 25.2 acres located within the AOC. The use of radial transects focused the evaluation along the lines of fire for the range, and maximized the probability of finding MEC-related materials associated with the historical testing in the range.

Seventy-five targets were identified and intrusively investigated in this AOC. Inert 30mm and 40mm projectiles, associated scrap (mechanically broken frag), and small arms frag likely generated by hunters or other present day site users were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-22 below. A map indicating the location of this AOC in Area G is presented in Figure 3-7.

Table 3-22 Characteristics of Area G - Fixed Target Zone

AOC Size:	25.2 acres
Access:	Unimproved road within 1/4 mile of AOC
Accessible Area:	~22 acres
Area Investigated:	0.86 acres; Mag & Dig along radial transects for sampling this rugged area
Area Cleared:	N/A
Terrain:	Undulating terrain sloping moderately up to the steep hills to the south; some localized areas of inaccessibility; difficult to reach (stream crossing)
Erosion:	Low to moderate erosion depending on locations
Vegetation:	Sagebrush and scrub with some tall grass and weeds that discourage entry when dry
Types of MEC:	None found
Types of MC:	Inert 30mm and 40mm projectiles, associated scrap (mechanically broken), and small arms scrap likely generated by hunters or other present day site users
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.23 Area G - Upper Range

This AOC encompasses a broad arc (band) along the steep hills behind the Fixed Target Zone. It serves as a natural backstop for the target area. The projectiles recovered during the survey were all inert, and it is likely that additional projectiles are present in those areas not surveyed.

The 2005/2006 investigation of the Upper Range consisted of performing Mag & Dig evaluation along a transect spanning the entire width of the AOC along a consistent elevation contour. This was considered sufficient to characterize the area since anecdotal information from a former LMC employee suggested that the majority of projectiles fired on the Area G range were fired at fixed targets located on the plateau below the upper range AOC. The transect evaluation covered approximately 0.3 acres within the 49.2 acre AOC. This accounts for 0.6 percent of the survey area. Fifty-one subsurface anomalies were identified and Mag & Dig evaluation was performed on all 51 anomalies. Inert 30mm and 40mm projectiles, associated scrap (mechanically broken frag), and small arms frag likely generated by hunters or other present day site users were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-23 below. A map indicating the location of this AOC in Area G is presented in Figure 3-7.

Table 3-23 Characteristics of Area G - Upper Range

AOC Size:	49.2 acres
Access:	Unimproved road within 1/2 mile of AOC
Accessible Area:	Unknown; very rugged and steep terrain
Area Investigated:	0.36: acres; Mag & Dig along a transect crossing the AOC for sampling in this remote, rugged area
Area Cleared:	N/A
Terrain:	Steep, rugged terrain; difficult to reach (stream crossing) and difficult to traverse
Erosion:	Moderate to heavy erosion depending on locations
Vegetation:	Sagebrush and scrub with some tall grass and weeds that discourage entry, particularly when dry
Types of MEC:	None found.
Types of MC:	Inert 30mm and 40mm projectiles, associated scrap (mechanically broken), and small arms scrap likely generated by present day hunters or other site users.
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.24 Area G - Mobile Target Impact Area

This AOC is a small area southwest of the firing point where a mobile target was suspended between two towers. The tower foundations are still present, but no target remnants or tower infrastructure elements were found. The AOC is very rugged and difficult to reach. The projectiles recovered during the survey were all inert and it is likely that additional projectiles are present in those areas not surveyed.

The 2005/2006 investigation of this AOC was conducted using Mag & Dig techniques along each of nine transects running parallel to the estimated line of fire for this area. The transects used to evaluate the Mobile Target Impact Area AOC covered 0.4 acres. This accounts for six percent of the 6.6 acres located within the AOC. The use of transects focused the evaluation along the lines of fire for the range and maximized the probability of finding MEC-related materials associated with the historical testing in the range. Twenty-nine targets were identified and intrusively investigated. Inert 30mm and 40mm projectiles, associated scrap (mechanically broken frag), and small arms frag likely generated by hunters or other present day site users were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-24 below. A map indicating the location of this AOC in Area G is presented in Figure 3-7.

Table 3-24 Characteristics of Area G - Mobile Target Impact Area

AOC Size:	6.6 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	Unknown; very rugged and steep terrain
Area Investigated:	0.4 acres; Mag & Dig along transects for sampling in this remote, rugged area
Area Cleared:	N/A
Terrain:	Very steep, rugged terrain with ridges and ravines; relatively flat near tower foundations
Erosion:	Moderate erosion anticipated based on terrain and vegetation
Vegetation:	Sagebrush and scrub with tall grass and weeds
Types of MEC:	None found
Types of MC:	Inert 40mm projectiles and scrap (mechanically broken) from inert 30mm and 40mm projectiles; small arms scrap likely generated by present day hunters or other site users
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.25 Area G – Streambed

This AOC is a large ephemeral streambed south of the firing point for the range. The streambed banks are 10- to 20-feet tall and nearly vertical in some areas. Like other ephemeral streams on site, this stream is prone to occasional flash flooding that significantly redistributes sediments. The

projectiles recovered during the survey were all inert and it is likely that additional projectiles are present in those areas not surveyed.

The 2005/2006 investigation in this AOC was performed using Mag & Dig techniques. The accessible portions of the streambed were evaluated beginning approximately 1,600 feet upstream of the firing point and extending downstream 2,150 feet. The AOC began so far upstream because of the width of the range fan. The UXO team walked the streambed aligned across the bed with team members spaced at about 5–foot intervals. This area was only partially accessible for Mag & Dig operations due to the presence of water and heavy vegetation in some areas. Approximately 4.7 acres were evaluated providing nearly 100% coverage of this AOC.

One hundred and sixty-five targets were identified and intrusively investigated in this AOC. Inert 30mm and 40mm projectiles were found. No MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-25 below. A map indicating the location of this AOC in Area G is presented in Figure 3-7.

Table 3-25 Characteristics of Area G – Streambed

AOC Size:	4.7 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	2.8 acres
Area Investigated:	2.8 acres; Mag & Dig along streambed except areas beneath steep possibly unstable banks
Area Cleared:	N/A
Terrain:	The streambed is relatively flat although it is very irregular due to sediment deposits of varying depth and size. Banks are steep and sometimes nearly vertical.
Erosion:	Heavy erosion occurs in the streambed during occasional flash floods.
Vegetation:	Willow and scrub with a few trees. This AOC has moisture almost all year round and supports more lush growth than anticipated in a streambed.
Types of MEC:	None found
Types of MC:	Inert 30mm and 40mm projectiles
Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

3.2.26 Area H – Landfill

This AOC was the sanitary landfill during the life of the facility. It was reportedly only used for municipal-type waste. However, a former employee reported that 7.62mm ammunition that jammed in the rapid fire helicopter weapons system tested in Operational Area G was placed in an open drum and dumped in the landfill. The landfill is closed and capped, although signs of erosion are visible on the cap.

During the 2005/2006 investigation, this area was evaluated by performing a surface sweep to identify any debris on or proud of the ground surface that might be MEC-related. Approximately 2.7 acres were surface swept providing 100% coverage of the identified Landfill AOC. No intrusive evaluation was conducted since it is not prudent to disturb a capped landfill. No MEC or related material was found.

In late 2005 additional investigation was performed at the landfill by geophysically mapping the area. In 2008 test pits were excavated beside suspected trenches to allow soil sampling for chemical analysis. No MEC-related items were observed by UXO staff providing MEC avoidance services for this investigation.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-26 below. A map indicating the location of this AOC in Area H is presented in Figure 3-8.

Table 3-26 Characteristics of Area H – Landfill

AOC Size:	2.7 acres
Access:	From an unimproved road running beside the landfill
Accessible Area:	~2.5 acres (Areas in erosion ruts are not accessible.)
Area Investigated:	~2.5 acres; metal detector-aided surface sweep for debris, particularly in ruts eroded into the earthen landfill cap
Area Cleared:	N/A
Terrain:	The landfill generally has a gentle slope to the west. However, there are erosion ruts that are up to 1½- feet deep running across the landfill.
Erosion:	Moderate erosion has occurred in a few areas over 40 years creating ruts up to 1½- feet deep.
Vegetation:	Light scrub and sagebrush mixed with grass and weeds
Types of MEC:	None found. Reportedly 7.62mm ammunition was dumped in the landfill.
Types of MC:	None found

3.2.27 Area I - Incendiary Bomb Test Area (IBTA)

This AOC was used for testing experimental incendiary bombs. Reportedly large (500 pound) standard issue bombs were packed with thermite and explosives to determine if the capability to penetrate and ignite fire upon impact could be improved over then-current capabilities. Numerous pieces of thick-walled frag were found in the AOC, supporting this reported historical use. The lack of large fragments or partial bombs supported a hypothesis that high order detonation occurred during testing, spreading small pieces of frag over a very broad area.

During the 2005/2006 investigation this AOC was evaluated using DGM-guided intrusive investigation. Geophysical data was acquired over the accessible portions of the AOC along lines running parallel with the adjacent airstrip (See Section 3.2.28). The survey lines were spaced at 2.5 feet. Approximately 11.9 acres were mapped providing 100% coverage of the accessible portions of the 18-acre AOC.

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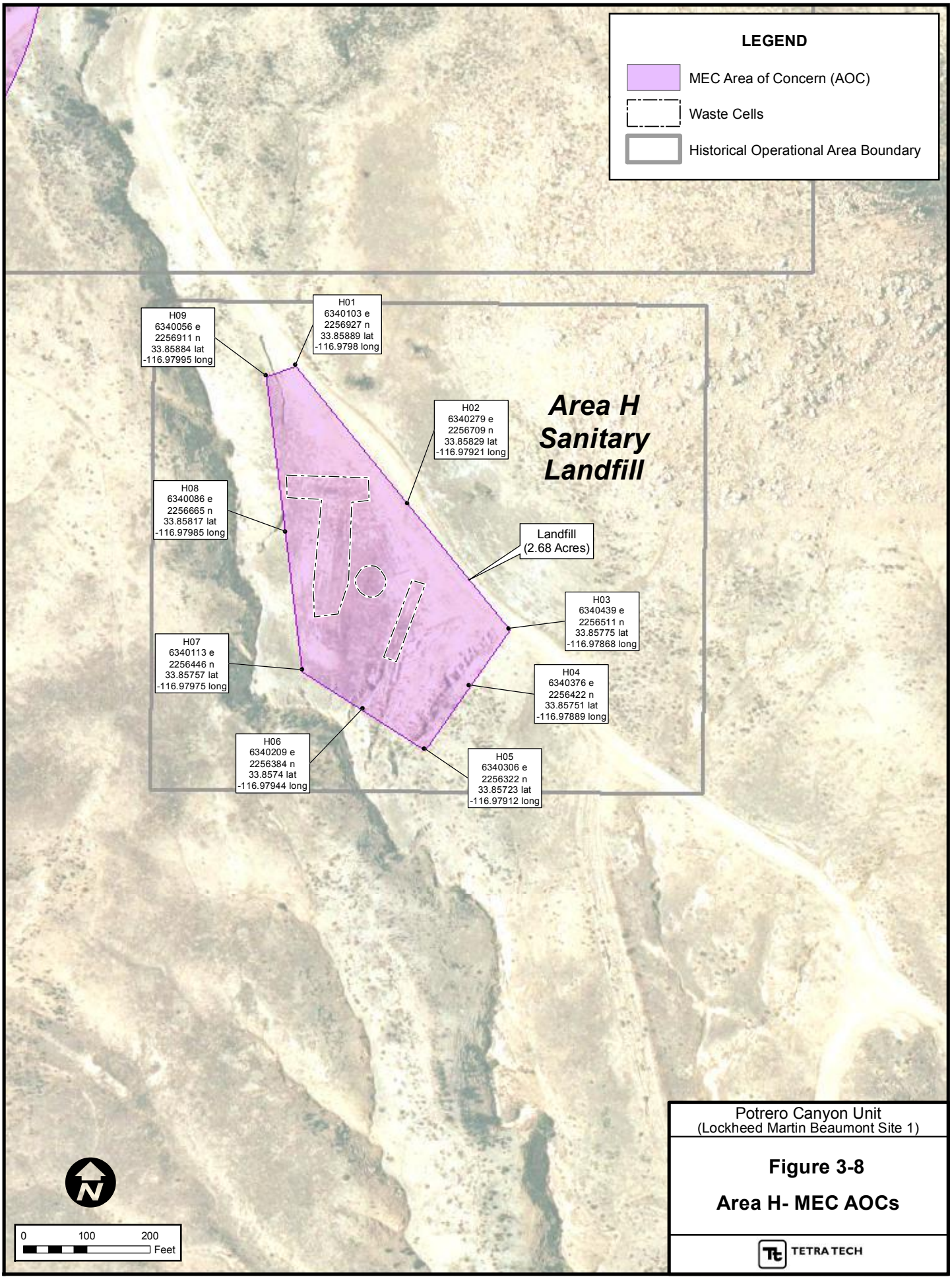

Potrero Canyon Unit
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Figure 3-8

Area H- MEC AOCs

TETRA TECH

For this AOC, 1,003 anomalies were initially identified. Since there was no target munition for this site (no intact bombs would be anticipated after testing), all anomalies in this AOC were considered secondary and only a small percentage was selected for evaluation. One hundred and fifty-two anomalies were evaluated to characterize the AOC. Large amounts of explosively broken, thick-walled frag consistent with the experimental bomb tests were found. No MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-27 below. A map indicating the location of this AOC in Area I is presented in Figure 3-9.

Table 3-27 Characteristics of Area I - Incendiary Bomb Test Area (IBTA)

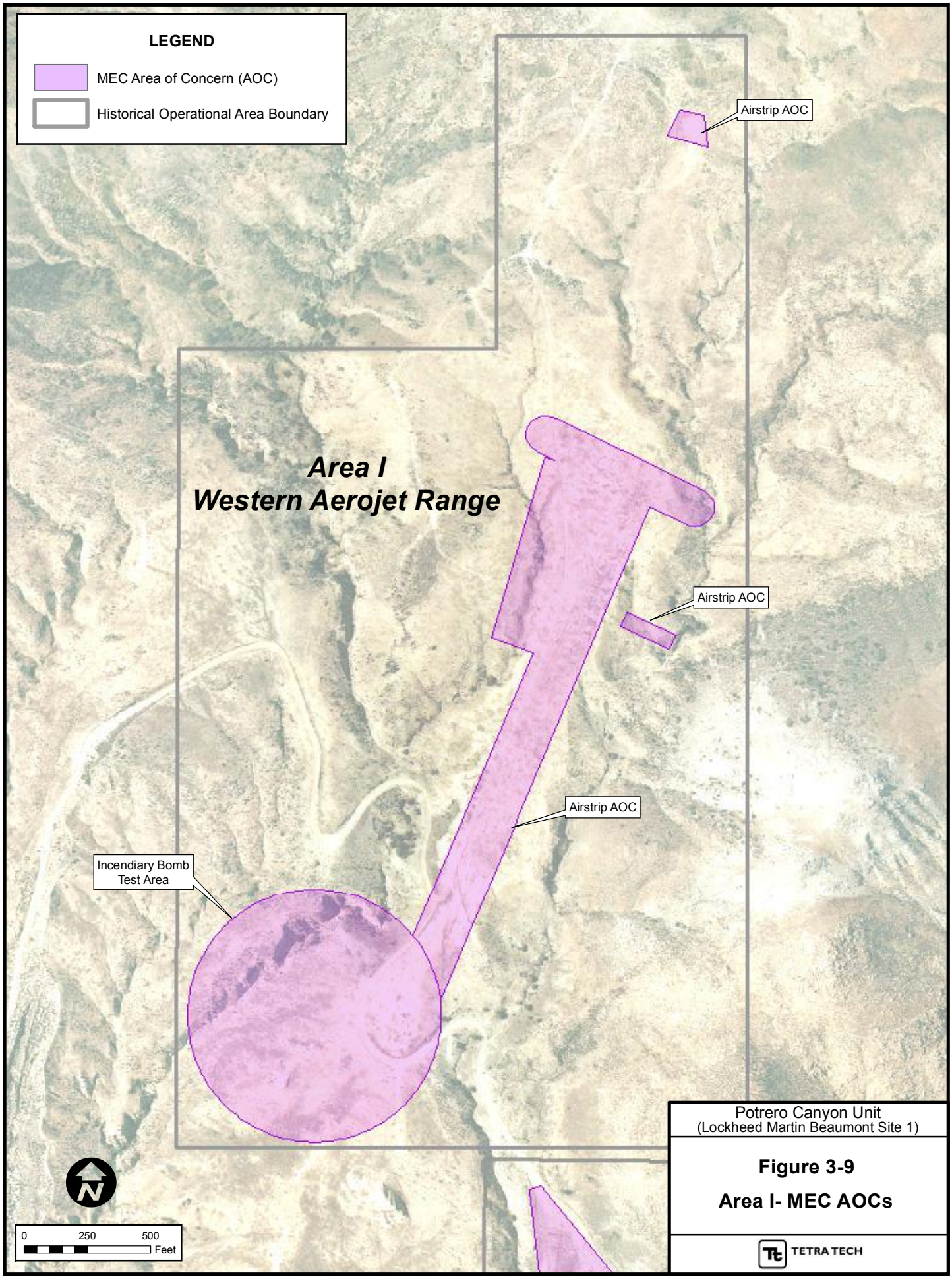
AOC Size:	11.9 acres
Access:	From an unimproved road running beside the AOC
Accessible Area:	11.9 acres
Area Investigated:	11.9 acres; DGM with investigation of anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	This AOC generally slopes moderately toward the southwest with steep ravines on the north, south, and west.
Erosion:	Low; some minor rutting from run-off
Vegetation:	Light scrub and sagebrush mixed with grass and weeds
Types of MEC:	None found
Types of MC:	Large amounts of thick-walled frag consistent with bomb tests
DGM = Digital Geophysical Mapping	

3.2.28 Area I - Airstrip

This AOC was reportedly not used for any munitions testing. However, a former LMC employee indicated he had observed at least one test being conducted here with small caliber munitions (approximately 20mm in size).

Investigation of the airstrip during 2005/2006 was conducted using DGM-guided intrusive investigation. Geophysical data was acquired over the AOC along lines spaced at 2.5 feet. Approximately 3.2 acres were mapped providing 100% coverage of the initial AOC. This investigation revealed a debris area containing two partially buried concrete pads. It was postulated that this debris area could be either a firing point or a target.

Follow-on work was performed in 2006/2007 to evaluate the potential firing or target area. This work included four components: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LEGEND
MEC Area of Concern (AOC)
Historical Operational Area Boundary
Airstrip AOC
Area I
Western Aerojet Range
Airstrip AOC
Airstrip AOC
Incendiary Bomb Test Area
0 250 500 Feet
Potrero Canyon Unit
(Lockheed Martin Beaumont Site 1)
Figure 3-9
Area I- MEC AOCs
TETRA TECH

1. DGM-guided intrusive investigation of two rectangular areas centered on the potential target area (concrete slabs). The two rectangles were approximately 100 feet by 50 feet and approximately 160 feet by 75 feet in size. The accessible area in both rectangles was mapped with 100% coverage.

2. DGM-guided intrusive investigation of two sets of transects approximately 200 feet long extending away from the target area. It was anticipated that munitions passing through a potential target may have grounded in these areas.

3. Mag & Dig evaluation of a hillside east of the airstrip that may have served as a backstop for test firing across the airstrip.

4. Excavation, removal, and examination of the concrete slabs and Mag & Dig evaluation of the areas near and under the slabs.

After excavation and examination of the concrete slabs, it was determined that they were in all probability targets used on this former range. There were numerous round holes in the slabs where projectiles had apparently passed through the targets. Based on this finding and the fact that the slabs contained rebar that interfered with previous geophysical mapping of the area adjacent to and under the slabs, a Mag & Dig evaluation of the area in proximity to the slabs was added to the scope of the Phase II investigation. The Mag & Dig operation near the target slabs unearthed numerous MC (inert 27.5mm projectiles) or related scrap indicative of a potential range at the Area I Airstrip. Additional Mag & Dig was added to the scope to investigate other areas of the AOC potentially impacted by firing on a test range. This second phase of supplemental evaluation included:

1. Mag & Dig of approximately 7.2 acres immediately surrounding the newly discovered targets;

2. Mag & Dig of a series of transects across a hillside north of the airstrip reasonably thought to be a potential backstop area for the range.

During the Mag & Dig operations on the northern hillside, a potential remote target berm was located. A recent large-scale wildfire had reduced vegetation and made the berm visible from the backstop area. Supplemental investigation at the berm was added to the scope of work in this AOC.

Based upon the discovery of inert 27.5mm projectiles in the remote target berm and the observation that some scrap found during the previous investigations appeared to have some characteristics of HE frag (twisted with ragged edges), a third investigation and removal action

was planned to ensure comprehensive assessment and remediation of any potential MEC in this AOC. This final phase included:

1. DGM and intrusive investigation of the airstrip areas where previous operations had not resulted in removal of all detected anomalies;
2. DGM and intrusive investigation of the range fan between the airstrip and the remote target berm using transects to provide representative coverage of the area;
3. Removal of the remote target berm.

During the initial investigation in this AOC, 181 anomalies were identified. One hundred and nine were selected for evaluation based upon the approved selection criteria. During the second phase of investigation, a total of 90 anomalies were identified. For the mapped areas, 74 of the 87 detected anomalies were selected for evaluation based upon the approved selection criteria for the project. Three additional anomalies were detected and investigated on the hillside east of the airstrip. During the supplemental work at the target location (under and in proximity to the concrete slabs), 49 anomalies were identified and intrusively investigated. In the supplemental investigation of areas surrounding the target location on the airstrip, 1,016 anomalies were identified and intrusively investigated. On the hillside north of the airstrip, which would be the anticipated backstop for the identified target location, 62 additional anomalies were identified and intrusively investigated During the removal action at the airstrip and in the range fan between the airstrip and the remote target berm, 339 anomalies were detected and 201 were selected for removal based upon the approved selection criteria. During removal of the remote target berm, 13 inert 27.5mm projectiles were recovered.

No MEC were found during any of the extensive investigation or removal work in this AOC. Over 200 MC were found during the evaluation including inert 27.5 mm projectiles, 18 mm tungsten penetrators, bomb frag (likely from the nearby bomb test area), and an assortment of frag or scrap from small caliber projectiles. It could not be definitively determined whether all the small metal pieces on this site had been mechanically or explosively broken. This fact prompted the removal action and supplemental evaluation in many areas of the AOC. Ultimately, no MEC were found.

The physical, environmental, and MEC characteristics of this AOC are summarized in Table 3-28 below. A map indicating the location of this AOC in Area I is presented in Figure 3-9.

Table 3-28 Characteristics of Area I - Airstrip

AOC Size:	23.8 acres
Access:	From an unimproved road running beside the AOC. A narrow, rutted fire trail runs up to the remote target area.
Accessible Area:	20.3 acres
Area Investigated:	20.3 acres; initial Mag & Dig in grids followed by DGM over runway area; DGM along transects east of the runway and removal of remote target berm
Area Cleared:	20.3 acres
Terrain:	This AOC is generally flat along the airstrip with steep ravines on the north, east, and west. At the north end of the airstrip (across the ravine), the terrain rises moderately to steeply to the location of the remote target berm, which is set at the base of a steep hill.
Erosion:	Low along the airstrip; low to moderate north of the airstrip depending on location; significant in the ravines adjacent to the airstrip
Vegetation:	Light scrub and sagebrush mixed with grass and weeds
Types of MEC:	None found
Types of MC:	Inert 27.5mm projectiles and associated inert scrap/frag, 16mm tungsten penetrators and large quantities of scrap and/or frag associated with small caliber rounds. It could not be definitely determined that this scrap/frag was mechanically broken; however, no MEC were found. In addition, some bomb frag, thought to originate in the IBTA, was present.
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify subsurface metallic anomalies that may be MEC-related.	

Target slab buried near the center of the airstrip in Area I

SECTION 4 SUMMARY OF HAZARD ASSESSMENT RESULTS

This section summarizes the results of the ESHA for the Potrero Canyon Unit. These results will be used in the RAP to evaluate appropriate follow-on actions for the Site. These follow-on actions will likely include both site-wide institutional controls and AOC-specific institutional controls to help reduce or mitigate any residual explosives hazard due to potential residual MEC. The purchase and sales agreement between LMC and CDFG requires that the future use of the property be coordinated with LMC to allow for mitigation of potential residual risk. The agreement also allows for land use restrictions if approved by the DTSC.

A blank sample ESHA scoring sheet is included as Appendix B. The completed ESHA scoring sheets for the AOCs are included as Appendix C. Twenty-three of the AOCs received an "A" score indicating that follow-on actions are not warranted based on relative residual explosive hazard. These sites may benefit overall from site-wide mitigation measures such as MEC awareness training (provided to site workers and visitors as appropriate) even though the residual risk is quite low. Four of the 28 AOCs at the Potrero Canyon Unit received an ESHA score of "B2" indicating that these AOCs were judged to pose a relatively greater (although still small) risk due to residual MEC and explosives hazard. These sites may benefit from AOC-specific institutional controls or actions to reduce or mitigate potential residual explosives hazard including actions such as posting warning signs or restricting excavation. One AOC received a "B1" score (Area H – Landfill AOC) based on the suspected presence of small arms ammunition (7.62mm). This AOC should be considered for site-wide institutional controls at a minimum. It may also benefit site workers and visitors to ban excavation in this AOC without approval from CDFG and without the use of UXO support. None of the AOCs received a C, D or E score, which would indicate the potential need for additional studies or removal actions. The ESHA scores for the 28 AOCs at the Potrero Canyon Unit are presented in Table 4-1.

It should also be noted that explosives hazard determined during the ESHA may not be the only criterion considered in the evaluation of follow-on actions prepared for the Remedial Action Plan (RAP), (i.e. the next step in the remediation process for the site). For example, some AOCs at

Table 4-1 Summary of Potrero Canyon Unit ESHA Results

Operational Area	AOC Name	ESHA Score
A	Gun Mount (Firing Point)	A
A	Impact Target Area	B2
A	Debris Fields	B2
A	Streambed	B2
B	Phalanx Gun Mount (Firing Point)	A
B	Phalanx Target Berm	A
B	Bazooka Impact Area	A
B	Blue Motor Burn Pit	A
B	Motor Washout Area	A
C	Former Burn Pit Area (BPA)	A
D	Terraced Projectile Landing Zone (TPLZ)	A
D	TPLZ Firing Point	A
D	End of TPLZ Range Fan	A
D	Small Test Area	A
D	Class A Storage Area	A
D	Control Trailer Area	A
D	Streambed	B2
F	Igniter Magazine	A
F	Motor Washout Area	A
G	Firing Point	A
G	Inner Range Fan	A
G	Fixed Target Zone	A
G	Upper Range	A
G	Mobile Target Impact Area	A
G	Streambed	A
H	Landfill	B1
I	Incendiary Bomb Test Area (IBTA)	A
I	Airstrip	A

Hazard Scores	Management Options
(Lowest Relative Hazard Levels) A B1	 NOFA based on relative hazard Consider Site-Wide Institutional Controls (ICs)
B2	Consider AOC-Specific ICs
C D E (Highest Relative Hazard Levels)	Consider Additional Evaluation Consider Removal (Surface or Subsurface) Consider Removal (Surface or Subsurface)

the Potrero Canyon Unit are known to contain inert munitions items that look like HE munitions. While these items do not pose an explosives hazard, their presence may result in a perception by the public that the AOC is dangerous. Site-wide institutional controls such as an MEC awareness program may create an improved understanding of conditions in these AOCs and effect a different perception by the public. Such options are proactive actions that help ensure the safety of site

users and improve community relations. As such, they may be considered for AOCs where they are otherwise not warranted based solely on potential for residual MEC or explosives hazard.

A RAP has not yet been prepared for the Potrero Canyon Unit since chemical evaluation and remediation are still underway at this time. However, LMC has taken a proactive approach to dealing with any remaining residual MEC hazard. A pre-RAP evaluation of potential mitigation measures has been conducted and those measures determined to be most effective in controlling residual MEC-related hazard have been (or are being) implemented. If additional actions are identified during the future RAP, these options will be considered at that time. Based upon the results of the hazard screening, several types of mitigation measures were evaluated to help reduce any residual hazard associated with the potential presence of MEC and/or perceived hazard associated with MEC debris. The measures evaluated included:

1. An MEC Hazard Awareness Program (materials and/or training);
2. A Standard Response Procedure for potential MEC hazards;
3. Periodic Inspection of Areas for MEC;
4. Maintenance and Erosion Control Measures;
5. Administrative Controls (Notifications, deed restrictions, etc.).

These options were evaluated with respect to effectiveness (benefit), implementability, and cost to determine which were most appropriate for application on an AOC-specific or site-wide basis. The evaluation of effectiveness included consideration of the ESHA scores for the AOCs and the presence of munitions debris that is inert, but may resemble live munitions.

Evaluation of the potential follow-on actions resulted in a determination that site-wide actions such as an MEC hazard awareness program, a standard response procedure with the Riverside County Sheriff's Department Hazardous Device Team (HDT), and notifications with permits (hunting or construction) would benefit the future site users. These actions could reduce the potential for exposure to residual MEC and increase the likelihood of safe, controlled detonation by HDT. Additional benefit may be realized by applying AOC-specific actions such as periodic inspection for MEC or erosion control measures in AOCs posing a relatively greater (although still small) risk to future site users. Table 4-2 contains a summary of the recommended follow-on actions for the Potrero Canyon Unit. These are the actions that were deemed effective and implementable without being cost-prohibitive or unreasonably limiting future use of the property.

Table 4-2. Summary of Recommended Follow-On Actions

Follow –On Action	Applicable AOCs	Comments
MEC Hazard Awareness Program	All	Recommended program includes an informational kiosk at the main gate, MEC awareness training for all personnel working on site (CDFG or private contractors), and informational/caution signs in AOCs where MEC or MEC-like items may be discovered.
Standard MEC Hazard Response Procedure	All	This action entails developing a standard response procedure with the local law enforcement and HDT to ensure consistent inspection and handling of suspect MEC items to minimize risk.
Periodic Inspection	Area A Streambed Area B Phalanx Target Berm Area D Streambed Area G Streambed Area H Landfill	This action is recommended for the two streambeds since there is potential for MEC to surface via erosion during occasional flash flooding. A source of the munitions in the Area D streambed was never found, so it is not known whether additional munitions will surface over time. In Area A, the tall vertical banks of the stream are eroding, bringing subsurface soils from the adjacent former target area into the streambed. Inspection is recommended for the Phalanx Target Berm in Area B and the streambed in Area G because the inert munitions concentrated in these areas may be exposed by wind or water. The landfill AOC in Area H is suspected to contain small arms ammunition that may be exposed if the landfill cap is allowed to erode. Inspection frequency should begin at yearly intervals and be adjusted to less frequent intervals if no MEC items are found during two consecutive inspections.
Maintenance and Erosion Control	Area H Landfill	There is potential that small arms ammunition is buried in this landfill. Yearly maintenance of the earthen cap will ensure that buried debris is not exposed.
Administrative Controls	All	This recommendation includes a warning notification on (or included with) all permits issued for site use including hunting permits and construction permits. It also includes deed restrictions stating that additional MEC assessment or removal may be required if the designated land use is changed in the future. Warnings should be general but also list specific areas where encountering MEC may be more likely.

The selected mitigation measures listed in Table 4-2 have been (or are currently being) implemented at the Potrero Canyon Unit. An informational kiosk has been constructed by the main site entrance gate, and warning/informational signs have been installed at selected AOCs. An MEC awareness Training Plan has been created and approved by DTSC. The Plan includes a Power Point Presentation and an informational brochure for distribution to CDFG employees, site workers, and (as appropriate) other site visitors. Development of the Standard MEC Response Procedure, deed restrictions, and permit warning materials are currently on-going. Landfill cover

maintenance is currently conducted annually, and MEC inspections in selected areas of the site were initiated this past summer.

As previously stated, the formal RAP for the Potrero Canyon Unit will not be prepared until the chemical assessment is complete and the preferred remedial alternatives are selected. However, LMC has proactively taken the steps determined to be most effective in controlling potential residual MEC hazard at the site. This will help ensure the safety of site employees, contract workers, and visitors with respect to MEC issues.

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APPENDIX A

ANTICIPATED FUTURE LAND USE AND ASSOCIATED ACTIVITIES

Anticipated Future Land Use [1] [2] [3]	Associated Activities [4] [6]	Comments
Wildlife Management and Recreation	Wildlife, vegetation, and habitat management and preservation	There are several endangered or threatened species that utilize (or may utilize) this site. Management and preservation work involves hiking and off-road driving in some cases. Habitat enhancement could be part of future activities.
	Dog Walking	Nearby residents walk dogs near the front gate.
	Rescue/Service Dog Training	The Site has been used on several occasions for this type of training. It is anticipated that training rescue dogs will continue.
	Hiking and Bird Watching	A planned use for the property.
	Mountain Biking	Not expected to be permitted. Biking on the existing roadways would probably be allowed.
	Upland Game Hunting	Hunting is planned as a future use of the property.
	Road Repair and Maintenance	Limited road repair is conducted to allow wildlife personnel to access management areas.
	Care Takers Lodging	CDFG is considering the construction of an occupational lodging and/or maintenance facilities on the property in the future. The lodging facility could potentially house 1 or 2 CDFG staff for extended periods if the plan is someday implemented.
	Grazing	Grazing was allowed on the property after LMC ceased operations. Since then cattle have occasionally wondered though downed fences onto the site [5]. CDFG is considering allowing selected grazing on site to enhance wildlife habitat.

ADDITIONAL NOTES:

[1] Primary source for the anticipated future use of the site by CDFG is the June 25, 2009 Contact Report, prepared by Kay Johnson (TetraTech) relative to her discussion with Eddy Konno, Senior Environmental Scientist for California Department of Fish and Game.

[2] Long-term squatters are occasionally observed at the Site, but are removed when observed.

[3] It is anticipated that the former sanitary landfill on site will be capped in the future. However, this would be a one-time event and thus is not considered a future use. The landfill is currently closed.

[4] The purchase and sales agreement between LMC and CDFG requires that the future use of the property be coordinated with LMC to allow for mitigation of potential residual risk. The agreement also allows for land use restrictions if approved by the DTSC.

[5] Cattle are occasionally observed on site. However, grazing is not currently sanctioned and livestock owners are presently contacted to remove their animals from the Site when observed.

[6] LMC will continue to characterize monitor and remediate chemical impacts to site soils and groundwater but those activities are not included in this assessment.

APPENDIX B

SAMPLE ESHA SCORING SHEET

AREA OF CONCERN				
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				
MEC Search / Removal Status				
MEC CHARACTERISTICS				
MEC Hazard Severity				
Amount of Energetic Material (Impact Scale)				
MEC ACCESSIBILITY				
Level of Public Activity (Intrusion Depth)				
Depth Below Ground Surface				
Migration/Erosion Potential (Due to Natural Processes)				
PUBLIC EXPOSURE				
Frequency of Public Access				
Ease of Access				
Current and/or Future Land Use				
Intensity of Public Activity (Energy Imparted to the Ground)				
Portability				
EXPLOSIVES SAFETY HAZARD SCORE				

APPENDIX C

COMPLETED BEAUMONT POTRERO CANYON UNIT ESHA SCORING SHEETS

AREA OF CONCERN	Operational Area A – Gun Mount (Firing Point)			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road south of AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low – No anticipated activity			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 1 Characteristics of Area A - Gun Mount (Firing Point)

AOC Size:	0.9 acres
Access:	Unimproved road ~0.6 miles south of the AOC. Rutted trail from unimproved road runs near this AOC.
Accessible Area:	0.9 acres
Area Investigated:	0.9 acres; DGM of all area; investigation of all identified anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	Moderately steep hill with relatively flat pad cut into the northern base (gun pad)
Erosion:	Low erosion
Vegetation:	Thick grass and weeds up to 6 feet tall that discourage passage, particularly when dry. If the trail into this AOC is not mowed to provide access to local groundwater monitoring wells, it is not safe to drive a vehicle into the AOC since the driver would not be able to see over the vegetation.
Types of MEC:	None found
Types of MC:	One piece of 30mm frag was found at this location.
DGM = Digital Geophysical Mapping	

AREA OF CONCERN	Operational Area A – Target Impact Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**B**
MEC Search / Removal Status	HE found; clearance to 1 foot Residual possible below 1 foot		B	
MEC CHARACTERISTICS				**D**
MEC Hazard Severity	30mm HE – Critical Hazard		D	
Amount of Energetic Material (Impact Scale)	< 0.5 lbs.		A	
MEC ACCESSIBILITY				**E**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any); Minor		B	
Depth Below Ground Surface	>1 foot based on clearance		D	
Migration/Erosion Potential (Due to Natural Processes)	Generally Low; Heavy along stream		C	
PUBLIC EXPOSURE				**D**
Frequency of Public Access			E	C
Ease of Access	Potential future improved road	E		
Current and/or Future Land Use	Occupational Lodging	C		B
Intensity of Public Activity (Energy Imparted to the Ground)	Low – Non-intrusive (one-time exception for construction of potential future facilities)		A	
Portability	High – 30mm		C	
EXPLOSIVES SAFETY HAZARD SCORE	**B2**			

Table 2 Characteristics of Area A - Impact Target Area

AOC Size:	~80 acres
Access:	Unimproved road ½ mile south, Rutted trail runs into this AOC from the south. Very steep, rutted trail runs into this AOC from the north (not advisable even with 4WD).
Accessible Area:	66.6 acres
Area Investigated:	87.7 acres were investigated. 66.6 acres in the range evaluated using DGM along transects followed by full DGM and investigation of all anomalies meeting selection criteria; 21.1 acres east and west of range evaluated using DGM along transects and investigation of anomalies meeting selection criteria. Radial transects were investigated on the hills east of range using Mag & Dig techniques.
Area Cleared:	66.6 acres were cleared of detectable MEC using full DGM and removing all anomalies meeting selection criteria.
Terrain:	Relatively flat valley floor with steep hills to the east and north. The hills to the north are very rocky. Deep, wide stream ravine to the west with nearly vertical bank slopes.
Erosion:	Low erosion with the exception of the stream banks near the debris fields, which have collapsed and deposited material from portions of some fields in the streambed.
Vegetation:	Thick grass and weeds up to six feet tall that discourage passage to, from, and through the range, particularly when dry; thinner, shorter grass on the hillsides.
Types of MEC:	30mm HE projectiles
Types of MC:	Inert 27.5mm and 30mm projectiles and associated scrap; one inert 76mm rocket; several 16mm tungsten penetrators. Several former probable targets sites were also found based on debris.
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area A – Debris Fields			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**B**
MEC Search / Removal Status	HE evidence found; clearance to 1 foot Residual possible below 1 foot		B	
MEC CHARACTERISTICS				**D**
MEC Hazard Severity	30mm HE – Critical Hazard		D	
Amount of Energetic Material (Impact Scale)	< 0.5 lbs.		A	
MEC ACCESSIBILITY				**E**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any); Minor		B	
Depth Below Ground Surface	>1 foot based on clearance		D	
Migration/Erosion Potential (Due to Natural Processes)	Generally Low; Heavy near stream		C	
PUBLIC EXPOSURE				**E**
Frequency of Public Access			E	
Ease of Access	Potential future improved road	E		C
Current and/or Future Land Use	Occupational Lodging	C		B
Intensity of Public Activity (Energy Imparted to the Ground)	Low – Non-intrusive (one-time exception for construction of potential future facilities)		A	
Portability	High – 30mm		C	
EXPLOSIVES SAFETY HAZARD SCORE	**B2**			

Table 3 Characteristics of Area A – Debris Field

AOC Size:	~0.05 acres
Access:	Unimproved road ~0.6 miles south. Rutted trail runs near the AOC from the north.
Accessible Area:	~0.05 acres
Area Investigated:	~0.05 acres; tiered Mag & Dig assessment and investigation to allow general inspection of large quantities of debris (some farm related; some target related)
Area Cleared:	~0.05 (cleared as part of the range area)
Terrain:	Relatively flat. Several debris fields are located near the streambed, which has nearly vertical and unstable banks that limited investigation.
Erosion:	Low erosion with the exception of the stream banks near the debris fields which have collapsed and deposited material from portions of some fields in the streambed.
Vegetation:	Thick grass and weeds up to six feet tall that discourage passage to, from, and through the range
Types of MEC:	None found. However these sites are within the range and should be evaluated for residual hazard accordingly.
Types of MC:	Scrap and frag associated with 27.5 mm and 30mm projectiles.
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area A – Streambed			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**B**
MEC Search / Removal Status	None found; residual possible due to erosion of area soils to streambed		B	
MEC CHARACTERISTICS				**D**
MEC Hazard Severity	30mm HE – Critical Hazard		D	
Amount of Energetic Material (Impact Scale)	< 0.5 lbs.		A	
MEC ACCESSIBILITY				**E**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)		B	
Depth Below Ground Surface	< 1 foot possible		E	
Migration/Erosion Potential (Due to Natural Processes)	Significant during flash floods		C	
PUBLIC EXPOSURE				**A**
Frequency of Public Access			B	
Ease of Access	Unimproved road south of AOC	D		
Current and/or Future Land Use	Wildlife Management; not near gate (not suitable for future building construction)	A		
Intensity of Public Activity (Energy Imparted to the Ground)	Low – No anticipated activity		A	
Portability	High – 30mm		C	
EXPLOSIVES SAFETY HAZARD SCORE	**B2**			

Table 4 Characteristics of Area A – Stream Bed

AOC Size:	19.6 acres
Access:	By foot from crossing at unimproved road south of Area A
Accessible Area:	~18.6 acres Areas near steep banks are unsafe for evaluation due to sloughing hazards.
Area Investigated:	~18.6 acres; Full Mag & Dig assessment and investigation of all sub-surface metallic anomalies.
Area Cleared:	N/A
Terrain:	The streambed is relatively flat although it is very irregular due to sediment deposits of varying depth and size. Banks are nearly vertical near the Area A Target Impact Area.
Erosion:	Heavy erosion occurs in the streambed during occasional flash floods. The location of the streambed has changed significantly over the 40+ years since the Lockheed facility closed.
Vegetation:	Light scrub and sagebrush in the streambed; Brush and grass along moderately sloped bank areas to the south of the range
Types of MEC:	None found
Types of MC:	None found
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area B – Phalanx Gun Mount (Firing Point)			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low – No anticipated activity			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 5 Characteristics of Area B - Phalanx Gun Mount (Firing Point)

AOC Size:	0.9 acres
Access:	Unimproved roads run beside AOC.
Accessible Area:	0.9 acres
Area Investigated:	0.9 acres; Full DGM and investigation of all anomalies meeting selection criteria...
Area Cleared:	N/A
Terrain:	Relatively flat. Pad area is elevated slightly above surrounding ground surface.
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to three feet tall that discourage entry when vegetation is dry.
Types of MEC:	None found
Types of MC:	Seven pieces of munitions related scrap (number and distribution pattern not indicative of disposal)
DGM = Digital Geophysical Mapping	

AREA OF CONCERN	Operational Area B – Phalanx Target Berm			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**C**
MEC Search / Removal Status	20mm & 30mm TP found; berm sampled But not cleared		C	
MEC CHARACTERISTICS				**A**
MEC Hazard Severity	20mm & 30mm TP projectiles		A	
Amount of Energetic Material (Impact Scale)	< 0.5 lbs.		A	
MEC ACCESSIBILITY				**E**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any); Minor		B	
Depth Below Ground Surface	<1 foot ; no clearance performed		E	
Migration/Erosion Potential (Due to Natural Processes)	Moderate		B	
PUBLIC EXPOSURE				**A**
Frequency of Public Access			B	
Ease of Access	Unimproved road nearby	C		
Current and/or Future Land Use	Wildlife Management; not near gate	A		
Intensity of Public Activity (Energy Imparted to the Ground)	Low; steep slopes		A	
Portability	High – 20mm & 30mm		C	
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 6 Characteristics of Area B - Phalanx Gun Target Berm

AOC Size:	1.4 acres
Access:	Unimproved road runs beside the berm.
Accessible Area:	~0.8 acres
Area Investigated:	0.8 acre plus. All accessible areas around berm assessed using DGM and all anomalies meeting selection criteria investigated. Five-point sampling using Mag & Dig techniques was conducted on the faces and top of the berm using hand held metal detectors.
Area Cleared:	N/A
Terrain:	Relatively flat surrounding the berm which has steep faces.
Erosion:	Moderate erosion potential due to the steepness of the berm.
Vegetation:	Tall grass and weeds up to 3 feet tall that discourage entry when dry.
Types of MEC:	None found
Types of MC:	Inert 20mm and 30mm projectiles and associated mechanically generated scrap (e.g., broken projectiles).
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area B – Bazooka Impact Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low – Possible dove hunting			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 7 Characteristics of Area B - Bazooka Impact Area

AOC Size:	7.6 acres
Access:	Unimproved road runs within 1/8 mile of this AOC.
Accessible Area:	7.6 acres
Area Investigated:	7.6 acres; Full Mag & Dig investigation in initial area; Full DGM and investigation of anomalies meeting selection criteria in expansion area determined to be most likely location of target.
Area Cleared:	100% investigation represents an effective clearance of the AOC to approximately 1 foot.
Terrain:	Relatively flat
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3 feet tall discourage entry when dry.
Types of MEC:	None found
Types of MC:	Aluminum and steel frag of unknown origin (possibly associated with rockets fired or steel targets used on the range), one large caliber primer and one cartridge actuated device (CAD)-like item
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area B – Blue Motor Burn Pit			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low – Possible dove hunting			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 8 Characteristics of Area B - Blue Motor Burn Pit

AOC Size:	~.005 acres
Access:	Unimproved road runs within 1/8 mile of this AOC.
Accessible Area:	~.005 acres
Area Investigated:	~.005 acres
Area Cleared:	100% investigation as part of the Bazooka Impact Area represents effective clearance of the AOC to approximately 1 foot.
Terrain:	Relatively flat
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3 feet tall discourage entry when dry
Types of MEC:	None found
Types of MC:	None found

AREA OF CONCERN	Operational Area B – Motor Washout Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low – Possible dove hunting			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 9 Characteristics of Area B - Motor Washout Area

AOC Size:	0.7 acres
Access:	Unimproved road runs beside this AOC.
Accessible Area:	0.7 acres
Area Investigated:	0.7 acres; Metal detector-aided visual sweep for rocket propellant or MEC debris
Area Cleared:	N/A
Terrain:	Fla.
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3 feet tall that form nearly impenetrable barrier when dry
Types of MEC:	None found
Types of MC:	None found
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area B – Former Burn Pit Area (BPA)			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	> 4 feet for drilling operations only			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road into AOC interior			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low except drilling operations			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 10 Characteristics of Area C – Former Burn Pit Area (BPA)

AOC Size:	16.8 acres including a buffer to ensure complete evaluation.
Access:	Unimproved road runs beside the AOC Unimproved access road runs to the interior of the AOC.
Accessible Area:	~16.7 acres (Concrete pad at the west edge prevents access to areas beneath.)
Area Investigated:	~16.7. Full DGM in accessible areas and; investigation of a representative number of anomalies meeting selection criteria. A small ravine was investigated using Mag & Dig techniques.
Area Cleared:	N/A
Terrain:	Relatively flat
Erosion:	Low erosion potential due to the flat terrain.
Vegetation:	Grass and weeds up to 2 feet tall that discourage entry when dry, and sparse sagebrush.
Types of MEC:	None found
Types of MC:	Empty, inert 30mm shell casings, spent CADs, potential rocket base, solid inert 30mm projectile (possibly from the phalanx gun testing), and several small pieces of potential frag of unknown origin.
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area D – Terraced Projectile Landing Zone			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found; MC only No archival evidence or proof of MEC		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any); Minor			
Depth Below Ground Surface	<1 foot based on clearance			
Migration/Erosion Potential (Due to Natural Processes)	Moderate			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road <1/8 mile; steep slopes			
Current and/or Future Land Use	Wildlife Management; Dove hunting			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 11 Characteristics of Area D - Terraced Projectile Landing Zone (TPLZ)

AOC Size:	2.7 acres
Access:	Unimproved road ¼ mile north
Accessible Area:	~1.9 acres
Area Investigated:	~1.9 acres; Mag & Dig in accessible areas on terraces.
Area Cleared:	N/A
Terrain:	Very steep and rugged except terraces cut in hillsides
Erosion:	Moderate based on slope
Vegetation:	Sagebrush and scrub with some grass
Types of MEC:	None found
Types of MC:	Scrap from inert projectiles (37mm, 40mm and 5-inch)
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area D – Terraced Projectile Landing Zone Firing Point			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road beside AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 12 Characteristics of Area D – TPLZ Firing Point

AOC Size:	0.8 acres
Access:	Unimproved road runs beside AOC
Accessible Area:	~0.78 acres; ballistics tunnel foundation and small steep berm still present resulting in small areas inaccessible for investigation
Area Investigated:	~0.78 acres; DGM and investigation of anomalies meeting selection criteria in all accessible areas.
Area Cleared:	N/A
Terrain:	Relatively flat except for a small berm near the center of the AOC
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub
Types of MEC:	None found
Types of MC	Four pieces of frag of unknown origin. May have been kickout from the bomb and mine testing in the small canyon southeast of this site (See Section 3.2.14)
DGM = Digital Geophysical Mapping	

AREA OF CONCERN	Operational Area D – Terraced Projectile Landing Zone End of Range Fan			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road beside AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 13 Characteristics of Area D - End of TPLZ Range Fan

AOC Size:	2.9 acres
Access:	Unimproved road runs beside AOC
Accessible Area:	2.9 acres
Area Investigated:	2.9 acres; DGM and investigation of anomalies meeting selection criteria; re-evaluation of potential target area using DGM and removal of all metallic anomalies detected.
Area Cleared:	N/A
Terrain:	Generally flat except for the target berm
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub mixed with grass
Types of MEC:	None found
Types of MC:	Scrap from inert projectiles (37mm, 40mm and 5-inch); also scrap from a LAW rocket launcher and a machine gun stand
DGM = Digital Geophysical Mapping	

AREA OF CONCERN	Operational Area D – Small Test Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Rutted trail from unimproved road			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 14 Characteristics of Area D - Small Test Area

AOC Size:	0.5 acres
Access:	Unimproved road/trail runs into this AOC.
Accessible Area:	0.5 acres
Area Investigated:	0.5 acres; Initial Mag & Dig investigation followed by full DGM and investigation of anomalies meeting selection criteria; representative sampling of several debris pits.
Area Cleared:	N/A
Terrain:	Relatively flat with steep side walls
Erosion:	Low erosion
Vegetation:	Primarily tall grass
Types of MEC:	None found
Types of MC:	Large amounts of small frag consistent with reports of mine and bomb tests in this area.
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area D – Class A Storage Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road through AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 15 Characteristics of Area D - Class A Storage Area

AOC Size:	2 acres
Access:	Unimproved road runs through the AOC.
Accessible Area:	2 acres
Area Investigated:	2 acres; DGM with investigation of anomalies meeting selection criteria except in berm area.
Area Cleared:	N/A
Terrain:	Relatively flat except for a small berm in front of the historical building pads
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub with tall grass
Types of MEC:	None found
Types of MC:	Thirteen pieces of frag of unknown origin. May have been deposited as a result of testing in the small canyon behind this area (see previous section)

AREA OF CONCERN	Operational Area D – Control Trailer Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road runs beside AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 16 Characteristics of Area D - Control Trailer Area

AOC Size:	0.3 acres
Access:	Unimproved road runs beside AOC
Accessible Area:	0.3 acres
Area Investigated:	0.3 acres; DGM and investigation of anomalies meeting selection criteria.
Area Cleared:	N/A
Terrain:	Relatively flat; steep hill behind the AOC
Erosion:	Low erosion
Vegetation:	Sagebrush and scrub with tall grass
Types of MEC:	None found
Types of MC:	Several pieces of small aluminum frag or scrap of unknown origin.
DGM = Digital Geophysical Mapping	

AREA OF CONCERN	Operational Area D – Streambed			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**B**
MEC Search / Removal Status	20mm TP; streambed cleared twice Residual possible; no source found		B	
MEC CHARACTERISTICS				**C**
MEC Hazard Severity	20mm TP rounds – Marginal Hazard; burster tubes: presence or quantity of reactive material unknown – Hazard should be similar to 20 mm TP rounds.		C	
Amount of Energetic Material (Impact Scale)	< 0.5 lbs.		A	
MEC ACCESSIBILITY				**E**
Level of Public Activity (Intrusion Depth)	<2 feet (road maintenance); Moderate		C	
Depth Below Ground Surface	< 1 foot possible		E	
Migration/Erosion Potential (Due to Natural Processes)	Significant during flash floods		C	
PUBLIC EXPOSURE				**A**
Frequency of Public Access			A	
Ease of Access	Rutted road crosses AOC	C		
Current and/or Future Land Use	Wildlife Management; not near gate (not suitable for future building construction)	A		
Intensity of Public Activity (Energy Imparted to the Ground)	Low – No anticipated activity		A	
Portability	High – 20mm TP		C	
EXPLOSIVES SAFETY HAZARD SCORE	**B2**			

Table 17 Characteristics of Area D - Streambed

AOC Size:	Unknown since a source area was not identified along the stream
Access:	Unimproved road runs through streambed. It is poorly maintained and rough (4WD only).
Accessible Area:	N/A
Area Investigated:	8.2 acres in the streambed and along the upper banks above the channel using Mag & Dig techniques; second phase expanded search area for munitions source.
Area Cleared:	N/A
Terrain:	The streambed is relatively flat although it is very irregular due to sediment deposits of varying depth and size. The upper bank areas have moderate to steep slopes.
Erosion:	Heavy erosion occurs in the streambed and nearby floodplain during occasional flash floods.
Vegetation:	Occasional scrub in the streambed with prominent sagebrush and scrub along the banks
Types of MEC:	20mm target practice rounds and projectiles; several burster tubes from large caliber projectiles – presence or quantity of reactive material unknown
Types of MC:	Scrap associated with 20mm ammunition and a few pieces of heavy frag generated explosively. frag may have originated in the small test canyon (See Section 3.2.14)
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area F – Igniter Magazine			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 18 Characteristics of Area F - Igniter Magazine

AOC Size:	0.1 acres
Access:	Unimproved road runs within 1/8 mile of this AOC.
Accessible Area:	0.1 acres
Area Investigated:	0.1 acres; Metal detector-aided search for former magazine (split barrel with hinges)
Area Cleared:	N/A.
Terrain:	Moderate undulating slope in this general area
Erosion:	Low erosion.
Vegetation:	Tall grass and weeds up to 3-feet tall, sagebrush and scrub
Types of MEC:	None found.
Types of MC:	None found
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area F – Motor Washout Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 19 Characteristics of Area F - Motor Washout Area

AOC Size:	0.7 acres
Access:	Unimproved road runs beside this AOC
Accessible Area:	0.7 acres
Area Investigated:	0.7 acres; Metal detector-aided visual sweep for rocket propellant or MEC-related debris.
Area Cleared:	N/A.
Terrain:	Site slopes moderately toward Potrero Creek to the southeast.
Erosion:	Generally low erosion, creek could erode flanks of bluff during significant storm event
Vegetation:	Tall grass and weeds up to 3-feet tall that discourage entry when dry
Types of MEC:	None found
Types of MC:	None found

AREA OF CONCERN	Operational Area G – Firing Point			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 20 Characteristics of Area G - Firing Point

AOC Size:	0.2 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	0.2 acres
Area Investigated:	0.2 acres; Initial Mag & Dig followed by DGM and investigation of anomalies meeting selection criteria.
Area Cleared:	N/A
Terrain:	Relatively flat but south of the AOC there is a drop off to a second plateau above the creek.
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 3-feet tall that discourage entry when dry
Types of MEC:	None found
Types of MC:	Two inert 40mm projectiles (aluminum heads only) and one 30mm casing
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area G – Inner Range Fan			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road near AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 21 Characteristics of Area G - Firing Point

AOC Size:	1.5 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	1.5 acres
Area Investigated:	1.5 acres; DGM with investigation of anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	Relatively flat with a short steep bank to the north (between this AOC and the firing point) and a steep drop off to the creek on the south
Erosion:	Low erosion
Vegetation:	Tall grass and weeds up to 4-feet tall that discourage entry when dry
Types of MEC:	None found
Types of MC:	Inert 40mm projectiles and scrap from inert 30mm and 40mm projectiles
DGM = Digital Geophysical Mapping	

AREA OF CONCERN	Operational Area G – Fixed Target Zone			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low to moderate			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road < ¼ mile			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 22 Characteristics of Area G - Fixed Target Zone

AOC Size:	25.2 acres
Access:	Unimproved road within 1/4 mile of AOC
Accessible Area:	~22 acres
Area Investigated:	0.86 acres; Mag & Dig along radial transects for sampling this rugged area.
Area Cleared:	N/A
Terrain:	Undulating terrain sloping moderately up to the steep hills to the south; some localized areas of inaccessibility; difficult to reach (stream crossing)
Erosion:	Low to moderate erosion depending on locations
Vegetation:	Sagebrush and scrub with some tall grass and weeds that discourage entry when dry
Types of MEC:	None found.
Types of MC:	Inert 30mm and 40mm projectiles, associated scrap (mechanically broken frag), and small arms frag likely generated by hunters or other present day site users.
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area G – Upper Range			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Moderate to heavy			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road < ½ mile			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 23 Characteristics of Area G - Upper Range

AOC Size:	49.2 acres
Access:	Unimproved road within 1/2 mile of AOC
Accessible Area:	Unknown; very rugged and steep terrain
Area Investigated:	0.36: acres Mag & Dig along a transect crossing the AOC for sampling in this remote, rugged area
Area Cleared:	N/A
Terrain:	Steep, rugged terrain; difficult to reach (stream crossing) and difficult to traverse
Erosion:	Moderate to heavy erosion depending on locations
Vegetation:	Sagebrush and scrub with some tall grass and weeds that discourage entry, particularly when dry
Types of MEC:	None found.
Types of MC:	Inert 30mm and 40mm projectiles, associated scrap (mechanically broken frag), and small arms frag likely generated by present day hunters or other site users.
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area G – Mobile Target Impact Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Moderate			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road < ¼ mile			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 24 Characteristics of Area G - Mobile Target Impact Area

AOC Size:	6.6 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	Unknown; very rugged and steep terrain
Area Investigated:	0.2 acres; Mag & Dig along transects for sampling in this remote, rugged area
Area Cleared:	N/A
Terrain:	Very steep, rugged terrain with ridges and ravines; relatively flat near tower foundations
Erosion:	Moderate erosion anticipated based on terrain and vegetation.
Vegetation:	Sagebrush and scrub with tall grass and weeds
Types of MEC:	None found
Types of MC:	Inert 40mm projectiles and scrap (mechanically broken frag) from inert 30mm and 40mm projectiles; small arms frag likely generated by present day hunters or other site users.
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area G – Streambed			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Heavy			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road < 1/8mile; steep banks			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 25 Characteristics of Area G – Streambed

AOC Size:	4.7 acres
Access:	Unimproved road within 1/8 mile of AOC
Accessible Area:	2.8 acres
Area Investigated:	2.8 acres; Mag & Dig along streambed except areas beneath steep possibly unstable banks.
Area Cleared:	N/A
Terrain:	The streambed is relatively flat although it is very irregular due to sediment deposits of varying depth and size. Banks are steep and sometimes nearly vertical.
Erosion:	Heavy erosion occurs in the streambed during occasional flash floods.
Vegetation:	Willow and scrub with a few trees. This AOC has moisture almost all year round and supports more lush growth than anticipated in a streambed.
Types of MEC:	None found...
Types of MC:	Inert 30mm and 40mm projectiles
Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	

AREA OF CONCERN	Operational Area H – Landfill			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**C**
MEC Search / Removal Status	Reportedly Present; no subsurface evaluation (landfill capped)		C	
MEC CHARACTERISTICS				**B**
MEC Hazard Severity	7.62mm (Small Arms)		B	
Amount of Energetic Material (Impact Scale)	< 0.5 lbs.		A	
MEC ACCESSIBILITY				**D**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any); Minor		B	
Depth Below Ground Surface	>2 feet (capped landfill)		C	
Migration/Erosion Potential (Due to Natural Processes)	Moderate (erosion visible on cap)		B	
PUBLIC EXPOSURE				**A**
Frequency of Public Access			A	
Ease of Access	Unimproved road beside AOC	C		
Current and/or Future Land Use	Wildlife Management (not suitable for future building construction)	A		
Intensity of Public Activity (Energy Imparted to the Ground)	Low		A	
Portability	High – Small Arms		C	
EXPLOSIVES SAFETY HAZARD SCORE	**B1 (Default for Small Arms)**			

Table 26 Characteristics of Area H – Landfill

AOC Size:	2.7 acres
Access:	From an unimproved road running beside the landfill
Accessible Area:	~2.5 acres (Areas in erosion ruts are not accessible.)
Area Investigated:	~2.5 acres; Metal detector-aided surface sweep for debris, particularly in ruts eroded into the earthen landfill cap.
Area Cleared:	N/A
Terrain:	The landfill generally has a gentle slope to the west. However, there are erosion ruts that are up to 1½-feet deep running across the landfill.
Erosion:	Moderate erosion has occurred in a few areas over 40 years creating ruts up to 1½- feet deep.
Vegetation:	Light scrub and sagebrush mixed with grass and weeds
Types of MEC:	None found. Reportedly 7.62mm ammunition was dumped in the landfill.
Types of MC:	None found

AREA OF CONCERN	Operational Area I – Incendiary Bomb Test Area			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Low			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road beside AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 27 Characteristics of Area I - Incendiary Bomb Test Area (IBTA)

AOC Size:	11.9 acres
Access:	From an unimproved road running beside the AOC
Accessible Area:	11.9 acres
Area Investigated:	11.9 acres; DGM with investigation of anomalies meeting selection criteria
Area Cleared:	N/A
Terrain:	This AOC generally slopes moderately toward the southwest with steep ravines on the north, south, and west.
Erosion:	Low; Some minor rutting from run-off
Vegetation:	Light scrub and sagebrush mixed with grass and weeds
Types of MEC:	None found
Types of MC:	Large amounts of explosively broken, thick-walled frag consistent with bomb tests
DGM = Digital Geophysical Mapping	

AREA OF CONCERN	Operational Area I – Airstrip			
SUBFACTOR / COMPONENT	**SUBFACTOR / COMPONENT VALUE**	**COMPONENT SCORE**	**SUBFACTOR SCORE**	**FACTOR SCORE**
MEC SEARCH / REMOVAL STATUS				**A**
MEC Search / Removal Status	None found		A	
MEC CHARACTERISTICS				**N/A**
MEC Hazard Severity	N/A			
Amount of Energetic Material (Impact Scale)	N/A			
MEC ACCESSIBILITY				**N/A**
Level of Public Activity (Intrusion Depth)	0-6 inches (if any)			
Depth Below Ground Surface	N/A			
Migration/Erosion Potential (Due to Natural Processes)	Generally low; heavy in ravines			
PUBLIC EXPOSURE				**N/A**
Frequency of Public Access				
Ease of Access	Unimproved road beside AOC			
Current and/or Future Land Use	Wildlife Management; not near gate			
Intensity of Public Activity (Energy Imparted to the Ground)	Low to Moderate			
Portability	N/A			
EXPLOSIVES SAFETY HAZARD SCORE	**A**			

Table 28 Characteristics of Area I - Airstrip

AOC Size:	23.8 acres
Access:	From an unimproved road running beside the AOC. A narrow, rutted fire trail runs up to the remote target area.
Accessible Area:	20.3 acres
Area Investigated:	20.3 acres; initial Mag & Dig in grids followed by DGM over runway area; DGM along transects east of the runway and removal of remote target berm.
Area Cleared:	20.3 acres
Terrain:	This AOC is generally flat along the airstrip with steep ravines on the north, east, and west. At the north end of the airstrip (across the ravine), the terrain rises moderately to steeply to the location of the remote target berm, which is set at the base of a steep hill.
Erosion:	Low along the airstrip; low to moderate north of the airstrip depending on location; significant in the ravines adjacent to the airstrip
Vegetation:	Light scrub and sagebrush mixed with grass and weeds.
Types of MEC:	None found
Types of MC:	Inert 27.5mm projectiles and associated inert scrap/frag, 16mm tungsten penetrators and large quantities of scrap and frag associated with small caliber rounds. It could not be definitely determined that this frag was mechanically broken; however, no MEC was found. In addition, some explosively broken bomb frag, thought to originate in the IBTA, was present.
DGM = Digital Geophysical Mapping Mag & Dig is an investigation technique using handheld metal detectors to identify sub-surface metallic anomalies that may be MEC-related	