DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)
KIRTLAND AIR FORCE BASE NEW MEXICO

FEB 1 6 2011

CERTIFIED RETURN-RECEIPT REQUESTED

Colonel Robert L. Maness
377 ABW/CC
2000 Wyoming Blvd., SE
Kirtland AFB, NM 87117

Federal Facilities Division
United States Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Dear Sir/Ma'am,

Pursuant to the provisions of the Defense Environmental Restoration Program (10 USC Part 160, *Environmental Restoration)*, which was established with passage of the Superfund Amendments and Reauthorization Act (SARA) of 1986, Kirtland Air Force Base (AFB) has conducted preliminary assessments and site inspections of Military Munitions Response Program (MMRP) sites within the confines of the installation.

Kirtland AFB's restoration personnel have recently completed the installation's Phase II Comprehensive Site Evaluation of MMRP sites on the installation. As required by 10 USC §2710(c)(2), E.O. 12580, EO 13016 and OSWER Directive 9200.3-60, I am submitting Kirtland AFB's Final Comprehensive Site Evaluation Phase II Report for your review, comment and/or records retention.

As we continue to implement the provisions of DERP and the SARA Amendments to complete the identification, investigation and cleanup of contamination within Kirtland AFB, we look forward to your input on accomplishing these goals. If you have any questions or concerns, please contact Mr. John Pike, Asset Management Branch Environmental Management Section Chief, at (505) 846-4586 or Mr. Wayne Bitner, Chief, Environmental Restoration Program, at (505) 853-3484.

ROBERT L. MANESS, Colonel, USAF
Commander

Attachment:
1. Kirtland AFB Phase II Comprehensive Site Evaluation

cc:
J. Bearzi, NMED HWB
J. Kieling, NMED HWB

KAFB4360

KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO

Final Comprehensive Site Evaluation
Phase II Report
United States Air Force Military Munitions Response Program

July 2010

377 MSG/CEANR
2050 Wyoming Blvd. SE
Kirtland AFB, New Mexico 87117-5270

NOTICE

U.S. Army Corps of Engineers Omaha District and HydroGeoLogic, Inc. prepared this Comprehensive Site Evaluation Phase II Report for the Air Force Materiel Command and Kirtland Air Force Base to support the execution of the United States Air Force Military Munitions Response Program. The report's release prior to a final approval may be in the public's interest as the report relates to actual or possible presence of munitions and explosives of concern, discarded military munitions, or releases of potentially hazardous munitions constituents,. The limited objectives of this report and the ongoing nature of the Environmental Restoration Program (ERP), along with the evolving knowledge of site conditions and potential impacts to human health and the environment, must be considered when evaluating this report, since subsequent facts may become known which may require modification to subsequent munitions response actions.

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REPORT DOCUMENTATION PAGE	Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. AGENCY USE ONLY	2. REPORT DATE July 2010	3. REPORT TYPE AND DATES COVERED Final Comprehensive Site Evaluation Phase II Report

4. TITLE AND SUBTITLE Kirtland Air Force Base, New Mexico United States Air Force Military Munitions Response Program Comprehensive Site Evaluation Phase II Report	5. FUNDING NUMBERS Contract No. W9128F-04-D-0005 Task Order No. 0015
6. AUTHOR(S) Andrea Fletcher, HydroGeoLogic, Inc. Kent Gray, HydroGeoLogic, Inc. Jeff Walker, HydroGeoLogic, Inc.	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) HydroGeoLogic, Inc. 8202 Louisiana Boulevard NE Albuquerque, NM 87113-2105	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) David Johansen, Project Manager USACE Omaha District, CENWO-PM-HA 1616 Capitol Avenue, Suite 9000 Omaha, NE 68102-1618	10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES	
12a. DISTRIBUTION / AVAILABILITY STATEMENT	12b. DISTRIBUTION CODE

13. ABSTRACT

This report presents the results of the United States Air Force Military Munitions Response Program (MMRP) Comprehensive Site Evaluation (CSE) Phase II at Kirtland Air Force Base.

14. SUBJECT TERMS	15. NUMBER OF PAGES Approximately 1500
Report, Air Force MMRP CSE Phase II, Kirtland AFB	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION Unclassified	20. LIMITATION OF ABSTRACT

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40 CFR 270.11
DOCUMENT CERTIFICATION
JULY 2010

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Wayne Bitner, YD-02
Chief, Restoration Section

This document has been approved for public release.

KIRTLAND AIR FORCE BASE
377th ABW Public Affairs

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PREFACE

This report presents the results of the Comprehensive Site Evaluation Phase II performed under the United States Air Force Military Munitions Response Program, at Kirtland Air Force Base (Kirtland AFB).

HydroGeoLogic, Inc. (HGL) performed this work under the authority of the U.S. Army Corps of Engineers (USACE), Omaha District, Contract Number W9128F-04-D-0005, Task Order Number 0015. Field activities were performed between January 2007 and March 2008. Mr. David Johansen is the Project Manager for the USACE, Omaha District.

Mr. Wayne Bitner is the Kirtland AFB Restoration Program Manager. Ms. Miquette Rochford (HGL) is the contractor Project Manager. HGL reviewed this report for quality control and quality assurance.

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CONTENTS

1. Introduction 1-1
   1.1 Purpose 1-3
   1.2 Project Data Quality Objectives 1-3
   1.3 Project Management 1-3
   1.4 Project Scope 1-5
   1.5 Report Organization 1-5

2. Installation Background 2-1
   2.1 Location and Setting 2-1
   2.2 Installation Mission and Operational History 2-1
      2.2.1 Installation Mission 2-1
      2.2.2 Installation Operational History 2-1
   2.3 Summary of MEC-Related Activities 2-3
      2.3.1 NMPG/NMER – 1941 through 1952 2-3
      2.3.2 Other DoD MEC-Related Activities 2-4
      2.3.3 DOE/SNL MEC-Related Activities 2-4
   2.4 Identification of Munitions Response Areas (MRAs) 2-4
   2.5 Identification of Munitions Response Site (MRS) Subdivisions 2-11
   2.6 Previous Investigations 2-11
      2.6.1 The 29000 Area Report, The New Mexico Proving Ground, The New Mexico Experimental Range, and the Development of Kirtland AFB, December 1998 2-11
      2.6.2 Sandia UXO High Explosives Survey Final Report, September 1994 2-11
      2.6.3 Proposal for No Further Action, Environmental Restoration Project Site 64 Gun Site (Madera Canyon) Operable Unit 1333, August 1995 2-11
      2.6.4 FUDS Archives Search Report Findings for the Former Isleta Pueblo Ordnance Impact Area, USACE, January 2001 2-12
      2.6.5 Congressional Defense Site Detail Maps, FY02 2-12
      2.6.6 Orthophotography and LiDAR Terrain Data Collection, Kirtland AFB Final Report, (Sky Research for USACE Omaha), June 2006 2-12
      2.6.7 FUDS Preliminary Assessment Report for the Former Kirtland Air Force Base Gun Site Fan OB-7, USACE, July 2007 2-13

3. Physical and Environmental Setting 3-1
   3.1 Climate 3-1
   3.2 Topography 3-1
   3.3 Hydrology 3-1
   3.4 Soil and Vegetation Types 3-1
   3.5 Geology and Hydrogeology 3-3
      3.5.1 Geology 3-3
      3.5.2 Hydrogeology 3-5

4. Investigation and Scope Approach 4-1
   4.1 Site Reconnaissance 4-1
   4.2 Geophysical Surveys 4-1
      4.2.1 Geophysical Test Strip 4-3
      4.2.2 Geophysical Methodologies 4-5

CONTENTS (Continued)

4.2.3 Geophysical Survey Objectives 4-6
4.2.4 Relative Density of Anomalies 4-6
4.3 Visual surveys 4-6
4.4 Ground Truthing 4-7
4.5 Environmental Media and Sampling Analysis 4-7
4.5.1 XRF Survey and Surface/Subsurface Soil Sampling at Small Arms Ranges 4-10
4.5.2 Surface Soil Sampling at Non Small Arms Ranges 4-14
4.6 Screening Levels 4-16
4.6.1 Soil Screening Values 4-17
4.6.2 Surface Water/Sediment Screening Values 4-19
4.6.3 Ecological Soil Screening Levels 4-19
4.6.4 Screening Values Uncertainty Analysis 4-19
4.7 Data Quality 4-21
4.7.1 Data Quality Objectives 4-22
4.7.2 Analytical Methodology 4-25
4.7.3 Data Review 4-25
4.7.4 Data Validation 4-26
4.8 Data Management 4-26
4.8.1 Electronic Data 4-26
4.8.2 Hardcopy Data 4-27
4.8.3 GIS Data 4-27

5. Munitions Response Site Characteristics 5-1
5.1 AL120 Proximity Fuze Range 5-3
5.1.1 Site Description 5-3
5.1.2 History of MEC Activities 5-3
5.1.3 Current Land Use 5-4
5.1.4 Access Controls 5-4
5.1.5 Restrictions 5-4
5.1.6 Field Investigation Results 5-5
5.1.7 Identification of Potential Receptors 5-6
5.1.8 Natural Resources 5-7
5.1.9 Sensitive Environments 5-7
5.2 AL769 Ordnance Drop Zone 5-33
5.2.1 Site Description 5-33
5.2.2 History of MEC Activities 5-33
5.2.3 Current Land Use 5-33
5.2.4 Access Controls 5-33
5.2.5 Restrictions 5-33
5.2.6 Field Investigation Results 5-33
5.2.7 Identification of Potential Receptors 5-34
5.2.8 Natural Resources 5-34
5.2.9 Sensitive Environments 5-34
5.3 AL771 Old Cable Site 5-39
5.3.1 Site Description 5-39
5.3.2 History of MEC Activities 5-39
5.3.3 Current Land Use 5-39
5.3.4 Access Controls 5-39

CONTENTS (Continued)

5.3.5 Restrictions 5-39
5.3.6 Field Investigation Results 5-39
5.3.7 Identification of Potential Receptors 5-40
5.3.8 Natural Resources 5-41
5.3.9 Sensitive Environments 5-41
5.4 DA130 Arroyo Del Coyote Demolition Area 5-49
5.4.1 Site Description 5-49
5.4.2 History of MEC Activities 5-49
5.4.3 Current Land Use 5-49
5.4.4 Access Controls 5-49
5.4.5 Restrictions 5-49
5.4.6 Field Investigation Results 5-49
5.4.7 Identification of Potential Receptors 5-50
5.4.8 Natural Resources 5-51
5.4.9 Sensitive Environments 5-51
5.5 DA782 Explosives Disposal Area 5-57
5.5.1 Site Description 5-57
5.5.2 History of MEC Activities 5-57
5.5.3 Current Land Use 5-57
5.5.4 Access Controls 5-57
5.5.5 Restrictions 5-57
5.5.6 Field Investigation Results 5-57
5.5.7 Identification of Potential Receptors 5-58
5.5.8 Natural Resources 5-58
5.5.9 Sensitive Environments 5-58
5.6 ED770 Experimental Range 5-63
5.6.1 Site Description 5-63
5.6.2 History of MEC Activities 5-63
5.6.3 Current Land Use 5-63
5.6.4 Access Controls 5-63
5.6.5 Restrictions 5-63
5.6.6 Field Investigation Results 5-63
5.6.7 Identification of Potential Receptors 5-64
5.6.8 Natural Resources 5-64
5.6.9 Sensitive Environments 5-65
5.7 ML125 Field Firing Range 5-71
5.7.1 Site Description 5-71
5.7.2 History of MEC Activities 5-71
5.7.3 Current Land Use 5-71
5.7.4 Access Controls 5-71
5.7.5 Restrictions 5-71
5.7.6 Field Investigation Results 5-71
5.7.7 Identification of Potential Receptors 5-72
5.7.8 Natural Resources 5-73
5.7.9 Sensitive Environments 5-73
5.8 ML200 Sandia Base Howitzer Range 5-85
5.8.1 Site Description 5-85
5.8.2 History of MEC Activities 5-85

CONTENTS (Continued)

5.8.3 Current Land Use 5-85
5.8.4 Access Controls 5-85
5.8.5 Restrictions 5-85
5.8.6 Field Investigation Results 5-85
5.8.7 Identification of Potential Receptors 5-86
5.8.8 Natural Resources 5-87
5.8.9 Sensitive Environments 5-87
5.9 ML201 Sandia Base Howitzer Range Buffer 5-95
5.9.1 Site Description 5-95
5.9.2 History of MEC Activities 5-95
5.9.3 Current Land Use 5-95
5.9.4 Access Controls 5-95
5.9.5 Restrictions 5-95
5.9.6 Field Investigation Results 5-95
5.9.7 Identification of Potential Receptors 5-96
5.9.8 Natural Resources 5-96
5.9.9 Sensitive Environments 5-96
5.10 ML760 Gun Fan site 5-101
5.10.1 Site Description 5-101
5.10.2 History of MEC Activities 5-101
5.10.3 Current Land Use 5-101
5.10.4 Access Controls 5-101
5.10.5 Restrictions 5-101
5.10.6 Field Investigation Results 5-101
5.10.7 Identification of Potential Receptors 5-102
5.10.8 Natural Resources 5-103
5.10.9 Sensitive Environments 5-103
5.11 ML762 McCormick Ranch Buffer 5-107
5.11.1 Site Description 5-107
5.11.2 History of MEC Activities 5-107
5.11.3 Current Land Use 5-107
5.11.4 Access Controls 5-107
5.11.5 Restrictions 5-107
5.11.6 Field Investigation Results 5-107
5.11.7 Identification of Potential Receptors 5-108
5.11.8 Natural Resources 5-108
5.11.9 Sensitive Environments 5-108
5.12 ML774 Gun Site Fan 5-113
5.12.1 Site Description 5-113
5.12.2 History of MEC Activities 5-113
5.12.3 Current Land Use 5-113
5.12.4 Access Controls 5-113
5.12.5 Restrictions 5-113
5.12.6 Field Investigation Results 5-113
5.12.7 Identification of Potential Receptors 5-114
5.12.8 Natural Resources 5-114
5.12.9 Sensitive Environments 5-114

CONTENTS (Continued)

5.13 ML781 Firing-In Abutment 5-117
5.13.1 Site Description 5-117
5.13.2 History of MEC Activities 5-117
5.13.3 Current Land Use 5-117
5.13.4 Access Controls 5-117
5.13.5 Restrictions 5-117
5.13.6 Field Investigation Results 5-117
5.13.7 Identification of Potential Receptors 5-118
5.13.8 Natural Resources 5-118
5.13.9 Sensitive Environments 5-118
5.14 ML784 40mm Test and Training Range 5-123
5.14.1 Site Description 5-123
5.14.2 History of MEC Activities 5-123
5.14.3 Current Land Use 5-123
5.14.4 Access Controls 5-123
5.14.5 Restrictions 5-123
5.14.6 Field Investigation Results 5-123
5.14.7 Identification of Potential Receptors 5-124
5.14.8 Natural Resources 5-124
5.14.9 Sensitive Environments 5-124
5.15 MU772 H-25 Site 5-127
5.15.1 Site Description 5-127
5.15.2 History of MEC Activities 5-127
5.15.3 Current Land Use 5-127
5.15.4 Access Controls 5-127
5.15.5 Restrictions 5-127
5.15.6 Field Investigation Results 5-127
5.15.7 Identification of Potential Receptors 5-128
5.15.8 Natural Resources 5-128
5.15.9 Sensitive Environments 5-129
5.16 PT123 Tijeras Small Arms Range 5-135
5.16.1 Site Description 5-135
5.16.2 History of MEC Activities 5-135
5.16.3 Current Land Use 5-135
5.16.4 Access Controls 5-135
5.16.5 Restrictions 5-135
5.16.6 Field Investigation Results 5-135
5.16.7 Identification of Potential Receptors 5-136
5.16.8 Natural Resources 5-136
5.16.9 Sensitive Environments 5-137
5.17 PT761 Tijeras Small Arms and Training Range 5-143
5.17.1 Site Description 5-143
5.17.2 History of MEC Activities 5-143
5.17.3 Current Land Use 5-143
5.17.4 Access Controls 5-143
5.17.5 Restrictions 5-143
5.17.6 Field Investigation Results 5-143
5.17.7 Identification of Potential Receptors 5-144

CONTENTS (Continued)

5.17.8 Natural Resources 5-145
5.17.9 Sensitive Environments 5-145
5.18 PT773 Coyote Canyon Tech Site 5-149
5.18.1 Site Description 5-149
5.18.2 History of MEC Activities 5-149
5.18.3 Current Land Use 5-149
5.18.4 Access Controls 5-149
5.18.5 Restrictions 5-149
5.18.6 Field Investigation Results 5-149
5.18.7 Identification of Potential Receptors 5-150
5.18.8 Natural Resources 5-151
5.18.9 Sensitive Environments 5-151
5.19 PT783 Bazooka Training Range 5-157
5.19.1 Site Description 5-157
5.19.2 History of MEC Activities 5-157
5.19.3 Current Land Use 5-157
5.19.4 Access Controls 5-157
5.19.5 Restrictions 5-157
5.19.6 Field Investigation Results 5-157
5.19.7 Identification of Potential Receptors 5-158
5.19.8 Natural Resources 5-158
5.19.9 Sensitive Environments 5-158
5.20 SR763 Rifle Range 5-165
5.20.1 Site Description 5-165
5.20.2 History of MEC Activities 5-165
5.20.3 Current Land Use 5-165
5.20.4 Access Controls 5-165
5.20.5 Restrictions 5-165
5.20.6 Field Investigation Results 5-165
5.20.7 Identification of Potential Receptors 5-166
5.20.8 Natural Resources 5-166
5.20.9 Sensitive Environments 5-167
5.21 SR764 Rifle Range 5-171
5.21.1 Site Description 5-171
5.21.2 History of MEC Activities 5-171
5.21.3 Current Land Use 5-171
5.21.4 Access Controls 5-171
5.21.5 Restrictions 5-171
5.21.6 Field Investigation Results 5-171
5.21.7 Identification of Potential Receptors 5-172
5.21.8 Natural Resources 5-172
5.21.9 Sensitive Environments 5-172
5.22 SR765 WWII Pistol Range 5-179
5.22.1 Site Description 5-179
5.22.2 History of MEC Activities 5-179
5.22.3 Current Land Use 5-179
5.22.4 Access Controls 5-179
5.22.5 Restrictions 5-179

CONTENTS (Continued)

5.22.6 Field Investigation Results 5-179
5.22.7 Identification of Potential Receptors 5-180
5.22.8 Natural Resources 5-180
5.22.9 Sensitive Environments 5-180
5.23 SR766 Sub-Machine Gun Range 5-185
5.23.1 Site Description 5-185
5.23.2 History of MEC Activities 5-185
5.23.3 Current Land Use 5-185
5.23.4 Access Controls 5-185
5.23.5 Restrictions 5-185
5.23.6 Field Investigation Results 5-185
5.23.7 Identification of Potential Receptors 5-186
5.23.8 Natural Resources 5-186
5.23.9 Sensitive Environments 5-187
5.24 SR767 Rifle Range 5-191
5.24.1 Site Description 5-191
5.24.2 History of MEC Activities 5-191
5.24.3 Current Land Use 5-191
5.24.4 Access Controls 5-191
5.24.5 Restrictions 5-191
5.24.6 Field Investigation Results 5-191
5.24.7 Identification of Potential Receptors 5-192
5.24.8 Natural Resources 5-192
5.24.9 Sensitive Environments 5-192
5.25 SR768 Close Combat Infiltration Course 5-197
5.25.1 Site Description 5-197
5.25.2 History of MEC Activities 5-197
5.25.3 Current Land Use 5-197
5.25.4 Access Controls 5-197
5.25.5 Restrictions 5-197
5.25.6 Field Investigation Results 5-197
5.25.7 Identification of Potential Receptors 5-198
5.25.8 Natural Resources 5-198
5.25.9 Sensitive Environments 5-198
5.26 SR777 Rifle Range 5-203
5.26.1 Site Description 5-203
5.26.2 History of MEC Activities 5-203
5.26.3 Current Land Use 5-203
5.26.4 Access Controls 5-203
5.26.5 Restrictions 5-203
5.26.6 Field Investigation Results 5-203
5.26.7 Identification of Potential Receptors 5-204
5.26.8 Natural Resources 5-204
5.26.9 Sensitive Environments 5-204
5.27 SR778 Airfield Pistol Range 5-207
5.27.1 Site Description 5-207
5.27.2 History of MEC Activities 5-207
5.27.3 Current Land Use 5-207

CONTENTS (Continued)

5.27.4 Access Controls 5-207
5.27.5 Restrictions 5-207
5.27.6 Field Investigation Results 5-207
5.27.7 Identification of Potential Receptors 5-208
5.27.8 Natural Resources 5-208
5.27.9 Sensitive Environments 5-208
5.28 SR780 Impact Area 5-211
5.28.1 Site Description 5-211
5.28.2 History of MEC Activities 5-211
5.28.3 Current Land Use 5-211
5.28.4 Access Controls 5-211
5.28.5 Restrictions 5-211
5.28.6 Field Investigation Results 5-211
5.28.7 Identification of Potential Receptors 5-212
5.28.8 Natural Resources 5-212
5.28.9 Sensitive Environments 5-212
5.29 TG100 Bomb Target 5-217
5.29.1 Site Description 5-217
5.29.2 History of MEC Activities 5-217
5.29.3 Current Land Use 5-217
5.29.4 Access Controls 5-217
5.29.5 Restrictions 5-217
5.29.6 Field Investigative Results 5-217
5.29.7 Identification of Potential Receptors 5-218
5.29.8 Natural Resources 5-218
5.29.9 Sensitive Environments 5-218
5.30 TS775 Airfield Skeet Range 5-223
5.30.1 Site Description 5-223
5.30.2 History of MEC Activities 5-223
5.30.3 Current Land Use 5-223
5.30.4 Access Controls 5-223
5.30.5 Restrictions 5-223
5.30.6 Field Investigation Results 5-223
5.30.7 Identification of Potential Receptors 5-224
5.30.8 Natural Resources 5-225
5.30.9 Sensitive Environments 5-225
5.31 TS776 Skeet Range 5-231
5.31.1 Site Description 5-231
5.31.2 History of MEC Activities 5-231
5.31.3 Current Land Use 5-231
5.31.4 Access Controls 5-231
5.31.5 Restrictions 5-231
5.31.6 Field Investigation Results 5-231
5.31.7 Identification of Potential Receptors 5-232
5.31.8 Natural Resources 5-232
5.31.9 Sensitive Environments 5-232
5.32 MRA/MRS Divisions 5-241

CONTENTS (Continued)

6. Evaluation of Known/Suspected MEC 6-1
6.1 MEC Technical Data 6-1
6.2 Primary Sources and Release Mechanisms 6-2
6.3 MEC Locations (Secondary Sources) 6-2
6.4 MEC Penetration Estimates 6-2
6.5 Special Consideration MEC 6-3
6.6 Known/Suspected MCs 6-3
6.7 Explosive Safety Submission Information 6-16
6.7.1 Munitions with the Greatest Fragmentation Distance 6-16
6.7.2 Maximum Credible Event 6-17
6.7.3 Frost Line 6-17

7. Evaluation of Hazardous Waste/Substances 7-1
7.1 ERP/ECP Hazardous Waste Activities 7-1
7.2 Hazardous Waste Characteristics 7-2
7.3 Identification of Source Areas 7-2
7.4 Characterization of Potential Contaminants of Concern and Known/Suspected Releases 7-2
7.5 DOE/SNL Sites 7-3

8. Conceptual Site Model (CSM) 8-1
8.1 MEC 8-1
8.1.1 Transport Processes 8-2
8.1.2 Exposure to Media and Accessibility 8-2
8.1.3 MEC Exposure Receptors 8-2
8.1.4 MEC Exposure Conclusions 8-3
8.1.5 Individual MRS CSM 8-3
8.2 Fate and Transport of MC, Hazardous Substances, Pollutants and Contaminants, and Other Constituents 8-7
8.2.1 Transport Pathways 8-7
8.2.2 Fate Processes 8-9
8.3 Conceptual Site Model for Potential MC Releases 8-12
8.3.1 Potential Sources 8-12
8.3.2 Potential MC Exposure Receptors 8-14
8.3.3 Soil Exposure Conclusions 8-14
8.3.4 Surface Water/Sediment Exposure Conclusions 8-15
8.3.5 Groundwater Exposure Conclusions 8-15

9. Screening Level Human Health Risk Assessment 9-1
9.1 General Approach 9-1
9.2 Pathways and Receptors 9-1
9.3 Human Health Risk via Soil Pathway 9-1
9.3.1 Metals 9-2
9.3.2 PAHs 9-3
9.3.3 Explosives 9-3
9.4 Surface Water 9-8
9.5 Sediment 9-8

CONTENTS (Continued)

9.6 Groundwater Pathway 9-8
9.7 HHRA conclusions and Recommendations 9-8

10. Screening Level Ecological Risk Assessment 10-1
10.1 General Approach 10-1
10.2 Habitat and Receptors 10-1
10.2.1 Vegetation 10-1
10.2.2 Threatened or Endangered Species 10-1
10.2.3 Aquatic Habitats 10-1
10.2.4 Wetlands and Riparian Areas 10-2
10.2.5 Receptors 10-2
10.3 Soil 10-2
10.3.1 Metals 10-2
10.3.2 PAHs 10-4
10.3.3 Explosives 10-5
10.4 Surface Water 10-9
10.5 Sediment 10-9
10.6 SLERA Conclusions and Recommendations 10-9
10.6.1 Conclusions 10-9
10.6.2 Recommendations 10-11

11. Munitions Response Site Prioritization Protocol 11-1
11.1 Explosive Hazard Evaluation (EHE) Module 11-1
11.2 Chemical Warfare Materiel Hazard Evaluation (CHE) Module 11-4
11.3 Health Hazard Evaluation (HHE) Module 11-4
11.4 MRSPP Score 11-4
11.5 Public Notice 11-4

12. Perchlorate Sampling 12-1

13. Summary and Conclusions 13-1
13.1 Summary of CSE Phase II Activities 13-1
13.2 Summary of CSE Phase II Findings 13-1
13.2.1 AL120 Proximity Fuze Range 13-1
13.2.2 AL769 Ordnance Drop Zone 13-2
13.2.3 AL771 Old Cable Site 13-2
13.2.4 DA130 Arroyo del Coyote Demolition Area 13-3
13.2.5 DA782 Explosive Disposal Area 13-3
13.2.6 ED770 Experimental Range 13-3
13.2.7 ML125 Field Firing Range 13-4
13.2.8 ML200 Sandia Base Howitzer Range 13-4
13.2.9 ML201 Sandia Base Howitzer Range Buffer 13-5
13.2.10 ML760 Gun Fan Site 13-5
13.2.11 ML762 McCormick Ranch Buffer 13-5
13.2.12 ML774 Gun Site Fan 13-6
13.2.13 ML781 Firing-In Abutment 13-6
13.2.14 ML784 40MM Test and Training Range 13-6
13.2.15 MU772 H-25 Site 13-6

CONTENTS (Concluded)

13.2.16 PT123 Tijeras Small Arms Range 13-7
13.2.17 PT761 Tijeras Small Arms and Training Range 13-7
13.2.18 PT773 Coyote Canyon Tech Site 13-7
13.2.19 PT783 Bazooka Training Range 13-7
13.2.20 SR763 Rifle Range 13-8
13.2.21 SR764 Rifle Range 13-8
13.2.22 SR765 WWII Pistol Range 13-8
13.2.23 SR766 Sub-Machine Gun Range 13-9
13.2.24 SR767 Rifle Range 13-9
13.2.25 SR768 Close Combat Infiltration Course 13-9
13.2.26 SR777 Rifle Range 13-9
13.2.27 SR778 Airfield Pistol Range 13-10
13.2.28SR780 Impact Area 13-10
13.2.29 TG100 Bomb Target 13-10
13.2.30 TS775 Airfield Skeet Range 13-11
13.2.31 TS776 Skeet Range 13-11

14. Recommendations 14-1
14.1 Cohort Assignment 14-1
14.1.1 Small Arms Ranges 14-1
14.1.2 Boresight Ranges 14-1
14.1.3 Open Burn/Open Detonation Sites/Explosive Ordnance Disposal Ranges 14-2
14.1.4 Chemical Warfare Materiel Sites 14-2
14.1.5 Pyrotechnic/Practice Sites 14-2
14.1.6 MC Sites 14-2
14.1.7 All Other Sites 14-2
14.1.8 Propellants 14-3
14.1.9 Kirtland AFB Cohort Assignment 14-3
14.2 Process Streamlining 14-4
14.2.1 ED770 Experimental Range 14-4
14.2.2 ML760 Gun Fan Site 14-5
14.2.3 ML784 40mm Test and Training Range 14-5
14.2.4 SR780 Impact Area 14-5
14.2.5 MRSs to remain on the Kirtland AFB Operational Range Inventory 14-5
14.3 Additional MRS (Splitting the MRA) 14-5
14.3.1 AL120 Proximity Fuze Range 14-6
14.3.2 DA130 Arroyo del Coyote 14-6
14.3.3 DA782 Explosives Disposal Area 14-6
14.3.4 ML200 Howitzer Range 14-6
14.3.5 PT773 Coyote Canyon Tech Site 14-6
14.3.6 TG100 Bomb Target 14-6
14.4 Change to the MRA/MRS Footprint 14-7
14.5 Future Response Actions and Objectives 14-47
14.6 Identify Gaps in CSM 14-54
14.7 DoD MRSPP Priority 14-54
14.8 Site Sequencing Considerations 14-54

APPENDICES

A Definitions
B Acronyms and Abbreviations
C References
D Photo Documentation Log
E Field Forms
F Ordnance Data Sheets
G Geophysical Survey Data
H Summary of Analytical Data
I Data Validation Reports
J Background Study
K MRSPP Tables
L RACER
M AFRIMS
N Public Participation Fact Sheets
O Phase II Checklist

FIGURES

1-1 General Location Map Kirtland Air Force Base 1-2
1-2 Kirtland AFB Project Organization 1-4

2-1 Map from FY02 DEP Report to Congress Map 1 of 3 2-5
2-2 Map from FY02 DEP Report to Congress Map 2 of 3 2-6
2-3 Map from FY02 DEP Report to Congress Map 3 of 3 2-7
2-4 CSE Phase I MRA Boundaries 2-8
2-5 CSE Phase I Munitions 2-9
2-6 Approximate NMPG Boundaries 2-14
2-7 Madera Canyon Gun Site 2-15
2-8 Kirtland Firing Fans Located on Isleta Pueblo 2-16
2-9 Air Force EOD September 2006 UXO Intervention Project Areas Within ML125 2-17

3-1 Soils Kirtland Air Force Base 3-2
3-2 Regional Interpreted Bedrock Geology of Kirtland AFB and Vicinity 3-4

4-1 CSE Phase II Geophysical Survey Methods ..... plate
4-2 Geophysical Test Strip 4-4
4-3 SAR Sample Locations 4-9
4-4 Non SAR Sample Locations 4-15

5-1.1 Kirtland Historical Firing Fans 5-8
5-1.2 AL120 Proximity Fuze Range Full Coverage Map 5-9
5-1.3 AL120 Proximity Fuze Range CSE Phase II Results Overview 5-10
5-1.4 AL120 Proximity Fuze Range Munition Related Findings 5-11
5-1.5 AL120 Southwest Area HeliMag Results 5-12
5-1.6 AL120 Southwest Full Coverage Map 5-13
5-1.7 AL120 Southwest CSE Phase II Results 5-14
5-1.8 AL120 Southwest Munition Related Findings 5-15
5-1.9 AL120 Southcentral HeliMag and DGM Results 5-16
5-1.10 AL120 Southcentral Full Coverage Map 5-17
5-1.11 AL120 Southcentral CSE Phase II Results 5-18
5-1.12 AL120 Southcentral Munition Related Findings 5-19
5-1.13 AL120 Southeast Full Coverage Map 5-20
5-1.14 AL120 Southeast CSE Phase II Results 5-21
5-1.15 AL120 Southeast Munition Related Findings 5-22
5-1.16 AL120 Northeast Full Coverage Map 5-23
5-1.17 AL120 Northeast CSE Phase II Results 5-24
5-1.18 AL120 Northcentral Area HeliMag and DGM Results 5-25
5-1.19 AL120 Northcentral Full Coverage Map 5-26
5-1.20 AL120 Northcentral CSE Phase II Results 5-27
5-1.21 AL120 Northcentral Munition Related Findings 5-28
5-1.22 AL120 Sampling Overview 5-29
5-1.23 AL120 Sampling Locations 5-30
5-1.24 Spring Locations Kirtland Air Force Base 5-31

FIGURES (Continued)

5-2.1 AL769 Ordnance Drop Zone HeliMag and DGM Results 5-35
5-2.2 AL769 Ordnance Drop Zone Full Coverage Map 5-36
5-2.3 AL769 Ordnance Drop Zone CSE Phase II Results 5-37

5-3.1 AL771 Old Cable Site DGM Results 5-42
5-3.2 AL771 Old Cable Site Full Coverage Map 5-43
5-3.3 AL771 Old Cable Site CSE Phase II Results 5-44
5-3.4 AL771 Old Cable Site Munition Related Findings 5-45
5-3.5 AL771 Old Cable Site Sampling Overview 5-46
5-3.6 AL771 Old Cable Site Area 1 Sample Locations 5-47
5-3.7 AL771 Old Cable Site Area 2 Sample Locations 5-48

5-4.1 DA130 Arroyo del Coyote Demolition Area HeliMag and DGM Results 5-52
5-4.2 DA130 Arroyo del Coyote Demolition Area Full Coverage Map 5-53
5-4.3 DA130 Arroyo del Coyote Demolition Area CSE Phase II Results 5-54
5-4.4 DA130 Arroyo del Coyote Demolition Area Munition Related Findings 5-55

5-5.1 DA782 Explosive Disposal Area DGM Results 5-59
5-5.2 DA782 Explosive Disposal Area Full Coverage Map 5-60
5-5.3 DA782 Explosive Disposal Area CSE Phase II Results 5-61
5-5.4 DA782 Explosive Disposal Area Munition Related Findings 5-62

5-6.1 ED770 Experimental Range HeliMag and DGM Results 5-66
5-6.2 ED770 Experimental Range Full Coverage Map 5-67
5-6.3 ED770 Experimental Range CSE Phase II Results 5-68
5-6.4 ED770 Experimental Range Munition Related Findings 5-69

5-7.1 ML125 Field Firing Range DGM Results 5-74
5-7.2 ML125 Field Firing Range Full Coverage Map 5-75
5-7.3 ML125 Field Firing Range CSE Phase II Results 5-76
5-7.4 ML125 Field Firing Range Munition Related Findings 5-77
5-7.5 ML125 Field Firing Range Sampling Overview 5-78
5-7.6 ML125 Field Firing Range Area 1 Sample Locations 5-79
5-7.7 ML125 Field Firing Range Area 2 Sample Locations 5-80
5-7.8 ML125 Field Firing Range Area 3 Sample Locations 5-81
5-7.9 ML125 Field Firing Range Area 4 Sample Locations 5-82
5-7.10 ML125 Field Firing Range Area 5 Sample Locations 5-83
5-7.11 ML125 Field Firing Range Area 6 Sample Locations 5-84

5-8.1 ML200 Sandia Base Howitzer Range HeliMag and DGM Results 5-89
5-8.2 ML200 Sandia Base Howitzer Range Full Coverage Map 5-90
5-8.3 ML200 Sandia Base Howitzer Range CSE Phase II Results 5-91
5-8.4 ML200 Sandia Base Howitzer Range Munition Related Findings 5-92
5-8.5 .50 Caliber Target (Within ML200) XRF Lead Survey Results 5-93
5-8.6 .50 Caliber Target (Within ML200) Current Land Use 5-94

FIGURES (Continued)

5-9.1 ML201 Sandia Base Howitzer Range Buffer HeliMag and DGM Results 5-97
5-9.2 ML201 Sandia Base Howitzer Range Buffer Full Coverage Map 5-98
5-9.3 ML201 Sandia Base Howitzer Range Buffer CSE Phase II Results 5-99

5-10.1 ML760 Gun Fan Site HeliMag Results 5-104
5-10.2 ML760 (OB-7) Gun Fan Site Full Coverage Map 5-105
5-10.3 ML760 (OB-7) Gun Fan Site CSE Phase II Results 5-106

5-11.1 ML762 McCormick Ranch Buffer HeliMag Results 5-109
5-11.2 ML762 McCormick Ranch Buffer Full Coverage Map 5-110
5-11.3 ML762 McCormick Ranch Buffer CSE Phase II Results 5-111

5-12.1 ML774 Gun Site Fan HeliMag Results 5-115
5-12.2 ML774 Gun Site Fan Full Coverage Map 5-116

5-13.1 ML781 Firing-In Abutment DGM Results 5-119
5-13.2 ML781 Firing-In Abutment Full Coverage Map 5-120
5-13.3 ML781 Firing-In Abutment CSE Phase II Results 5-121

5-14.1 ML784 40mm Test and Training Range Full Coverage Map 5-125

5-15.1 MU772 H-25 Site DGM Results 5-130
5-15.2 MU772 H-25 Site Full Coverage Map 5-131
5-15.3 MU772 H-25 Site CSE Phase II Results 5-132
5-15.4 MU772 H-25 Site Munition Related Findings 5-133

5-16.1 PT123 Tijeras Small Arms Range DGM Results 5-138
5-16.2 PT123 Tijeras Small Arms Range Full Coverage Map 5-139
5-16.3 PT123 Tijeras Small Arms Range CSE Phase II Results 5-140
5-16.4 PT123 Tijeras Small Arms Range Munition Related Findings 5-141

5-17.1 PT761 Tijeras Small Arms and Training Range DGM Results 5-146
5-17.2 PT761 Tijeras Small Arms and Training Range Full Coverage Map 5-147
5-17.3 PT761 Tijeras Small Arms and Training Range CSE Phase II Results 5-148

5-18.1 PT773 Coyote Canyon Tech Site DGM and HeliMag Results 5-152
5-18.2 PT773 Coyote Canyon Tech Site Full Coverage Map 5-153
5-18.3 PT773 Coyote Canyon Tech Site CSE Phase II Results 5-154
5-18.4 PT773 Coyote Canyon Tech Site Munition Related Findings 5-155

5-19.1 PT783 Bazooka Training Range DGM and HeliMag Results 5-160
5-19.2 PT783 Bazooka Training Range Full Coverage Map 5-161
5-19.3 PT783 Bazooka Training Range CSE Phase II Results 5-162
5-19.4 PT783 Bazooka Training Range Munition Related Findings 5-163

5-20.1 SR763 Rifle Range XRF Lead Survey Results 5-169
5-20.2 SR763 Rifle Range Current Land Use 5-170

FIGURES (Continued)

5-21.1 SR764 Rifle Range XRF Lead Survey Results 5-177
5-21.2 SR764 Rifle Range Current Land Use 5-178

5-22.1 SR765 WWII Pistol Range XRF Lead Survey Results 5-183
5-22.2 SR765 WWII Pistol Range Current Land Use 5-184

5-23.1 SR766 Sub-Machine Gun Range XRF Lead Survey Results 5-188
5-23.2 SR766 Sub-Machine Gun Range Current Land Use 5-189

5-24.1 SR767 Rifle Range XRF Lead Survey Results 5-195
5-24.2 SR767 Rifle Range Current Land Use 5-196

5-25.1 SR768 Close Combat Infiltration Course Full Coverage Map 5-199
5-25.2 SR768 Close Combat Infiltration Course Munition Related Findings 5-200
5-25.3 SR768 Close Combat Infiltration Course CSE Phase II Map 5-201

5-26.1 SR777 Rifle Range Full Coverage Map 5-205

5-27.1 SR778 Airfield Pistol Range Historic Land Use 5-209
5-27.2 SR778 Airfield Pistol Range Current Land Use 5-210

5-28.1 SR780 Impact Area DGM Results 5-213
5-28.2 SR780 Impact Area Full Coverage Map 5-214
5-28.3 SR780 Impact Area CSE Phase II Results 5-215
5-28.4 ST780 Impact Area Munition Related Findings 5-216

5-29.1 TG100 Bomb Target HeliMag Results 5-219
5-29.2 TG100 Bomb Target Full Coverage Map 5-220
5-29.3 TG100 Bomb Target CSE Phase II Results 5-221
5-29.4 TG100 Bomb Target Munition Related Findings 5-222

5-30.1 TS775 Airfield Skeet Range XRF Lead Survey Results 5-227
5-30.2 TS775 Airfield Skeet Range PAH Results 5-228
5-30.3 TS775 Airfield Skeet Range Current Land Use 5-229

5-31.1 TS776 Skeet Range XRF Lead Survey Results 5-237
5-31.2 TS776 Skeet Range PAH Results 5-238
5-31.3 TS776 Skeet Range Current Land Use 5-239

7-1 ERP/ERC Sites Located on MRAs at Kirtland Air Force Base ..... Plate
7-2 DOE/SNL Sites Kirtland Air Force Base ..... Plate

8-1 MEC Exposure Pathway Analysis Case 1 8-4
8-2 MEC Exposure Pathway Analysis Case 2 8-5
8-3 MC Conceptual Site Model Case 1 8-16
8-4 MC Conceptual Site Model Case 2 8-17

FIGURES (Concluded)

14-1 AL120 Proximity Fuze Range Proposed MRS Boundaries 14-10
14-1.1 MRS AL120 Detail Map 14-11
14-1.2 MRS AL120a Detail Map 14-12
14-1.3 MRS AL120b McCormick UXO Site Detail Map 14-13
14-1.4 MRS AL120c Detail Map 14-14
14-1.5 MRS AL120d Detail Map 14-15
14-1.6 MRS AL120e Detail Map 14-16
14-2 AL769 Ordnance Drop Zone Proposed MRS Boundaries 14-17
14-3 AL771 Old Cable Site Proposed MRS Boundaries 14-18
14-4 DA130 Arroyo del Coyote Proposed MRS Boundaries 14-19
14-5 DA782 Explosive Disposal Area Proposed MRS Boundaries 14-20
14-6 ED770 Experimental Range Proposed MRS Boundaries 14-21
14-7 ML125 Field Firing Range Proposed MRS Boundaries 14-22
14-8 ML200 Sandia Base Howitzer Range Proposed MRS Boundaries 14-23
14-9 ML201 Sandia Base Howitzer Range Buffer Proposed MRS Boundaries 14-24
14-10 ML760 (OB-7) Gun Fan Site Proposed MRS Boundaries 14-25
14-11 ML762 McCormick Ranch Buffer Proposed MRS Boundaries 14-26
14-12 ML774 Gun Site Fan Proposed MRS Boundaries 14-27
14-13 ML781 Firing-In Abutment Proposed MRS Boundaries 14-28
14-14 ML784 40mm Test and Training Range Proposed MRS Boundaries 14-29
14-15 MU772 H-25 Site Proposed MRS Boundaries 14-30
14-16 PT123 Tijeras Small Arms Range Proposed MRS Boundaries 14-31
14-17 PT761 Tijeras Small Arms and Training Range Proposed MRS Boundaries 14-32
14-18 PT773 Coyote Canyon Tech Site Proposed MRS Boundaries 14-33
14-19 PT783 Bazooka Training Range Proposed MRS Boundaries 14-34
14-20 SR763 Rifle Range Proposed MRS Boundaries 14-35
14-21 SR764 Rifle Range Proposed MRS Boundaries 14-36
14-22 SR765 WWII Pistol Range Proposed MRS Boundaries 14-37
14-23 SR766 Sub-Machine Gun Range Proposed MRS Boundaries 14-38
14-24 SR767 Rifle Range Proposed MRS Boundaries 14-39
14-25 SR768 Close Combat Infiltration Course Proposed MRS Boundaries 14-40
14-26 SR777 Rifle Range Proposed MRS Boundaries 14-41
14-27 SR778 Airfield Pistol Range Proposed MRS Boundaries 14-42
14-28 SR780 Impact Area Proposed MRS Boundaries 14-43
14-29 TG100 Bomb Target Proposed MRS Boundaries 14-44
14-30 TS775 Airfield Skeet Range Proposed MRS Boundaries 14-45
14-31 TS776 Skeet Range Proposed MRS Boundaries 14-46

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TABLES

2-1 Kirtland Air Force Base MRAs Not Investigated During CSE Phase II 2-10
2-2 Kirtland Air Force Base MRAs Investigated During CSE Phase II 2-10

4-1 Kirtland AFB MRAs Investigated Using Geophysical Methods 4-2
4-2 Geophysical Test Area Data 4-3
4-3 CSE Phase II Analyte List by MRA Type 4-7
4-4 Number and Types of Samples Collected and Analyzed 4-8
4-5 Ex Situ XRF Lead Results vs Laboratory Analytical Data October/November 2007 Sampling Event 4-12
4-6 Ex Situ XRF Lead Results vs Laboratory Analytical Data March 2008 Sampling Event 4-14
4-7 Soil Screening Level Concentrations 4-18
4-8 Ecological Soil Screening Level Values 4-20

5-8.1 .50 Caliber Target (Within ML200) XRF Results 5-88
5-20.1 SR763 Rifle Range XRF Results 5-167
5-21.1 SR764 Rifle Range XRF Results 5-173
5-22.1 SR765 WWII Pistol Range XRF Results 5-181
5-23.1 SR766 Sub-Machine Gun Range XRF Results 5-187
5-24.1 SR767 Rifle Range XRF Results 5-193
5-30.1 TS775 Airfield Skeet Range XRF Results 5-225
5-31.1 TS776 Skeet Range XRF Results 5-233

6-1 Observed Munitions at MRAs 6-1
6-2 Examples of Munitions Penetration Depths 6-3
6-3 Potential MC 6-4
6-4 Munitions with the Greatest Fragmentation Distance 6-16

7-1 Kirtland AFB ERP/ECP Site Summary 7-1
7-2 DOE/SNL Site Summary 7-3

8-1 Conceptual Site Model Index for Kirtland AFB 8-6

9-1 Soil Sample Summary and Human Health Risk Screening Results 9-4

10-1 Soil Sample Summary and Ecological Risk Screening Results 10-6

11-1 Summary and Total of the EHE Data Element Scores 11-2
11-2 Summary of the HHE Data Element Scores 11-5
11-3 Priority Ratings for Kirtland AFB MRSs 11-6

14-1 Air Force MMRP Cohort Assignments 14-1
14-2 Cohort Assignments for Kirtland AFB MRAs/MRSs 14-3
14-3 Recommended MRA/MRS Footprint Changes 14-7
14-4 Conclusions and Recommendations 14-47

5-1.1 AL120 Soil Analytical Results H-1
5-3.1 AL771 Old Cable Site Soil Analytical Results H-6

TABLES (Concluded)

5-7.1 ML125 Field Firing Range Soil Analytical Results H-11
5-8.2 .50 Caliber Target (Within ML200) Soil Analytical Results H-28
5-20.2 SR763 Rifle Range Soil Analytical Results H-30
5-21.2 SR764 Rifle Range Soil Analytical Results H-32
5-22.2 SR765 WWII Pistol Range Soil Analytical Results H-35
5-23.2 SR766 Sub-Machine Gun Range Soil Analytical Results H-36
5-24.2 SR767 Rifle Range Soil Analytical Results H-37
5-30.2 TS775 Airfield Skeet Range Metals Analytical Results H-39
5-31.2 TS776 Skeet Range Metals Analytical Results H-45

1. INTRODUCTION

The United States Armed Forces have historically conducted live-firing, weapons testing, and munitions disposal to ensure military readiness. Decades of these munitions-related activities have resulted in the presence of unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC) on ranges and disposal areas throughout the country. UXO, DMM, and other materials potentially presenting an explosive hazard (MPPEH) are referred to as munitions and explosives of concern (MEC).

In 1986, Congress created the Defense Environmental Restoration Program to clean up sites owned or used by the United States Department of Defense (DoD). For more than 20 years, this program focused on cleanup of hazardous chemicals (e.g., solvents, oils, pesticides) in environmental media. In September 2001, DoD established the Military Munitions Response Program (MMRP) to address hazards associated with MEC and MC within areas no longer used for operational range activities. These non-operational range areas are referred to as Munitions Response Areas (MRAs) and may encompass one or more discrete munitions response sites (MRSs). The goal of the United States Air Force (US Air Force) MMRP is to make MRAs safe for reuse while protecting human health and the environment. In December 2001, Congress passed the National Defense Authorization Act for Fiscal Year 2002 that required DoD to develop and maintain an inventory of MRAs/MRSs. This requirement is codified in Title 10, Section 2710 of the United States Code (10 USC 2710).

Under the MMRP, the US Air Force is responsible for addressing MEC and MC at MRAs/MRSs under its administrative controls or responsibility. Although initial inventories were completed in 2002, the US Air Force officially launched the MMRP in October 2004. The US Air Force MMRP includes active US Air Force installations nationwide, including Kirtland Air Force Base (AFB) (Figure 1-1).

A critical component of the US Air Force MMRP is the Comprehensive Site Evaluation (CSE), which serves as the initial assessment of MRAs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). The US Air Force is implementing the CSE in two phases. The CSE Phase I fulfills the requirements of the CERCLA Preliminary Assessment (PA) and Phase II fulfills the requirements of the CERCLA Site Investigation (SI).

The United States Army Corps of Engineers (USACE), Omaha District, has tasked HydroGeoLogic, Inc. (HGL) to conduct the CSE Phase II investigation for Kirtland AFB under Contract Number W9128F-04-D-0005, Task Order Number 0015. HGL performed the work in accordance with the Statement of Objectives (SOO) issued by the USACE titled *"Air Force Military Munitions Response Program (MMRP) Comprehensive Site Evaluation (CSE) Phase II at Kirtland AFB, Reporting to Air Force Materiel Command (AFMC)"*, and the *Final Work Plan Comprehensive Site Evaluation Phase II* (Work Plan) dated August 2007 (HGL, 2007a).

This CSE Phase II Report documents the findings of the CSE Phase II investigation performed at Kirtland AFB. In accordance with CERCLA and the NCP, no Federal, State, or local permits were required for the CSE Phase II investigation. All activities conducted in locations that may contain MEC and MC were performed in accordance with DoD, US Air Force, and USACE, Omaha District requirements regarding personnel, equipment, and procedures.

The CSE is an initial step in achieving the MMRP goal of making MRAs safe for potential reuse, so that these sites are compatible with their reasonably appropriate future land use and provides for safe potential reuse.

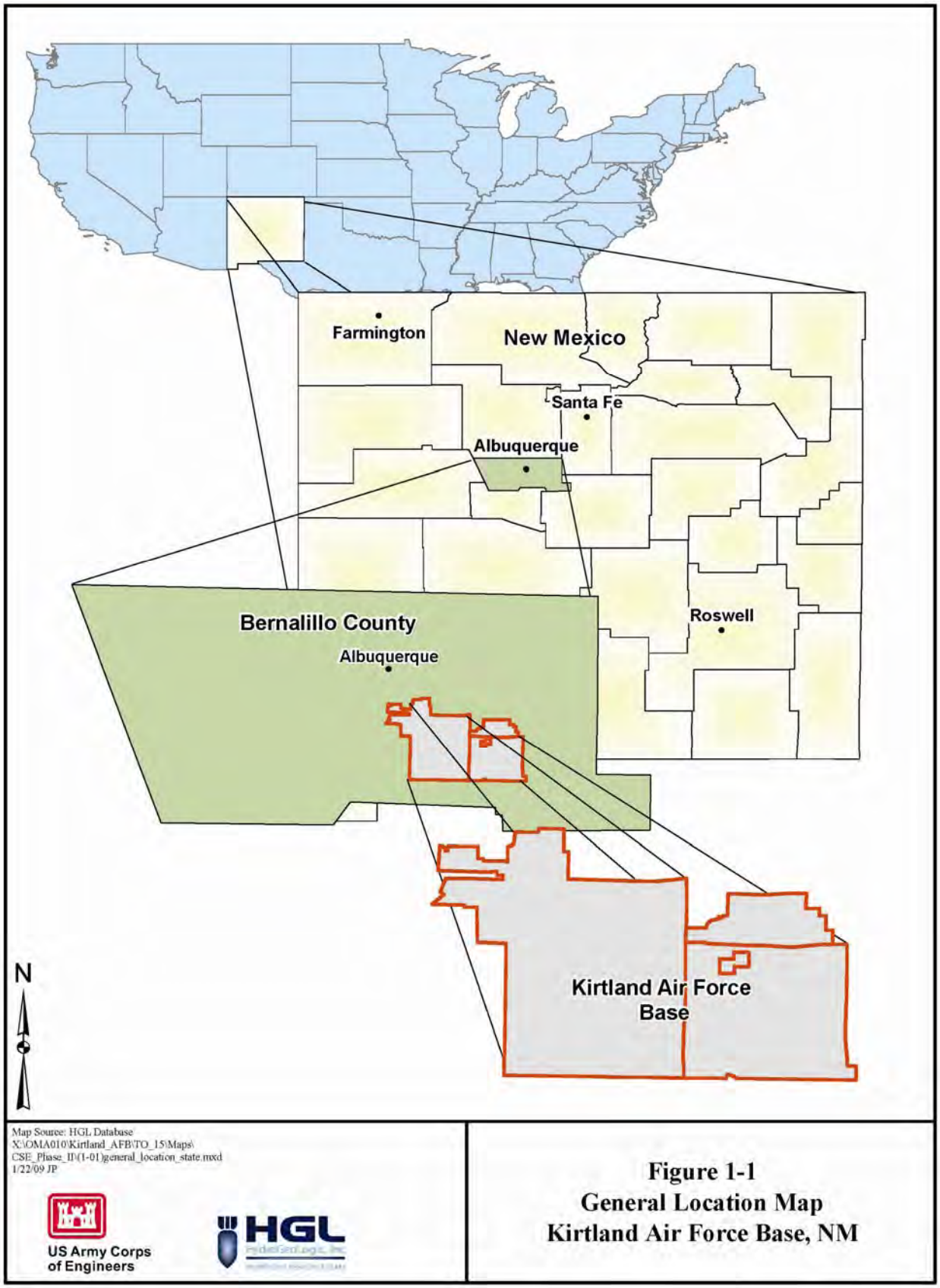


Figure 1-1
General Location Map
Kirtland Air Force Base, NM

1.1 Purpose

The purpose of the CSE Phase II is to identify and investigate areas where past military munitions activities associated with Kirtland AFB may have impacted or have the potential to impact human health or the environment. The CSE Phase II investigation utilized existing data along with visual surveys, geophysical surveys and media sampling to characterize areas known or suspected to contain MEC or MC contamination, and to determine if further munitions response actions were necessary. Another aspect of the CSE Phase II investigation was to further define MRA boundaries and, where necessary, designate MRSs within MRAs.

1.2 Project Data Quality Objectives

Data Quality Objectives (DQOs) are qualitative and quantitative statements that clarify the objectives of each action, define the appropriate type of data needed, and specify the tolerable levels of potential decision errors for the data used to support decisions. The DQO development process described in Engineer Manual 200-1-2, *Technical Project Planning (TPP) Process*, United States Environmental Protection Agency (USEPA) Publication QA/G-4, *Guidance for the Data Quality Objectives Process*, and Engineer Regulation 1110-1-2, *Engineering Design and Quality Management* were used to develop the CSE Phase II investigation DQOs at Kirtland AFB.

The DQO process outlined in these guidance documents was used to support development of DQOs. The DQO process comprises a series of seven planning steps, based on the Scientific Method, designed to ensure that the type, quantity, and quality of the environmental data used in decision-making are appropriate for the intended application. DQOs are statements that:

- Clarify the study objectives
- Define the appropriate type of data to collect
- Determine the appropriate media from which to collect the data
- Specify acceptable levels of decision errors that will be used as the basis for establishing the quantity and quality of the data needed to support the decision

Each DQO was evaluated according to the seven-step process. The results, including the step-by-step process, were described in the Kirtland AFB Work Plan (HGL, 2007a). The DQOs specify data needs to be met by the CSE Phase II field activities. The DQOs for the CSE Phase II at Kirtland AFB included elements applicable to the following:

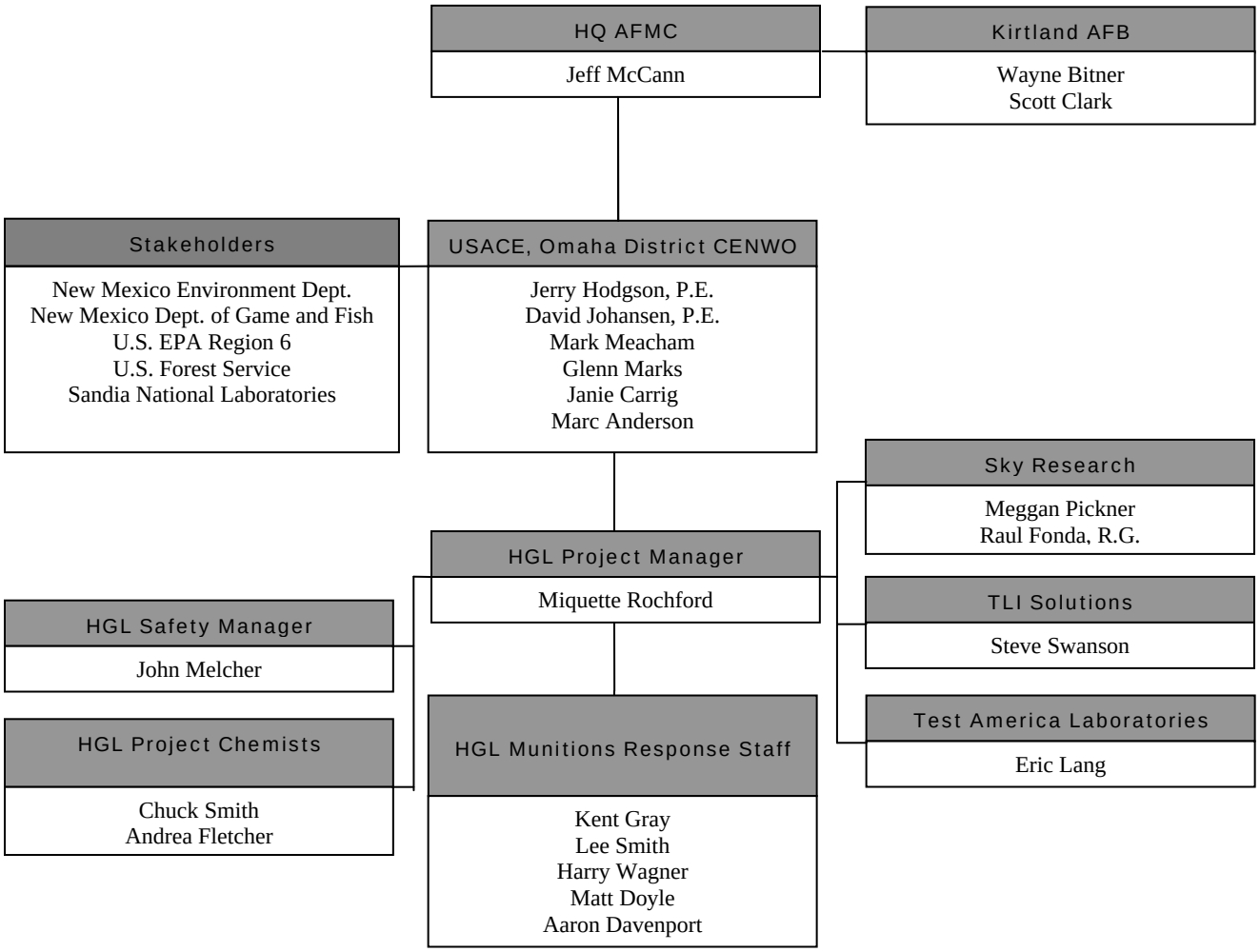
- Overall CSE Phase II project
- Munitions constituent sampling
- Geophysical surveying

Project DQOs are presented in further detail in Section 4.7.1.

1.3 Project Management

The CSE Phase II project team consists of Headquarters, Air Force Materiel Command (HQ AFMC), Kirtland AFB Environmental Management (EM), USACE Omaha District, and HGL. HQ AFMC and Kirtland AFB Environmental Management are the end-client for this CSE Phase II project. The USACE, Omaha District, is the project management and lead technical agency for this project. HGL is the prime contractor providing munitions response and environmental services for the execution of the CSE Phase II investigation at Kirtland AFB. HGL Team members include Sky Research (Sky) for digital geophysical mapping (DGM), USA Environmental, Inc., for field assistance, TLI Solutions, Inc. (TLI) for planning logistics, and TestAmerica Laboratories for laboratory sampling analysis. The CSE Phase II project organization is depicted in Figure 1-2.

Figure 1-2. Kirtland AFB Project Organization



1.4 Project Scope

The CSE Phase II data collection activities included geophysical surveys and environmental sampling. The data collected have provided:

- Geophysical identification of subsurface metals
- Definition of MRA/MRS boundaries
- Analytical confirmation of MC and contaminants of concern (COC) in the environment
- Migration pathway analysis for groundwater, surface water and soil

The CSE Phase II investigation of Kirtland AFB has provided the following information for this report:

- Revised Conceptual Site Model (CSM) data
- Munitions Response Site Prioritization Protocol (MRSPP) and MRS priority [Explosive Hazard Evaluation (EHE), Chemical Warfare Materiel Hazard Evaluation (CHE), Health Hazard Evaluation (HHE)] data
- Air Force Restoration Information Management System (AFRIMS) and Remedial Action Cost Engineering Requirements (RACER) database input

1.5 Report Organization

This CSE Phase II report is organized in accordance with the CSE Phase II report outline provided in the SOO. Major sections of the report include:

Section 1: Introduction
Section 2: Installation Background
Section 3: Physical and Environmental Setting
Section 4: Investigation Scope and Approach
Section 5: Munitions Response Site Characteristics
Section 6: Evaluation of Known/Suspected MEC
Section 7: Evaluation of Hazardous Waste/Substances
Section 8: Conceptual Site Model
Section 9: Screening Level Human Health Risk Assessment
Section 10: Screening Level Ecological Risk Assessment
Section 11: Munitions Response Site Prioritization Protocol
Section 12: Perchlorate Reporting
Section 13: Summary and Conclusions
Section 14: Recommendations

This report also includes the following appendices:

Appendix A Definitions
Appendix B Abbreviations
Appendix C References
Appendix D Photo Documentation Log
Appendix E Field Notes and Field Forms
Appendix F Ordnance Technical Data Sheets
Appendix G Geophysical Survey Data
Appendix H Summary of Analytical Data
Appendix I Data Validation Reports
Appendix J Background Study and Site-to-Background Comparisons
Appendix K MRSPP Tables

Appendix L RACER Data Input Worksheets
Appendix M AFRIMS Data Input Worksheets
Appendix N Documentation of Public Participation Support
Appendix O Phase II Checklist

Figures and tables are incorporated within the text of each section.

2. INSTALLATION BACKGROUND

2.1 Location and Setting

Kirtland AFB is located in southeast Albuquerque, Bernalillo County, New Mexico (Figure 1-1), and occupies 51,558 acres. Kirtland AFB is bounded to the north and west by the City of Albuquerque, to the south by the Pueblo of Isleta, and to the east by the Cibola National Forest. The installation is adjacent to the City of Albuquerque airport, named the Albuquerque International Sunport.

Kirtland AFB is the third largest installation in AFMC, employing over 23,000 people, including more than 4,200 active duty personnel, 1,000 National Guard personnel, 3,200 part-time reserve personnel, and 14,600 civilian employees. The installation is home to the Nuclear Weapons Center (NWC) and the 377 Air Base Wing (ABW), Kirtland AFB's host organization (Kirtland AFB, 2006a).

2.2 Installation Mission and Operational History

2.2.1 Installation Mission

The NWC was activated at Kirtland AFB in March 2006. All other organizations at Kirtland AFB are now subordinate to the NWC. The NWC mission, encompassing the missions of both the NWC and the 377 ABW, is to ensure safe, secure, and reliable nuclear weapons support to the National Command Structure and the US Air Force warfighter. The 377 ABW was activated under the AFMC on 1 January 1993, and is responsible for nuclear surety, expeditionary forces, and operating support for associate units on base.

The primary mission of the 377 ABW is munitions maintenance, which is provided at the depot level by two squadrons. The squadrons perform in-depth maintenance on US Air Force and Department of Energy (DOE) assets around the world. Their objective is to deliver all munitions and support to the correct location on time and in prime operating condition.

In addition to munitions maintenance, the 377 ABW provides operating support for the associate units in over 2,000 buildings. In supporting this mission, the 377 ABW has the largest security forces squadron in the command.

The 377 ABW also provides quality and professional support services to the Kirtland AFB community, active duty, retirees, dependents and civilians with services such as security, medical, housing, fire protection and transportation support (Kirtland AFB, 2006b).

2.2.2 Installation Operational History

In 1928, construction began on Oxnard Field, the first private airport in Albuquerque, New Mexico. The airfield was expanded in the mid-1930s to provide U.S. Army and Navy pilots with a transient refueling/maintenance stop location. From the late 1930s to 1941, Oxnard Field was used for this purpose and as a training site for air crews that ferried bomber aircraft to England.

In 1935, the City of Albuquerque began plans for a new municipal airport. In the same year, the U.S. Army leased 2,000 acres of land adjacent to the airport site and plans began for what would become Kirtland AFB, one of the country's largest bomber training bases. By 1941, construction had been completed on Albuquerque Army Air Base west of Oxnard Field, and B-17 and B-18 bomber combat crew training was under way. In February 1942, Albuquerque Army Air Base was renamed Kirtland

Field. Later that year, the Army Air Force acquired Oxnard Field, along with its 460 acres, in addition to another 1,100 acres to the east of Kirtland Field. The Army Air Force soon began construction of the Albuquerque Air Depot Training Station, a training depot for aircraft mechanics, which later became Sandia Base.

From 1944 to 1945, Kirtland Field was used as an Army Air Force Medical Convalescent Center for returning veterans. Kirtland Field also was used as a dismantling and storage facility for war-weary and surplus aircraft. Runways were extended at Kirtland Field and bomb-loading pits were built. In 1948, Kirtland Field was designated as Kirtland AFB. The Navy brought a weapons test detachment to Kirtland AFB in 1949. The unit was deactivated in 1993 and moved to Naval Air Weapons Station China Lake in California.

Units of the Los Alamos Scientific Laboratory (now Los Alamos National Laboratory) were relocated to the Albuquerque Air Depot Training Station in September 1945 to manage the development of weapons assemblies. The station was reassigned to the Armed Forces Special Weapons Project, which was renamed multiple times as the Air Force Special Weapons Center, the Air Force Weapons Laboratory, the Phillips Laboratory, and finally, its current title, the Air Force Research Laboratory (AFRL). In 1947, initial construction of a weapons storage area was begun in the foothills of a small sub-range of the Manzano Mountains near the northeastern boundary of Sandia Base. This storage area was known as "Site Able" and later became Manzano Base. The Sandia Branch of the Los Alamos Scientific Laboratory, established in 1949, later became Sandia National Laboratories (SNL), the largest tenant on Kirtland AFB property. The DOE's SNL (DOE/SNL) is currently involved in the development and testing of special weapons as well as the research and development of energy source systems. The AFRL continued operations into the 1980s, primarily involving special weapons and laser research.

In July 1971, Manzano and Sandia Bases merged with Kirtland AFB, and the Air Force Space Command assumed management responsibilities. In the 1970s, the AFRL evolved into a research and development organization, hosting other military organizations.

In 1976, the 4900 ABW was created to oversee operational testing of emergency aircraft systems, and the 1550 Aircrew Training and Test Wing (later designated the Combat Crew Training Wing) brought regular flight operations to Kirtland AFB. Military Airlift Command (MAC) assumed control of Kirtland AFB and activated the 1606 ABW as a host base wing at Kirtland AFB.

On 1 October 1991, the 1550 Combat Crew Training Wing (CTW) merged with the 1606 ABW to form the 542 CTW, the host organization at Kirtland AFB. The 542 CTW's operational mission was to train US Air Force helicopter and HC-130 crews and pararescue personnel for worldwide operations.

On 1 January 1993, the 542 CTW split from the host wing to once again become a separate flying training wing under the Air Mobility Command (AMC), formerly MAC. The 377 ABW was activated as the new host base wing, and Kirtland AFB was reassigned from AMC to the AFMC, headquartered at Wright-Patterson AFB in Ohio. The 542 CTW continued its role of training aircrews and pararescue personnel for worldwide duty with Air Force Special Operations Command (AFSOC) and Air Rescue Service. The 377 ABW supports the organizations at Kirtland AFB and continues to have a significant wartime mobility requirement in various critical specialties. In addition, Kirtland AFB continues to be one of the nation's leading research and development, testing, and evaluation facilities (Kirtland AFB, 2005a).

On 31 March 2006, the NWC was officially activated at Kirtland AFB. The 377 ABW now reports to the NWC. The activation of the NWC resulted in the activation of the 498 Armament Systems Wing, the 498 Nuclear Systems Group, the 498 Missile Sustainment Group (formerly the inactivated 498 Missile Sustainment Group), and the 498 Munitions Maintenance Group (formerly the inactivated 377

Maintenance Group). The 377 ABW remains Kirtland AFB's host organization, responsible for nuclear surety, expeditionary forces, and operating support for more than 100 associate units on base. The 377 ABW commander reports to the new center commander, who reports directly to the AFMC commander at Wright-Patterson AFB, Ohio. The NWC functions as a central organization for nuclear management and information. The US Air Force role regarding nuclear capability is to be the custodial agent with the NWC leadership at Kirtland AFB providing input into US Air Force nuclear policy, which in turn influences the DoD and national policy levels (Kirtland AFB, 2006b).

2.3 Summary of MEC-Related Activities

MEC-related activities at Kirtland AFB include development and testing of the proximity/variable time (VT) fuze and other ordnance at the New Mexico Proving Ground (NMPG), later known as the New Mexico Experimental Range (NMER). Other MEC-related activities also have been performed by DoD organizations at the former Sandia Base, which was merged into the current Kirtland AFB.

Active ranges at Kirtland AFB are not part of the MMRP and, therefore, were not included in this CSE Phase II investigation. Kirtland AFB's largest tenant, DOE/SNL, also has performed munitions-related activities on Kirtland AFB that also were not included in the CSE Phase II investigation. The following subsections contain additional information on the MEC-related activities at Kirtland AFB for those areas included in this investigation. The information found in the following subsections and in Sections 4 and 5 that pertain to MEC-related and historic munitions activities was summarized from the *Kirtland Air Force Base, Albuquerque, New Mexico, South Kirtland Air Force Base Operations Area, Operational History* (TLI, 2006).

2.3.1 NMPG/NMER – 1941 through 1952

The NMPG/NMER existed from 31 December 1941 to 30 June 1952, and was used to develop and test VT fuzes and other ordnance. During the initial development of the NMPG, it was located on a combination of private property, New Mexico Lands Commission property, and withdrawn National Forest lands. The NMPG/NMER was operated under contracts through several universities in New Mexico. The Office of Scientific Research and Development, and later the Navy's Bureau of Ordnance (BuOrd), were the responsible Federal government agencies. At the end of World War II, most of the land that made up the NMPG/NMER was acquired by the Federal government and today, most of the NMPG/NMER property lies within the boundaries of Kirtland AFB.

VT fuze development involved fuzes for rotated projectiles (artillery shells) and fuzes for non-rotated projectiles (bombs-rockets-mortars). The Navy sponsored the artillery fuze development and the Army sponsored the bomb, rocket, and mortar task. The Navy's BuOrd was responsible for the Navy's program and was charged with monitoring its development and procuring the fuzes for distribution to all branches of the armed services.

During the existence of the NMPG/NMER, the following guns were used in the research and development project: Navy 6 pounder, 5"/54, 5"/38, 3.7", 3.4"/92, 3.4"/97, 3.2"/65.5, 3.06", 3"/70, 3"/50, 120 millimeter (mm), 105mm, 90mm, 78mm, 76mm, 75mm, 58mm, 57mm, and smoothbore guns. In addition, the following rockets were used in the research and development project: 4.5" rockets, 5" rockets, and high velocity rockets. The explosives that were used, as listed in reports prepared under the NMPG/NMER research and development project, included: Explosive D, Royal Demolition Explosive (RDX), Composition A, black powder spotting charges, tetryl, high explosives (HE), and 2,3,6-trinitrotoluene (TNT) (USACE, 2001). Inert rounds were used as well. During NMPG/NMER testing, over 49,000 rounds of ordnance were fired (TLI, 2006).

2.3.2 Other DoD MEC-Related Activities

During the history of Kirtland AFB, numerous munitions related activities have taken place. These activities are related to both a normal US Air Force installation and to special defensive requirements brought about as a result of Kirtland AFB's special status with nuclear surety, and research and development activities. These activities have included training at Sandia Base as well as at Kirtland AFB to provide a defensive capability. The training utilized the following (TLI, 2006):

- Defense Training Areas
- Pistol, Skeet, Rifle, and Machine Gun Ranges
- Mortar Range
- Howitzer Range (75mm)
- Chemical Warfare Training
- Bombardier Training

It should be noted that although historical records indicate chemical warfare training was conducted at Sandia Base and Kirtland AFB, no evidence of Chemical Warfare Materiel (CWM) was identified during the CSE Phase II field investigation as described in Section 5.

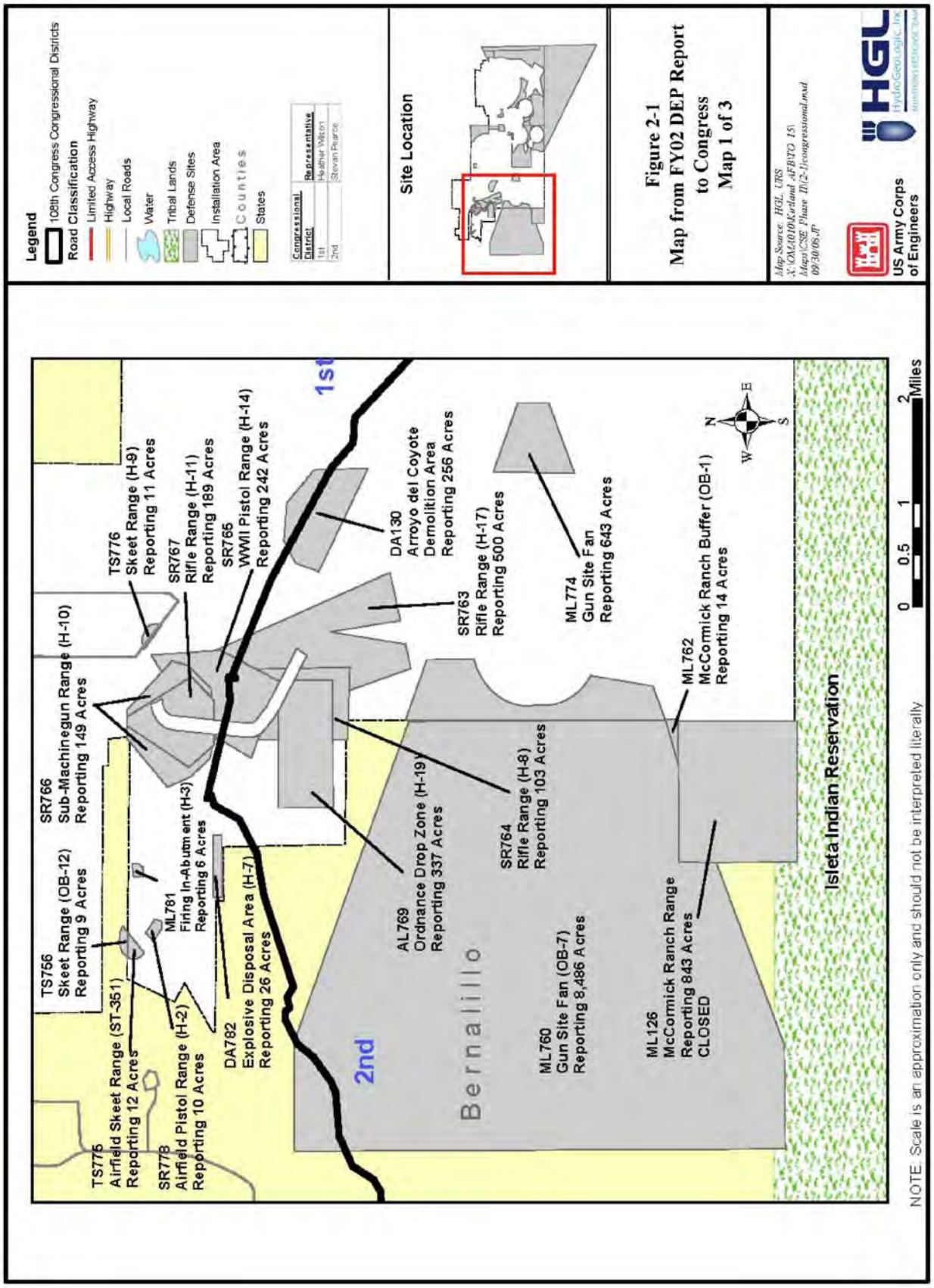
2.3.3 DOE/SNL MEC-Related Activities

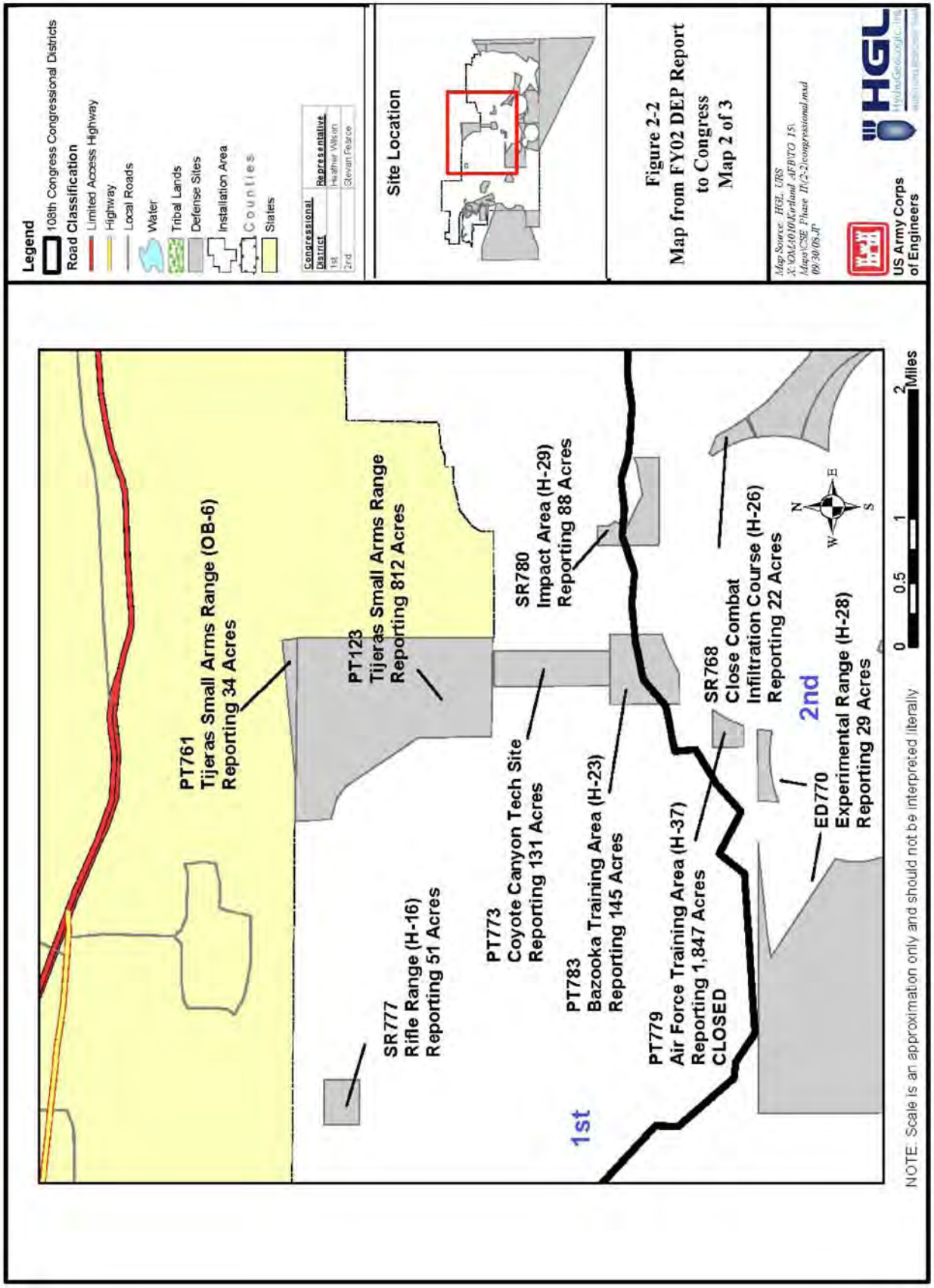
Kirtland AFB's tenant DOE/SNL became an entity in 1946 as a result of the Manhattan Project, and has conducted MEC-related and other hazardous waste generating activities at over 200 sites on Kirtland AFB. Responsibility for clean up of these sites falls upon DOE/SNL. Historically, the principal mission of DOE/SNL has been to provide technical expertise in the design, development, and testing of weapons for the nation's nuclear arsenal (TLI, 2006).

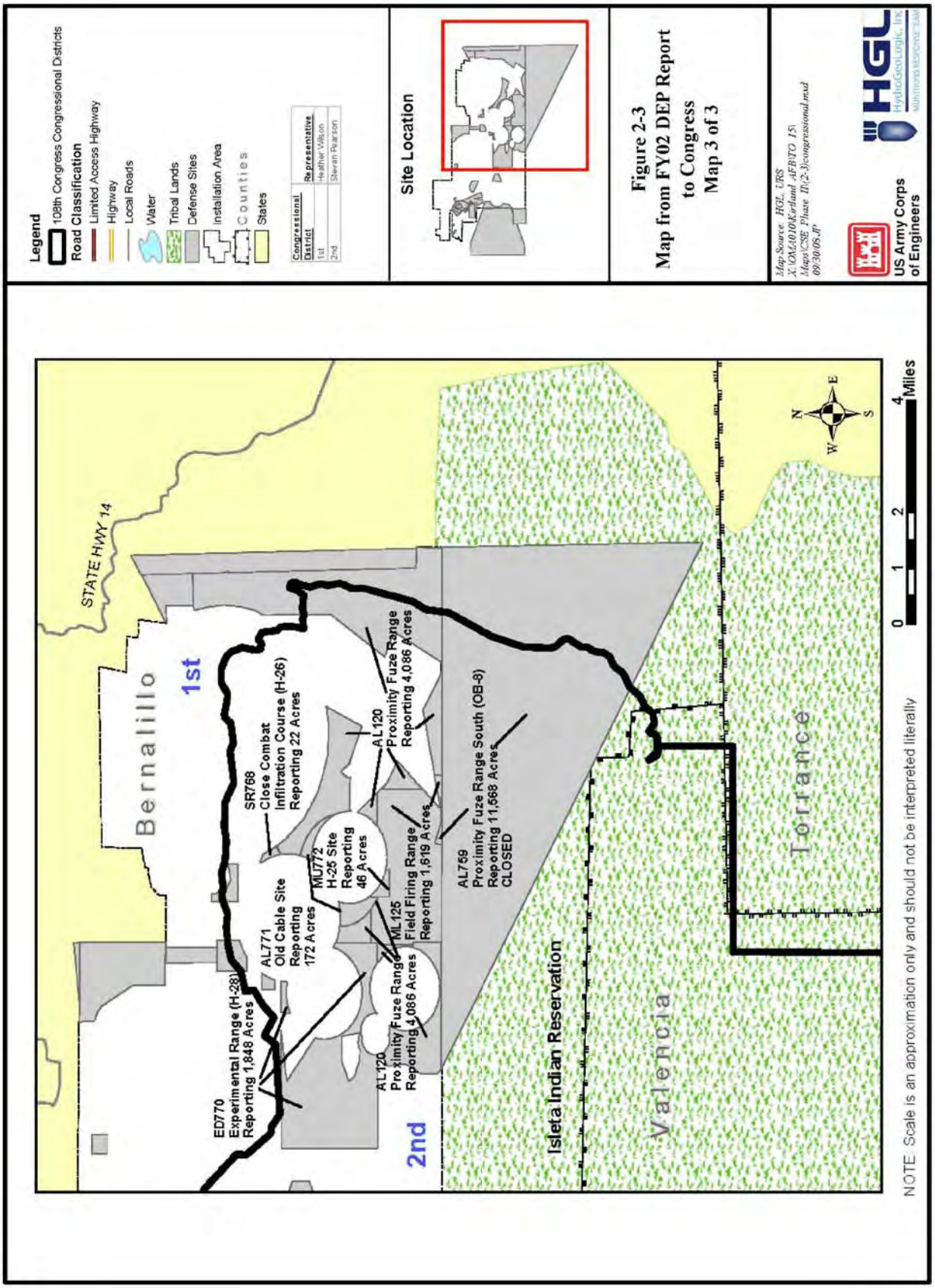
2.4 Identification of Munitions Response Areas (MRAs)

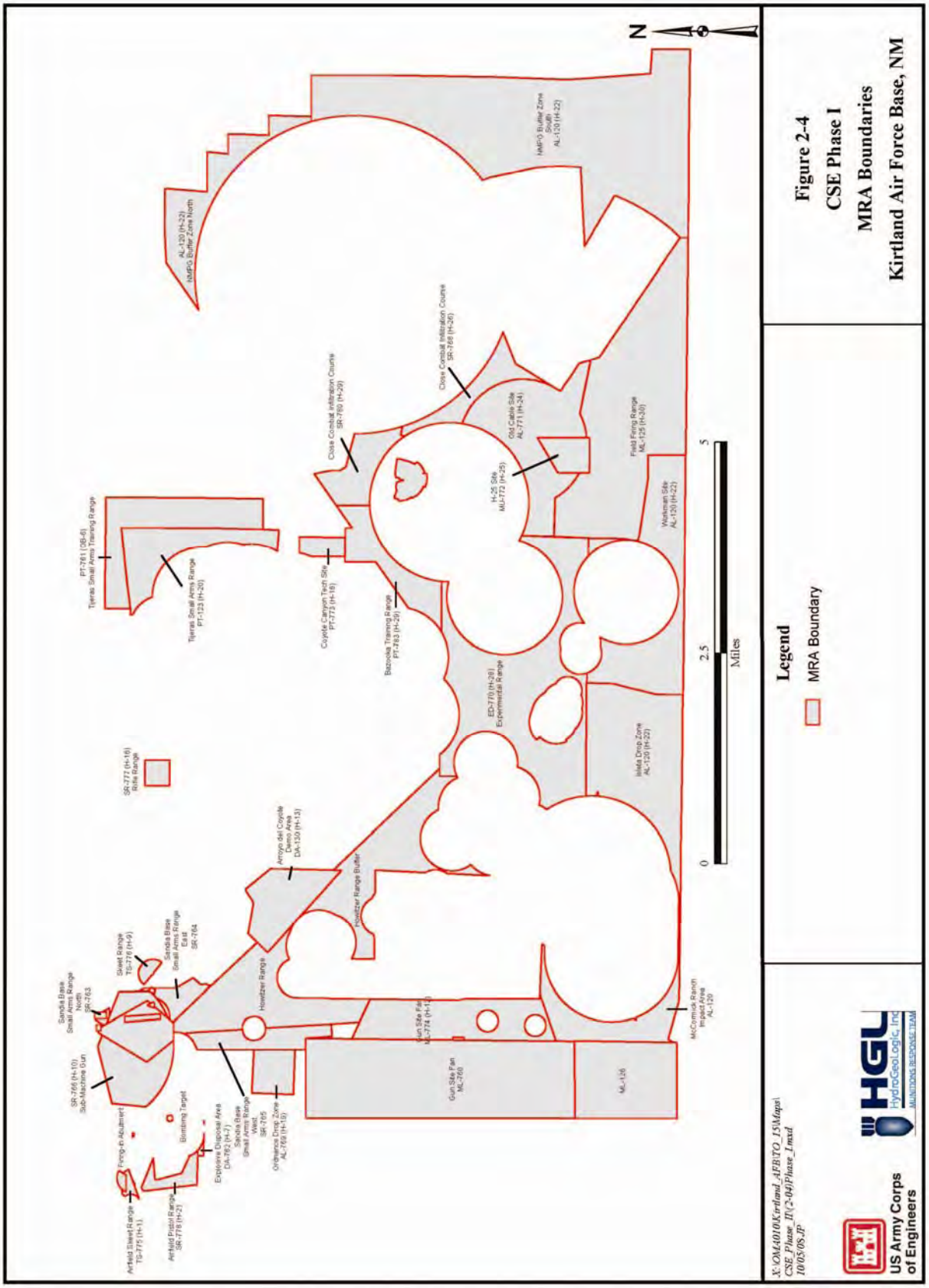
A total of 36 historical ranges were identified during a range inventory, however, some of the historical ranges overlapped one another, and in many cases, overlapped operational ranges. Although a final report for the range inventory for Kirtland AFB was not developed, range maps were prepared. The range maps were further refined by Shaw Environmental and Infrastructure, Inc. Portions of the historical ranges that did not overlap operational range areas were adopted as MRAs in the MMRP Site Inventory and updated annually in the Defense Environmental Programs Annual Report to Congress (Figures 2-1 through 2-3). As of 30 September 2005, DoD reported 33 MRAs at Kirtland AFB that required munitions response (DoD, 2005).

Under contract to USACE, Omaha District, USA Environmental (USAE) conducted the CSE Phase I, which evaluated a total of 26 MRAs (USAE, 2007). In addition to the 26 MRAs investigated under the CSE Phase I, an additional 5 MRAs were investigated as part of the CSE Phase II (Figures 2-4 and 2-5). One MRA, Skeet Range TS756, was determined to be eligible under the Formerly Used Defense Sites (FUDS) program and was not carried through the CSE Phase II. A total of seven MRAs associated with Kirtland AFB were not investigated due to their being closed under US Air Force MMRP or falling under FUDS (Table 2-1). Therefore, 31 MRAs were investigated for this CSE Phase II and are described in Table 2-2.


Legend
108th Congress Congressional Disitrcts
Road Classification
Limited Access Highway
Highway
Local Roads
Water
Tribal Lands
Defense Sites
Installation Area
Counties
States
Congressional District
Representative
1st
Heather Wilson
2nd
Steven Pearce
Site Location
Figure 2-1
Map from FY02 DEP Report
to Congress
Map 1 of 3
US Army Corps of Engineers
TS776 Sk eet Range (H-9) Reporting 11 Acres
SR767 Rifle Range (H-11) Reporting 189 Acres
SR765 WWII Pistol Range (H-14) Reporting 242 Acres
SR766 Sub-Machinegun Range (H-10) Reporting 149 Acres
TS756 Skeet Range (OB-12) Reporting 9 Acres
ML781 Firing In-Abutment (H-3) Reporting 6 Acres
DA782 Explosive Disposal Area (H-7) Reporting 26 Acres
TS776 Airfield Skeet Range (ST-351) Reporting 12 Acres
SR778 Airfield Pistol Range (H-2) Reporting 10 Acres
DA130 Arroyo del Coyote Demolition Area Reporting 256 Acres
SR763 Rifle Range (H-17) Reporting 500 Acres
ML774 Gun Site Fan Reporting 643 Acres
ML762 McCormick Ranch Buffer (OB-1) Reporting 14 Acres
AL769 Ordnance Drop Zone (H-19) Reporting 337 Acres
SR764 Rifle Range (H-8) Reporting 103 Acres
ML760 Gun Site Fan (OB-7) Reporting 8,486 Acres
ML126 McCormick Ranch Range Reporting 843 Acres CLOSED
1st
2nd
Bernalillo
Isleta Indian Reservation
0 0.5 1 2 Miles
NOTE: Scale is an approximation only and should not be interpreted literally


Legend
108th Congress Congressional Districts
Road Classification
Limited Access Highway
Highway
Local Roads
Water
Tribal Lands
Defense Sites
Installation Area
Counties
States
Congressional District
Representative
1st
Heather Wilson
2nd
Steven Pearce
Site Location
Figure 2-2
Map from FY02 DEP Report to Congress
Map 2 of 3
US Army Corps of Engineers
HGL
PT761
Tijeras Small Arms Range (OB-6)
Reporting 34 Acres
PT123
Tijeras Small Arms Range
Reporting 812 Acres
SR780
Impact Area (H-29)
Reporting 88 Acres
SR768
Close Combat
Infiltration Course (H-26)
Reporting 22 Acres
SR777
Rifle Range (H-16)
Reporting 51 Acres
PT773
Coyote Canyon Tech Site
Reporting 131 Acres
PT783
Bazooka Training Area (H-23)
Reporting 145 Acres
PT779
Air Force Training Area (H-37)
Reporting 1,847 Acres
CLOSED
ED770
Experimental Range (H-28)
Reporting 29 Acres
1st
2nd
0
0.5
1
2
Miles
NOTE: Scale is an approximation only and should not be interpreted literally


Legend
108th Congress Congressional Districts
Road Classification
Limited Access Highway
Highway
Local Roads
Water
Tribal Lands
Defense Sites
Installation Area
Counties
States
Congressional District
Representative
1st
Heather Wilson
2nd
Steven Pearson
Site Location
Figure 2-3
Map from FY02 DEP Report
to Congress
Map 3 of 3
Map Source: HGL, URS
X:\OAA010\Kirtland AFB\TO 15\
Maps\CSE Phase II\2-3\congressional.mxd
09/30/05 JP
US Army Corps
of Engineers
HGL
Hydro Geologic, Inc.
STATE HWY 14
Bernalillo
1st
2nd
Isleta Indian Reservation
Valencia
Torrance
ED770
Experimental Range (H-28)
Reporting 1,848 Acres
AL771
Old Cable Site
Reporting
172 Acres
SR768
Close Combat
Infiltration Course (H-26)
Reporting 22 Acres
MU772
H-25 Site
Reporting
46 Acres
AL120
Proximity Fuze Range
Reporting 4,086 Acres
ML125
Field Firing Range
Reporting 1,519 Acres
AL759
Proximity Fuze Range South (OB-8)
Reporting 11,568 Acres
CLOSED
0
1
2
4 Miles
N
E
S
W
NOTE: Scale is an approximation only and should not be interpreted literally


N
Legend
MRA Boundary
0
2.5
5
Miles
Figure 2-4
CSE Phase I
MRA Boundaries
Kirtland Air Force Base, NM
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc
X:\OM4010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\(2-04)Phase_I.mxd
10/05/05 JP
AL-120 (H-22) NMFG Buffer Zone North
NMFG Buffer Zone South AL-120 (H-22)
Close Combat Infiltration Course SR-768 (H-26)
Close Combat Infiltration Course SR-769 (H-29)
Old Cable Site AL-771 (H-24)
H-25 Site MU-772 (H-25)
Field Firing Range ML-125 (H-30)
Workman Site AL-120 (H-22)
PT-761 (H-6) Tijeras Small Arms Training Range
Tijeras Small Arms Range PT-123 (H-20)
Coyote Canyon Tech Site PT-773 (H-16)
Bazooka Training Range PT-783 (H-28)
ED-770 (H-28) Experimental Range
Inflata Drop Zone AL-120 (H-22)
SR-777 (H-16) Rifle Range
Arroyo del Coyote Demo Area DA-150 (H-13)
Howitzer Range Buffer
Sandia Base Small Arms Range North SR-763
Skeet Range TS-776 (H-9)
Sandia Base Small Arms Range East SR-764
Howitzer Range
Gun Site Fan ML-774 (H-12)
Gun Site Fan ML-768
ML-126
McCormick Ranch Impact Area AL-120
SR-766 (H-10) Sub-Machine Gun
Firing-in Abutment
Bombing Target
Explosive Disposal Area DA-762 (H-7)
Sandia Base Small Arms Range West SR-765
Ordnance Drop Zone AL-769 (H-10)
Airfield Skeet Range TS-775 (H-1)
Airfield Pistol Range SR-778 (H-21)

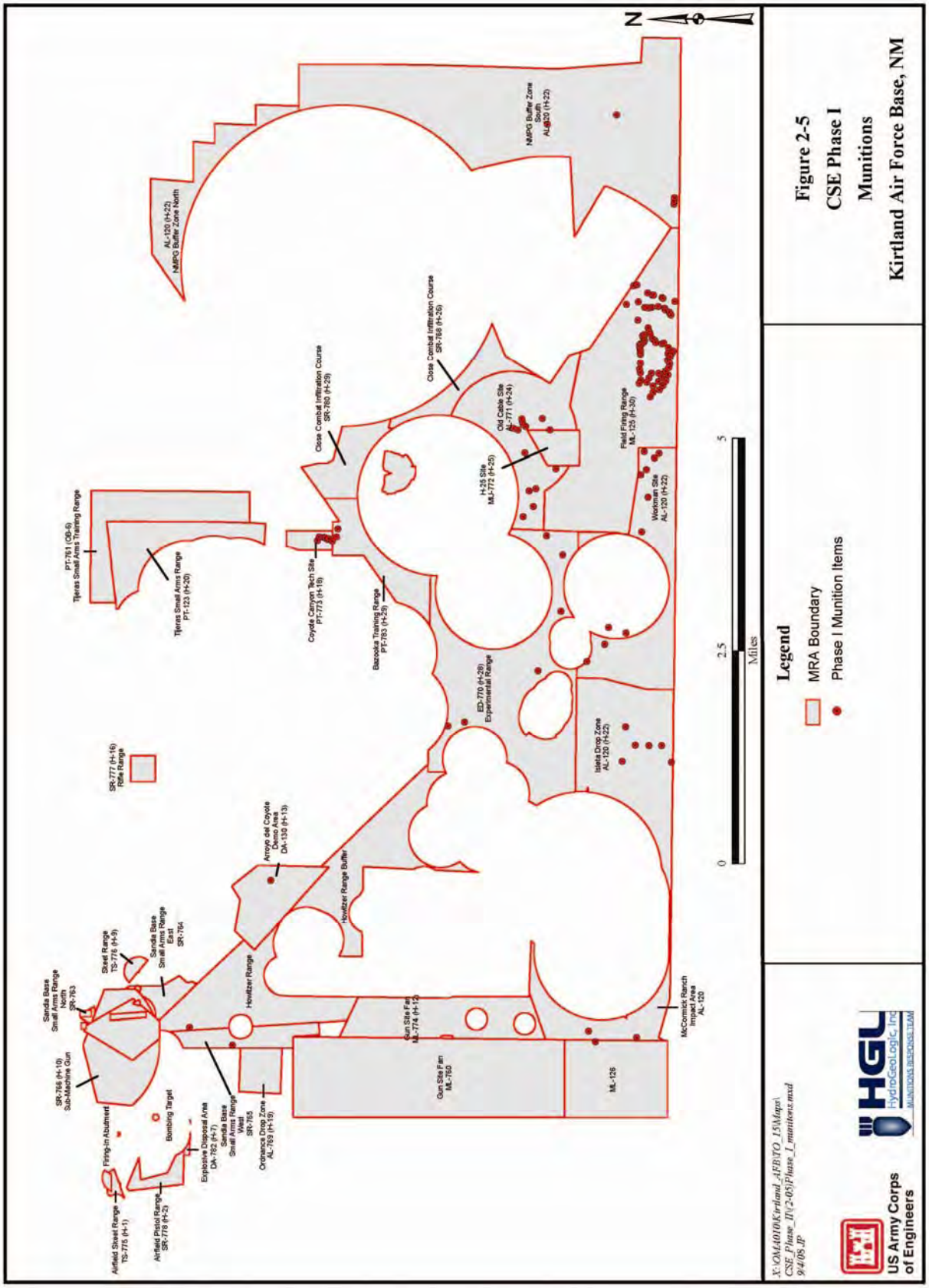

N
AL-120 (H-22)
NMPG Buffer Zone North
NMPG Buffer Zone South
AL-120 (H-22)
Close Combat Infiltration Course
SR-766 (H-26)
Close Combat Infiltration Course
SR-760 (H-29)
Old Cable Site
AL-771 (H-24)
H-25 Site
ML-772 (H-25)
Field Firing Range
ML-125 (H-30)
Workman Site
AL-120 (H-22)
PT-761 (OB-6)
Tijeras Small Arms Training Range
Tijeras Small Arms Range
PT-120 (H-28)
Coyote Canyon Tech Site
PT-773 (H-18)
Bazooka Training Range
PT-783 (H-29)
ED-770 (H-28)
Experimental Range
Isleta Drop Zone
AL-120 (H-22)
SR-777 (H-16)
Rifle Range
Arroyo del Coyote
Demo Area
DA-130 (H-13)
Howitzer Buffer
Sandia Base
Small Arms Range
North
SR-763
Steel Range
TS-776 (H-9)
Sandia Base
Small Arms Range
East
SR-764
Howitzer Range
Gun Site Fan
ML-774 (H-12)
Gun Site Fan
ML-760
ML-126
McCormick Ranch
Impact Area
AL-120
SR-768 (H-10)
Sub-Machine Gun
Firing-in Abutment
Bombing Target
Explosive Disposal Area
DA-782 (H-7)
Sandia Base
Small Arms Range
West
SR-765
Ordnance Drop Zone
AL-769 (H-19)
Airfield Steel Range
TS-775 (H-1)
Airfield Pistol Range
SR-778 (H-2)
0
2.5
5
Miles
Legend
MRA Boundary
Phase I Munition Items
Figure 2-5
CSE Phase I
Munitions
Kirtland Air Force Base, NM
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\(2-05)Phase_I_munitions.mxd
9/4/08 JP
US Army Corps
of Engineers
HGL
HydroGeoLogic, Inc.
MUNITIONS RESPONSE TEAM

Table 2-1. Kirtland AFB MRAs Not Investigated During the CSE Phase II

MRA ID	MRA Name	Status
AL757	Proximity Fuze Range North	FUDS Program
AL758	Proximity Fuze Range East	FUDS Program
AL759	Proximity Fuze Range South	Closed Under US Air Force MMRP
ML126	McCormick Ranch Range	Closed Under US Air Force MMRP
ML760	Gun Fan Site	FUDS Program
PT779	Air Force Training Area	Closed Under US Air Force MMRP
TS756	Skeet Range	FUDS Program

According to information provided in the CSE Phase I, HQ Air Force established a baseline range inventory for the US Air Force by fielding an US Air Force-wide range information data call and conducting installation site visits in 2001 (USAE, 2007). In an effort to update and validate initial range information, URS Corporation (URS), under contract with the Air Force Center for Engineering and the Environment (AFCEE), conducted a range inventory site visit at Kirtland AFB in August 2001.

Table 2-2. Kirtland AFB MRAs Investigated During the CSE Phase II

CSE Phase II Scoped Sites				
	MRA ID	MRA Name	AFRIMS Acreages	Site Description
1	*AL120	Proximity Fuze Range	4086.4	Air-to-Ground Range
2.	AL769	Ordnance Drop Zone	336.5	Air-to-Ground Range
3.	AL771	Old Cable Site	171.9	Air-to-Ground Range
4.	DA130	Arroyo del Coyote Demolition Area	255.5	Open Burn/Open Detonation (OB/OD) Site
5.	DA782	Explosive Disposal Area	25.8	OB/OD Site
6.	ED770	Experimental Range	1847.9	EOD Range
7.	ML125	Field Firing Range	1619.2	Multi-Use Range
8.	ML200	Sandia Base Howitzer Range	743	Medium/Large Caliber Range
9.	ML201	Sandia Base Howitzer Range Buffer	710	Medium/Large Caliber Range
10.	ML760	Gun Fan Site	8485.5	Medium/Large Caliber Range
11.	ML762	McCormick Ranch Buffer	14.4	Medium/Large Caliber Range
12.	ML774	Gun Site Fan	643.3	Medium/Large Caliber Range
13.	ML781	Firing-In Abutment	6.2	Multi-Use Range
14.	ML784	40mm Test and Training Range	150	Rifle Grenade Range
15.	MU772	H-25 Site	45.63	Multi-Use Range
16.	PT123	Tijeras Small Arms Range	811.5	Multi-Use Range
17.	PT761	Tijeras Small Arms and Training Range	34.2	Multi-Use Range
18.	PT773	Coyote Canyon Tech Site	130.5	Pyrotechnics Range
19.	PT783	Bazooka Training Range	147.7	Multi-Use/Training and Maneuver Area
20.	SR763	Rifle Range	499	Small Arms Range
21.	SR764	Rifle Range	103.4	Small Arms Range
22.	SR765	World War II (WWII) Pistol Range	242.2	Small Arms Range
23.	SR766	Sub-Machine Gun Range	148.7	Small Arms Range
24.	SR767	Rifle Range	188.5	Small Arms Range
25.	SR768	Close Combat Infiltration Course	22.3	Multi-Use Range

Table 2-2. Kirtland Air Force Base MRAs Investigated During the CSE Phase II (Concluded)

CSE Phase II Scoped Sites				
	MRA ID	**MRA Name**	**AFRIMS Acreages**	**Site Description**
26.	SR777	Rifle Range	50.8	Small Arms Range
27.	SR778	Airfield Pistol Range	9.7	Small Arms Range
28.	SR780	Impact Area	88.3	Multi-Use Range
29.	TG100	Bomb Target	2.6	Air to Ground Range
30.	TS775	Airfield Skeet Range	12.3	Trap and Skeet Range
31.	TS776	Skeet Range	11.3	Trap and Skeet Range
* AL120 includes the five sites previously known as New Mexico Proving Ground Buffer Zone North, New Mexico Proving Ground Buffer Zone South, Workman Site, Isleta Drop Zone, and McCormick Ranch Impact Area.				

2.5 Identification of Munitions Response Site (MRS) Subdivisions

The CSE Phase I report did not include recommendations for subdivision of MRAs into separate MRSs.

2.6 Previous Investigations

The US Air Force developed the CSE process to serve as the initial munitions response action of its MMRP. The goal of the CSE is to obtain sufficient data to support US Air Force decision-making in regards to protecting human health and the environment by making land safe to reuse. Previous investigations are summarized below as they pertain to the MRAs included in the CSE Phase II investigation.

2.6.1 The 29000 Area Report, The New Mexico Proving Ground, The New Mexico Experimental Range, and the Development of Kirtland AFB, December 1998

This report, prepared by Argonne National Laboratory, presents the approximate boundary of the NMPG (Figure 2-6). From 1942 to 1952 this range was used for testing and development of the VT Proximity Fuze. Records indicate this area had in excess of 50,000 projectiles fired into it, and contains the largest quantity of MEC and munitions debris (MD) at Kirtland AFB (Argonne National Laboratory, 1998).

2.6.2 Sandia UXO High Explosives Survey Final Report, September 1994

The SNL Environmental Restoration (ER) Project office and the 377 Explosives Ordnance Disposal (EOD) Flight conducted a surface visual inspection at 89 Sandia ER sites between September 1993 and July 1994 (IT, 1994). A total of 2,200 acres were surveyed and live ordnance or HE was found at only 12 of the sites. MD was found at only 36 of the sites. Most munition items found were military in origin and determined not to be as a result of SNL activities. Of the 36 sites with MD, only 10 were determined to contain items relating to SNL activities. Although the report references several maps, none were included in the version of the document reviewed by HGL.

2.6.3 Proposal for No Further Action, Environmental Restoration Project Site 64, Gun Site (Madera Canyon) Operable Unit 1333, August 1995

Sandia's ER Site 64, Madera Canyon Gun Site, was used to fire 155mm base ejection rounds with classified payloads and 5" rockets at two separate targets (Figure 2-7). According to the report, two of the 155mm projectiles were unaccounted for (DOE/SNL, 1995). During the CSE Phase II Investigation,

HGL UXO teams located two 155mm base ejection rounds; one each in SR768 and SR780. Both projectiles had functioned as designed, deploying their payloads, and were empty when found. Based on the information in the Sandia ER Site 64 report depicted in Figure 2-7, it appears that the actual SR780 area is located within an active range fan at Kirtland AFB. As such, the newly discovered area of SR780 would not be eligible under the MMRP. Therefore, as will be discussed in Section 5.28, the existing SR780 area should be incorporated into AL120 Northcentral. This recommendation will be further discussed in Sections 13 and 14.

2.6.4 FUDS Archives Search Report Findings for the Former Isleta Pueblo Ordnance Impact Area, USACE, January 2001

The Isleta Pueblo Ordnance Impact Area is an extension of Kirtland's NMPG firing fans as illustrated in Figure 2-8 (USACE, 2001). A preliminary joint investigation by Air Force EOD and USACE identified projectiles on the western portion of Isleta Pueblo. The projectiles were attributed to firing points on Kirtland AFB used from 1942 through 1952, as Isleta Pueblo never had firing positions or targets. All rounds were considered to have been as a result of projectiles overshooting the targets located at ML125.

2.6.5 Congressional Defense Site Detail Maps, FY02

Maps presented as Figures 2-1 through 2-3 were prepared and submitted to Congress as a basis to justify the funding for remediation of Kirtland's MMRP sites. These maps served as the basis for the starting point of the CSE Phase I Investigation's MRA boundaries shown in Figure 2-4.

2.6.6 Orthophotography and LiDAR Terrain Data Collection, Kirtland AFB Final Report, (Sky Research for USACE, Omaha), June 2006

In March 2006, after the completion of the CSE Phase I field investigation, the US Air Force began MMRP Wide Area Assessment (WAA) data collection efforts at Kirtland AFB. The WAA serves as both a technology evaluation and a characterization tool for assessment of MRAs currently in the US Air Force MMRP site inventory. The airborne characterization technologies deployed during the WAA include digital high-resolution color orthophotography (Orthophotography) and light detection and ranging (LiDAR). Orthophotography and LiDAR data are combined to produce high-resolution imagery with high-accuracy horizontal positioning capable of identifying surface features associated with munitions activities (e.g., craters, berms, etc.). The WAA data collection effort included orthophotography of approximately 30,645 acres and LiDAR survey of approximately 30,595 acres associated with Kirtland AFB.

Data collected during the WAA were used by the US Air Force in conjunction with the CSE Phase I data to scope the CSE Phase II efforts, develop defensible cost/schedule estimates for each MRA, provide valuable information for determining the most applicable removal methodologies, and assist in removing MRAs from the USAir Force MMRP site inventory.

The final *Orthophotography/LiDAR Report* (USACE, 2006) identified 13 areas of interest, including:

- Three high-confidence areas, totaling 4,856 acres, where historical evidence and WAA analysis indicate a high probability of MEC impact or contamination.
- Five low-confidence areas, totaling 1,817 acres, where WAA data suggests that MEC impact or contamination may exist.
- Five reconnaissance sampling areas, totaling 2,610, where historical evidence does not indicate a significant probability of MEC contamination and the weight of the WAA evidence indicates a moderate-to-low possibility of contamination.

WAA findings relevant to the MRAs under investigation as part of the CSE Phase II are further discussed in Section 5.

2.6.7 FUDS Preliminary Assessment Report for the Former Kirtland Air Force Base Gun Site Fan OB-7, USACE, July 2007

According to this FUDS report, Gun Site Fan OB-7 was a firing fan originating in DOE's Tech Area III, and was oriented to the west (USACE, 2007). This firing fan impacts the boundaries of five MRAs (AL120, ML200, ML760, ML762, and ML774). Originally investigated by USACE, Albuquerque District, OB-7 was officially assigned FUDS status. The report discounts OB-7 as actually ever being used, and questions if it ever officially existed. No MEC or MD has been found (on- or off-base) attributable to OB-7. This report accounts for the 8,400+ acres assigned to ML760 in AFRIMS. Although several versions of maps exist for this area, they are not consistent and none of the maps found match current MRA boundaries or Isleta Pueblo's northern boundary.

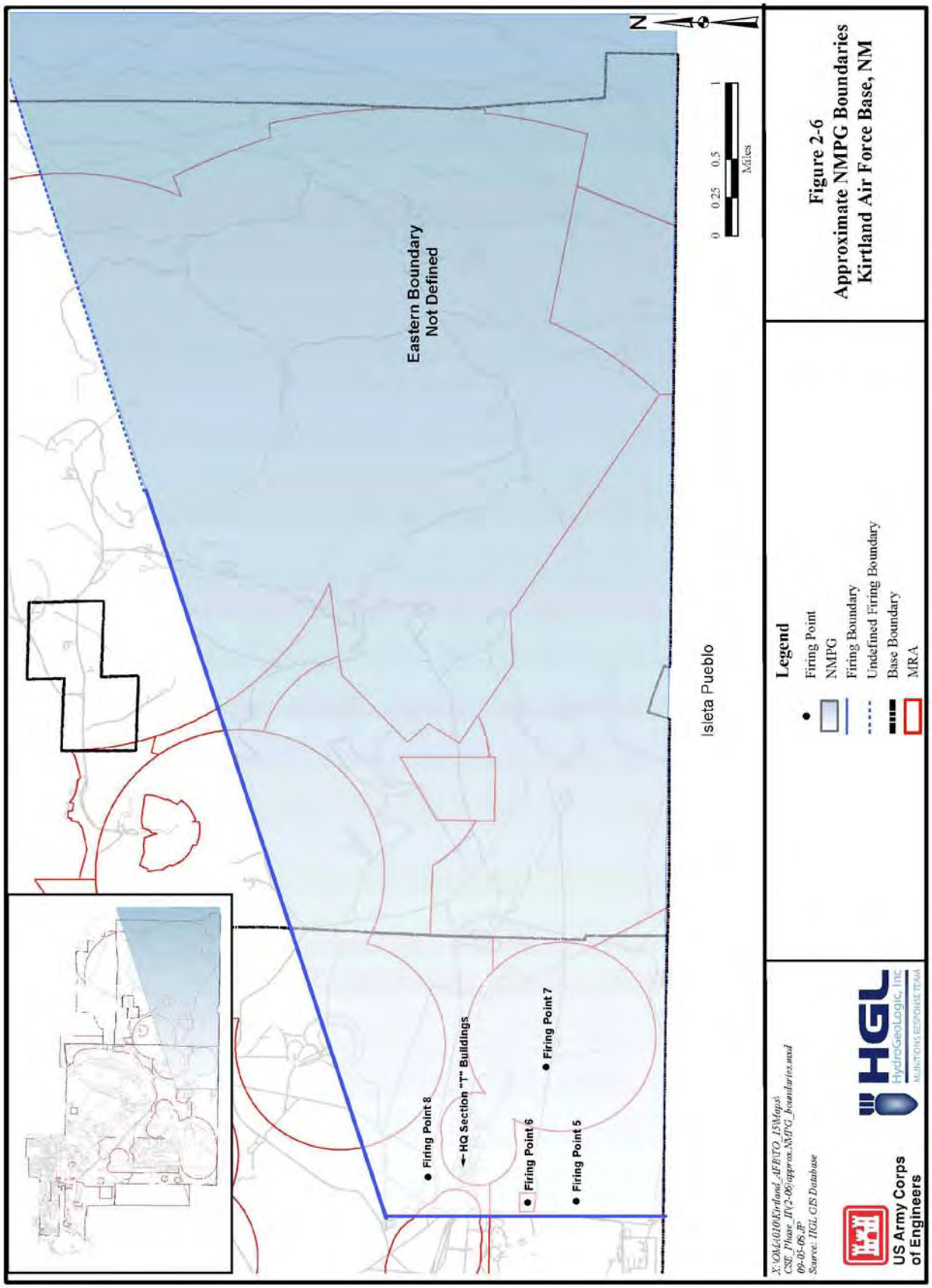


Figure 2-6
Approximate NMPG Boundaries
Kirtland Air Force Base, NM

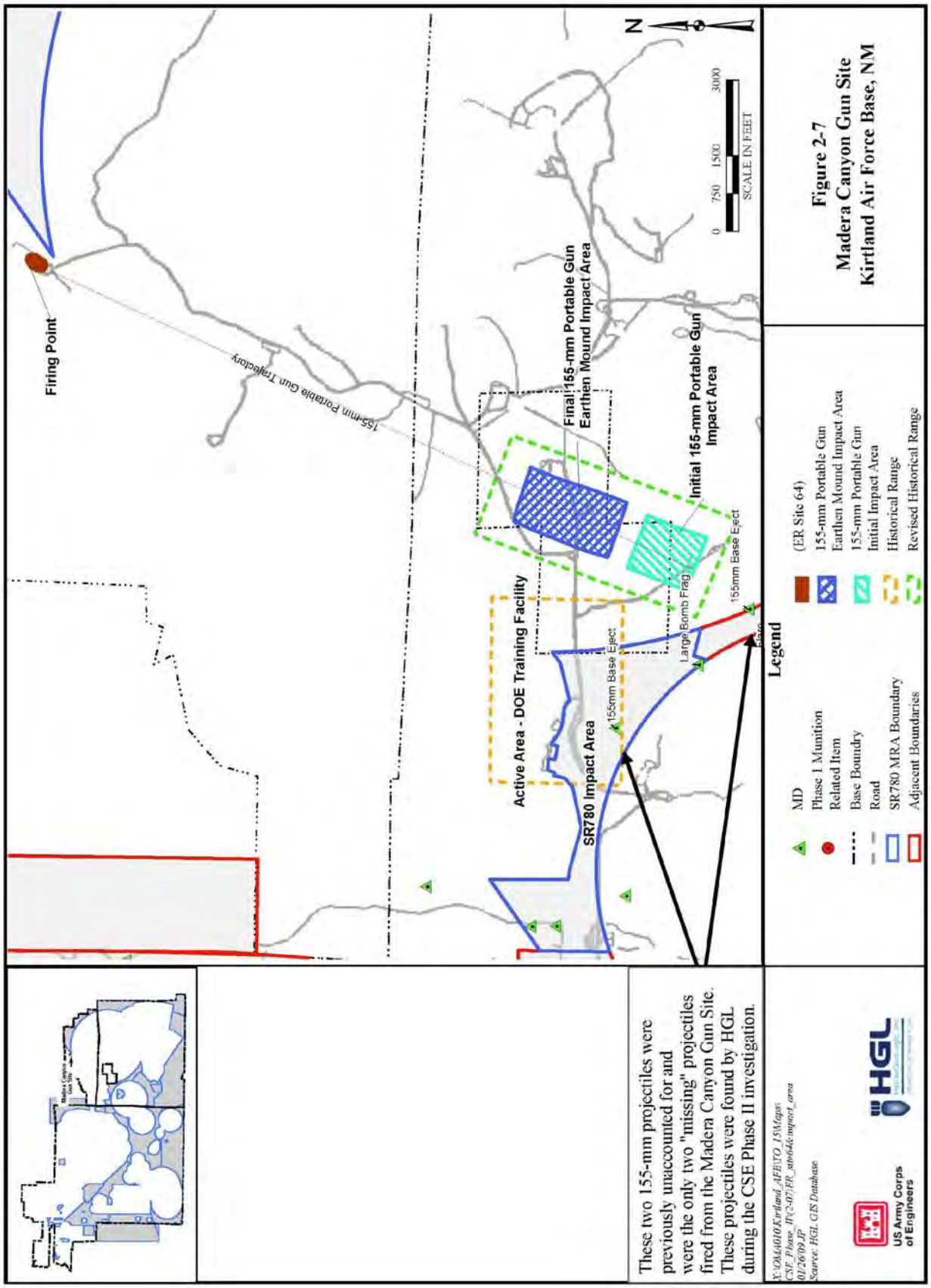


Figure 2-7
Madera Canyon Gun Site
Kirtland Air Force Base, NM

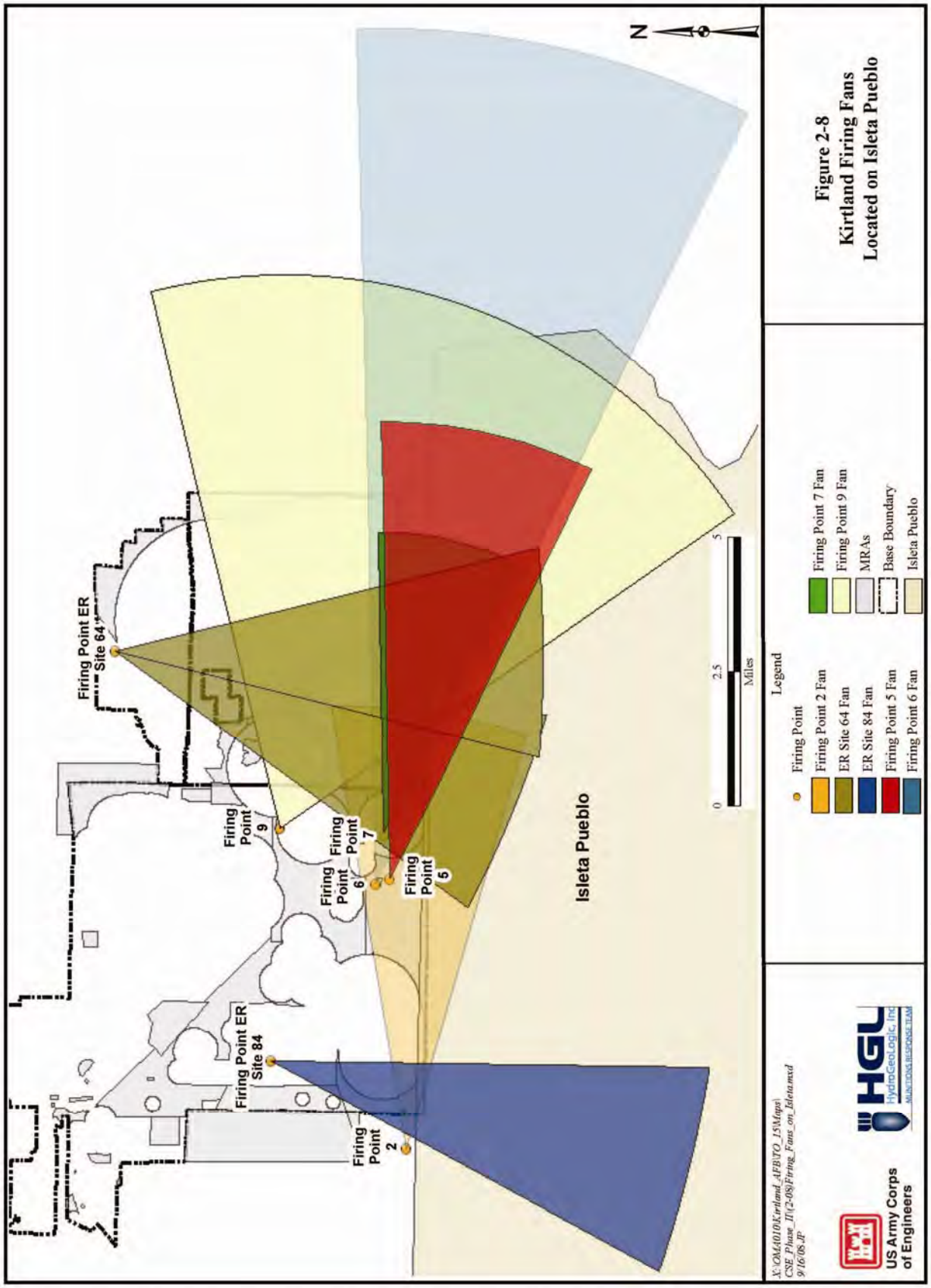


Figure 2-8
Kirtland Firing Fans Located on Isleta Pueblo

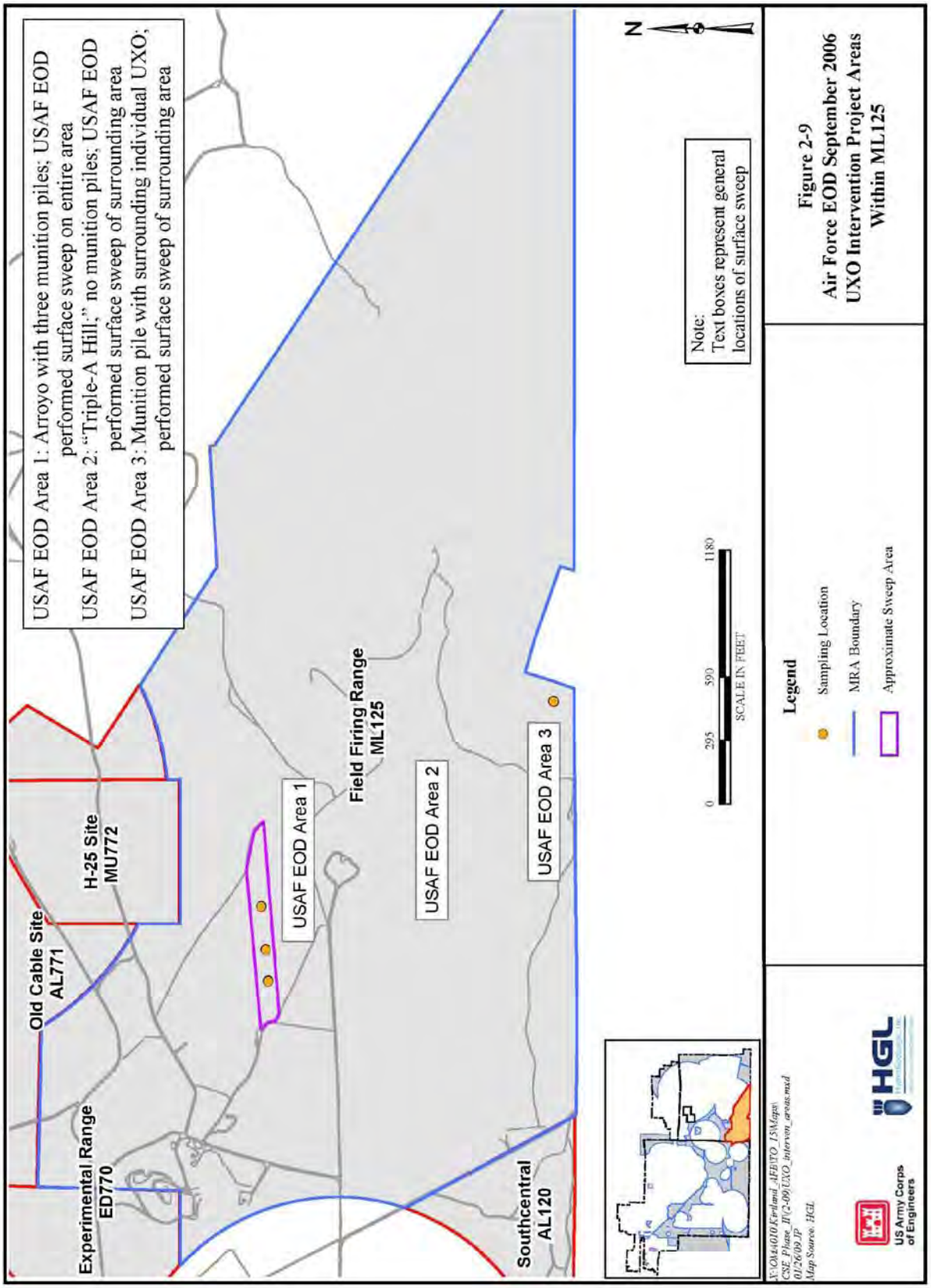


Figure 2-9
Air Force EOD September 2006 UXO Intervention Project Areas Within ML125

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3. PHYSICAL AND ENVIRONMENTAL SETTING

3.1 Climate

The climate of Kirtland AFB and the surrounding vicinity is classified as "arid continental." The mean annual precipitation is 8.4 inches and the mean annual snowfall is 1.25 inches. The average monthly precipitation in the Albuquerque area varies from less than 1 inch during November through March to over 1.25 inches in July and August. Winters are typically dry with monthly snowfalls seldom exceeding three inches. Snow generally melts within 24 hours outside of the mountain areas. Typically, summer rains in the form of brief, but locally heavy thunderstorms account for almost half of the annual moisture. Potential evapotranspiration (evaporation occurring when no soil-water deficit exists) for the Albuquerque area is 30.9 inches. Actual evapotranspiration has been determined to be about 95 percent of precipitation in the climatic regime, with the remaining five percent divided equally between runoff and recharge (Kirtland AFB, 2004).

3.2 Topography

Kirtland AFB lies along the eastern margin of the Albuquerque basin and on part of the central Rio Grande rift. The eastern portion of the base rises into the Manzanita Mountains, where elevations reach 7,900 feet (ft) above mean sea level (msl). Land elevations in the western portion of the base near the airport are approximately 5,300 ft above msl. Topography of most of the site is level to gently sloping, with occasional washes for seasonal drainage. However, the eastern area of the Installation contains sharp-crested hills, rocky outcrops, and canyons in and around the Manzanita Mountains (TLI, 2006).

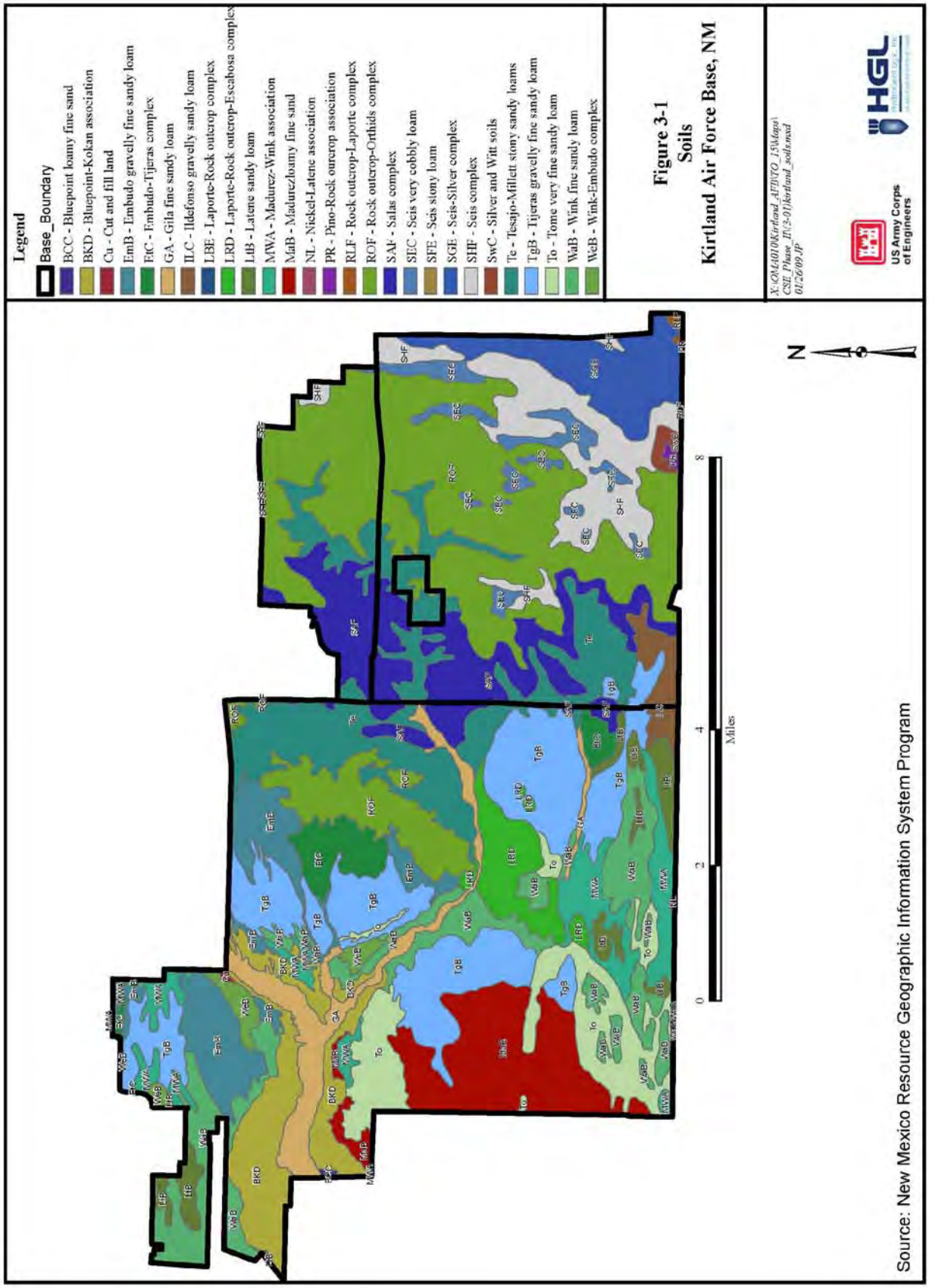
3.3 Hydrology

The surface water system within the Kirtland AFB area consists primarily of ephemeral streams or arroyos, which lose water through channel losses that contribute to groundwater recharge. These drainages potentially influence the shape of the water-surface profile of the underlying aquifer. There are several known springs, all downstream of the Manzano Mountains and tributaries to Arroyo del Coyote. The major surface drainages include the Tijeras Arroyo, Arroyo del Coyote, and an unnamed drainage south of Arroyo del Coyote. Except for two short reaches of channels, these drainages are all ephemeral within Kirtland AFB. Floods and runoff occur mostly during the summer thunderstorm season (July through September). The snow in the Manzano Mountains can produce localized runoff, which rarely reaches the lower portions of the arroyos or the Rio Grande Valley.

3.4 Soil and Vegetation Types

Surface soils consist predominantly of well-drained gravelly sands containing varying amounts of silts and clays (Figure 3-1). The following associations and their geologic attributes have been mapped within the Kirtland AFB boundaries:

- Deep soils on flood plains and dissected terraces:
  - Gila-Vinton-Brazito Association, consisting of well-drained loamy soils.
  - Bluepoint-Kokan Association, consisting of sandy, gravelly soils.
- Deep soils on alluvial fans, mesas, and piedmonts:
  - Madurez-Wink Association, consisting of well-drained loamy soils.
  - Tijeras-Embudo Association, consisting of well-drained, loamy, gravelly soils.
- Shallow to deep soils on mountains and foot slopes:
  - Seis-Orthids Association, consisting of loamy, stony, cobbley soils.
  - Kolob-Rock Outcrop Association, consisting of loamy, stony soils and rock.


Legend
Base_Boundary
BCC - Bluepoint loamy fine sand
BKD - Bluepoint-Kokan association
Cu - Cut and fill land
EmB - Embudo gravelly fine sandy loam
EtC - Embudo-Tijeras complex
GA - Gila fine sandy loam
ILC - Ildefonso gravelly sandy loam
LBE - Laporte-Rock outcrop complex
LRD - Laporte-Rock outcrop-Escabosa complex
LtB - Latene sandy loam
MWA - Madurez-Wink association
MaB - Madurez loamy fine sand
NL - Nickel-Latene association
PR - Pino-Rock outcrop association
RLF - Rock outcrop-Laporte complex
ROF - Rock outcrop-Orthids complex
SAF - Salas complex
SEC - Seis very cobbly loam
SFE - Seis stony loam
SGE - Seis-Silver complex
SHF - Seis complex
SwC - Silver and Witt soils
Te - Tesajo-Millett stony sandy loams
TgB - Tijeras gravelly fine sandy loam
To - Tome very fine sandy loam
WaB - Wink fine sandy loam
WeB - Wink-Embudo complex
Figure 3-1
Soils
Kirtland Air Force Base, NM
X:\OA4010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\2-01\kirtland_soils.mxd
01/26/09 JP
US Army Corps of Engineers
HGL
N
0
2
4
8
Miles
Source: New Mexico Resource Geographic Information System Program

The vegetation at Kirtland AFB consists of four main plant communities: grassland, piñon-juniper, ponderosa, and riparian/wetland/arroyo. These vegetative communities correspond closely with the accepted U.S. Forest Service plant community descriptions. Transitional areas are found between these communities and contain a mixture of representative species from the bordering areas. The piñon-juniper and grassland are the dominant vegetative communities at Kirtland AFB. The riparian/wetland/arroyo plant community is confined to isolated areas inundated by surface water most of the year and is therefore not considered a primary vegetative plant community (Kirtland AFB, 2006d).

3.5 Geology and Hydrogeology

The Kirtland AFB area is underlain by a complex geologic setting (Figure 3-2). The base is located within the Rio Grande Valley of the Mexican Highland subdivision of the Basin and Range Physiographic Province and the Albuquerque Basin. Within this area, Kirtland AFB occupies two physiographic subdivisions: the west front of the Sandia and Manzano Mountains, and the Sandia-Manzano Physiographic Piedmont Plain between the mountains and the inner portion of the Rio Grande Valley. The information for this subsection is taken from the 2005 update of the Management Action Plan (Kirtland AFB, 2005a), and Kirtland AFB's Emergency Response Program (ERP) Site Summaries, 2005 (Kirtland AFB, 2005b), which provides detailed geologic and hydrogeologic information for Kirtland AFB.

3.5.1 Geology

The geology of the Kirtland AFB area varies in accordance with the regional geology. The eastern mountainous portion is composed of Precambrian igneous and metamorphic rock (primarily granite) and Paleozoic sedimentary rock (primarily marine carbonates). The western portion of Kirtland AFB lies within the Albuquerque Basin. Geologic features in this area of the basin include travertine, unconsolidated and semi-consolidated piedmont deposits, as well as aeolian, lacustrine, and stream channel deposits. In general, the surficial geology is characterized by recent deposits (e.g., mixtures of sandy silt and silty sand with minor amounts of clay and gravel), Ortiz gravel (i.e., alluvial piedmont sand and gravel deposits), and the Santa Fe Group (i.e., a mixture of sand, silt, clay, gravel, cobbles, and boulders). Generally, the northern and western portions of Kirtland AFB are dominated by unconsolidated geologic units; consolidated units are predominate in the eastern half of the Installation. Kirtland AFB lies within the eastern portion of the Albuquerque Basin, which contains the through-flowing Rio Grande River. The basin is approximately 90 miles long and 30 miles wide. The deposits within the Albuquerque Basin consist of interbedded gravel, sand, silt, and clay. The thickness of basin-fill deposits in most of the basin exceeds 3,000 ft, though the thickness varies considerably because of the large amount of faulting in the basin.

Geologic materials of primary importance within the basin are the Santa Fe Group and the piedmont slope deposits. The Santa Fe Group consists of beds of unconsolidated to loosely consolidated sediments and interbedded volcanic rocks. The materials range from boulders to clay and from well-sorted stream channel deposits to poorly sorted alluvial fan deposits. Coalescing alluvial fans of eroded materials from the surrounding mountains were deposited unconformably over the Santa Fe Group, extending westward from the base of the Sandia and Manzano Mountains to the eastern edge of the Rio Grande River floodplain. The fan sediments range from poorly sorted mud flow material to well sorted stream gravel; the beds consist of channel fill and interchannel deposits. The fan deposits range in thickness from 0 to 200 ft and thicken toward the Sandia, Manzanita, and Manzano Mountains.

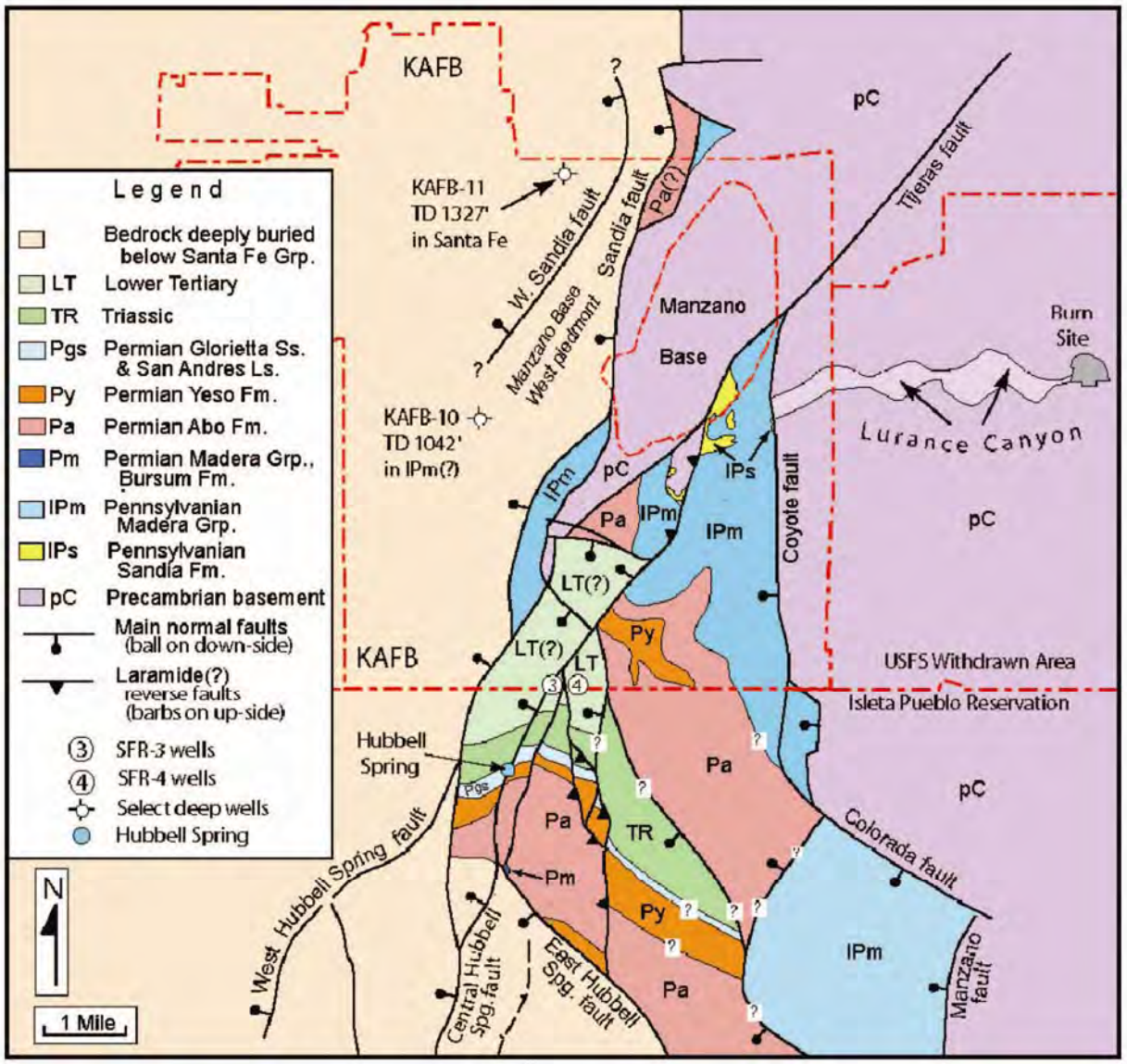


Figure 3-2
Regional Interpreted Bedrock Geology of Kirtland AFB and Vicinity

US Army Corps of Engineers

HGL

G:\GIS\Kirtland\soils_&_geology/(3-02)geologic
9-8-08 JP

Source: Modified from SNL, 2003

3.5.1.1 Regional Tectonic Setting

Kirtland AFB is located in the Albuquerque Basin of the Rio Grande Rift, a linear structure that extends from southern Colorado to Mexico and west Texas. The north-northwest trending basin has undergone several kilometers of east-west extension and subsidence over the past 30 to 40 million years. It is bordered by basement uplifts on the east, including the Sandia-Manzanita-Manzano-Los Piños uplifts. Several major rift-bounding faults are present at Kirtland AFB.

The base is positioned along the western edge of the Manzano uplift near a zone of pervasive faulting at the uplift margin. This fault zone is approximately 35 miles long and 2 miles wide. A number of major regional faults intersect within the area, resulting in a diverse pattern of fault trends and displacements. The Hubbell Spring fault is significant due to its apparent control over groundwater movement and exhibits outstanding fault scarps in the area. Due to the complexity of the fault systems at Kirtland AFB, the area has been segmented into four tectonic provinces.

From east to west, the provinces are:

- The uplifted margins of the Albuquerque Basin, where bedrock generally crops out and forms rugged topography. The uplifted terrain is highly segmented and includes elevated blocks of the Manzano Base (i.e., Four Hills) and the Manzanita Mountains.
- The Hubbell bench, which occupies an intermediate structural position between the Albuquerque Basin and the uplifts. Bedrock is generally buried by less than 200 ft of alluvium and is frequently encountered during well installation. A few scattered outcrops reveal that the bench has been beveled by erosion to deep stratigraphic levels.
- The Travertine basin, which developed within a zone of early Tertiary, Laramide-age shear on the western rim of the Hubbell bench.
- The eastern part of the Calabacillas sub-basin of the Albuquerque Basin, where bedrock is deeply buried below late Tertiary, Santa Fe Group alluvium and has been encountered by only a single deep well at Kirtland AFB.

3.5.1.2 Stratigraphy of the Kirtland AFB Area

The stratigraphic units that characterize the Kirtland AFB area are grouped into six major categories and described from oldest to youngest: (1) Precambrian basement complex, (2) Upper Paleozoic strata, (3) Upper Cretaceous strata, (4) Paleogene strata, (5) Neogene/Quaternary Santa Fe Group strata (Miocene through lower Pleistocene), and (6) Quaternary post-Santa Fe Group sediments (upper Pleistocene to Recent).

3.5.1.3 Geomorphology

Geomorphic features in the Kirtland AFB region include a series of complex coalescent alluvial fans and piedmont alluvium between the eastern margin of the Rio Grande Valley and the western slopes of the Sandia, Manzanita, and Manzano Mountains.

3.5.2 Hydrogeology

The groundwater system at Kirtland AFB and in the Albuquerque area lies within the Albuquerque Basin, also referred to as the Middle Rio Grande Basin. The basin is part of the Rio Grande Rift. As the Rio Grande Rift spread apart, creating various basins, the Albuquerque Basin is filled with sediments several miles thick, most of which are referred to as the Santa Fe Group. The unit consists of unconsolidated

sediments that thin toward the basin boundary. The edges of the basin are marked by normal faults. Overlying the Santa Fe Group are the Pliocene Ortiz gravel and Rio Grande fluvial deposits.

Generally, the upper unit of the Santa Fe Group contains the most productive portion of the regional aquifer that supplies groundwater to the City of Albuquerque and Kirtland AFB. The unit is characterized by piedmont slope, river, and flood plain deposits. The ancestral Rio Grande formed a large aggradational plain in the central basin, depositing a mix of coarse- to fine-grained sands, silts, and clays with variable bed thickness.

Basin-fill deposits make up the aquifer in the Albuquerque Basin. Hydraulic conductivity values range from 0.25 ft per day (ft/day) to 50.0 ft/day due to large variations in the lithology of the basin-fill deposits. Clay layers have relatively low hydraulic conductivity, whereas gravel and cobble deposits have relatively high hydraulic conductivity. Deposits of interbedded gravel, sand, silt, and clay have intermediate hydraulic conductivity.

This principal aquifer underlies Kirtland AFB, with the basin fill in this area consisting of unconsolidated and semi-consolidated sands, gravels, silts, and clays of the Santa Fe Group; alluvial fan deposits associated with erosion of upland areas; and valley alluvium associated with stream development. The alluvium varies in thickness from a few feet near the mountains on the east side of the base to greater than 2,100 ft at a location 5 miles southwest of the Albuquerque International Sunport. Depths to groundwater are generally less than 100 ft to the east of the Hubbell Spring fault.

Springs have been observed along the fault alignment. West of the fault, depths to groundwater abruptly increase to 400 ft and then 550 ft. There also are multiple shallow zones of perched water that may not be continuous at approximately 250 ft to 300 ft below ground surface.

The shallow or perched system is defined as a saturated zone and separated from the regional aquifer by an unsaturated interval. Lithologic and water chemistry data indicate that the perched aquifer might be composed of smaller, more discontinuous sand channels, whereas the regional unit is a larger, more consistent sand layer.

Regional groundwater flow is generally from the basin margins toward the basin center. Groundwater also flows south toward the Socorro Basin and southeast near the Jemez River. However, heavy pumping by Kirtland AFB and the City of Albuquerque has formed a depression, directing water toward the northwestern portion of the Installation. Flow directions observed within the regional aquifer at Kirtland AFB confirm these general flow directions. Water in the regional aquifer converges in the northwestern portion of Kirtland AFB between long term monitoring sites LF-008 and the sewage lagoons. In the southern portion, groundwater flows to the west from the Manzano uplift, and from the south into the central portion of Kirtland AFB.

3.5.2.1 Vadose Zone Hydrology

The vadose (or unsaturated) zone at Kirtland AFB is a significant part of the total hydrogeologic system. In this semiarid climate, the vadose zone thickness is generally quite substantial. Consequently, most contaminants released near the ground surface must travel a long distance before reaching the groundwater system. The vadose zone east of the Tijeras/Hubbell Spring/Sandia fault complex ranges from approximately 50 ft thick in the arroyos and valleys to several hundred ft thick near the faults. On the west side of the faults, the unsaturated zone is up to 500 ft thick.

3.5.2.2 Perched Zone Hydrology

Shallow saturation above the regional aquifer has been identified in the vicinity of the Tijeras Arroyo, above its confluence with Arroyo del Coyote, including the area beneath the active Kirtland AFB Landfill. This perched zone underlies a relatively large area extending from the Kirtland AFB Golf Course, northwest to the DOE/SNL Technical Area I, and west to the sewage lagoons.

Preliminary and update assessments were conducted by DOE/SNL in connection with the *Site-wide Hydrogeologic Characterization Project* in 1993 and 1994. The most recent information was elicited from a report on a model of a perched zone of saturation. The DOE/SNL groundwater model identifies the sources of recharge to the perched zone as the following: natural arroyo recharge, seepage from former sewage lagoons, golf-course irrigation, a former leaking pond at the golf course, irrigation at the parade grounds, and the acid-waste outfall. Less significant sources are leaky water mains and turf irrigation. According to the model, the perched water zone is currently shrinking in the west due to the absence of the former sewage lagoons as a water source, and is expanding in the east in response to ongoing water operations. The direction of groundwater flow in this zone appears to be to the south-southeast with a hydraulic gradient of about 0.01 percent slope.

Anomalous patterns in the regional groundwater contours indicate that the perched and regional groundwater systems merge in the Tijeras Arroyo groundwater area. The merge occurs where the fine-grained unit loses its aquitard-prone character so that the perched groundwater can migrate downward.

3.5.2.3 Saturated Zone Hydrology—Groundwater Flow Direction

The general direction of Santa Fe Group aquifer groundwater flow in the Albuquerque Basin is from the basin margins toward the basin center. On a local scale, the general groundwater flow direction in the center of the Kirtland AFB area is toward the west, but is largely uncharacterized because of the complex fault system of the area. The gradient direction moves toward the north near the western boundary of Kirtland AFB in response to groundwater withdrawal from Kirtland AFB and nearby Albuquerque water-supply well fields.

3.5.2.4 Hydrogeologic Regions

Kirtland AFB occupies an area that includes two different geologic environments separated by an assemblage of fault systems. These different geologic environments, as well as the area bounding the fault system, contribute different features to the local saturated zone setting. To reduce this area-wide complexity, the Kirtland AFB area has been divided into the following three hydrogeologic regions:

- Hydrogeologic Region 1 - A western area dominated by thick alluvial fill and evidence of additional north-south trending, west-dipping faults that have produced a series of downthrown-to-the-west bedrock steps.
- Hydrogeologic Region 2 - A middle area dominated by north-south trending, westdipping normal faults interconnected in some cases by subdued graben features and characterized by relatively shallow depth to bedrock.
- Hydrogeologic Region 3 - An eastern area of bedrock outcrops, representing uplifted terrain that exhibits fault displaced cements and fracture lineaments.

3.5.2.5 Geochemical Trends in the Regional Aquifer

Several water types are present in the Albuquerque Basin that represent different sources of recharge to the basin, including waters from the Rio Grande, the Tijeras Arroyo, Tijeras fault zone, and Eastern

Mountain Front. General characteristics of these waters are influenced by recharge from the Eastern Mountain Front, which occurs along the entire mountain front of the basin. This water type is characterized by relatively low specific conductance and chloride and is a calcium-sodium-bicarbonate type. Groundwater from the crystalline rocks of the Tijeras fault zone has mixed with water from the Eastern Mountain Front, resulting in groundwater with high conductance, chloride, and bicarbonate. Along the Tijeras Arroyo, groundwater is characterized by high conductance, sulfate, and nitrate and is a calcium-bicarbonate type. Waters influenced by recharge from the Rio Grande River are generally higher in silica and potassium, with calcium elevated related to sodium.

An evaluation of regional groundwater at Kirtland AFB demonstrates that two main water types are present, indicating different water sources. The major distinction observed at the sites is that groundwater in the southeastern portion of Kirtland AFB, including Manzano Landfill (LF-020) and Lake Christian (OT- 046), has a stronger sulfate and higher chloride signature and is present at elevations of 300 ft to 600 ft higher than the other regional groundwater at Kirtland AFB. Groundwater in the central portion of the Installation, including Landfill No. 2 (LF-002), Landfill Nos. 4, 5, and 6 (LF-008), the Tijeras Arroyo, Solid Waste Management Unit (SWMU) 8-28 (ST-250), and McCormick Ranch/Range (OT-028), has a consistent water type and flow direction, indicating that the aquifer is continuous from the southern and eastern areas into the central portion of Kirtland AFB. The groundwater in this area is generally dominated by calcium and bicarbonate. Results for samples from the Golf Course Main Pond wells (KAFB-0608, KAFB-0609, and KAFB-0610) appear to indicate that transitional groundwater is present, with sulfate concentrations that are intermediate between groundwater in the uplifted area and groundwater typical of the central portion of Kirtland AFB. The well at Radioactive Burial Site 11 (RW-06), KAFB-6301, has a stronger bicarbonate signature than other wells in this transitional region. Groundwater in the northwestern portion of Kirtland AFB (Landfill No. 1 [LF-001], Fire Training Area [FT-013], and Building 1033 [ST-341]) is similar to groundwater in the central portion, but has a slightly higher sodium/calcium ratio.

Groundwater in the northwestern portion of Kirtland AFB generally flows to the north and east, converging with the groundwater from the south and west in the north-central portion of the Installation. The chemical composition of groundwater in monitoring well KAFB-8351 at SWMU 8-35 (ST-214) does not fit into the chemical and geographic pattern observed in the other wells, and may represent a different water source.

Concentrations of iron, selenium, dissolved solids, and nitrate as nitrogen have been elevated in some wells at Kirtland AFB over the last few sampling events. Many of these detections can be explained in the context of site-wide and basin-wide water quality trends (iron, selenium, and nitrate as nitrogen). The water quality in the Albuquerque Basin has been degraded from the combined effects of decreasing water levels and increasing development. Low water conditions associated with less recharge and slower circulation in aquifer formations have been shown to result in groundwater with higher concentrations of dissolved solids. Elevated nitrate concentrations have been identified in the basin, which are the result of an increasing number of septic systems.

The quality of groundwater in the Albuquerque Basin is influenced by the effects of excess irrigation waters mixing with groundwater in the aquifer, in some cases resulting in higher dissolved solids concentrations. Sources of lower quality water in the basin include septic systems, residual minerals from evapotranspiration, urban runoff, and application of agricultural chemicals. Nitrates are of particular concern in the Albuquerque area as evidenced by a large zone of nitrate contamination along the Rio Grande River flood plain near Albuquerque. Nitrate concentrations have doubled and tripled between 1977 and 1990 from use of septic tanks. In some areas, the high nitrate levels have resulted in zones of low oxygen in the groundwater. Nitrates are consistently detected in groundwater samples collected from monitoring wells on Kirtland AFB and will continue to be monitored as part of current projects. The

nitrate contamination at Kirtland AFB could potentially be flowing into the groundwater at the depression area in the northwestern portion of the Installation. Heavy pumping of the groundwater by Kirtland AFB and the City of Albuquerque has caused this depression. Exceedances of drinking water standards have also been identified for dissolved solids, sulfate, chloride, iron, and manganese in eastern Bernalillo County. Concentrations of these constituents increased significantly during the 1990s as water levels in the area dropped. A major source of dissolved solids in the basin is reported to be calcite, gypsum, and halite in the basin-fill sediments. A study of water in the Tijeras Arroyo indicated that dissolved solids often exceeded 500 milligrams per liter.

A description of aquifers found in sediments that are generally resistant to weathering describes waters in the Santa Fe Group of the Albuquerque Basin. Some of the waters from this formation have low solids content resulting from interaction with silica-rich igneous rocks. However, the major ion concentrations found in groundwater from many of the Kirtland AFB wells, particularly those completed in the perched aquifer, may represent waters that come from an aquifer with sluggish circulation due to the decreasing water volumes, as evidenced by the lowering of water levels in these units. In these waters, flushing of solutes is retarded, resulting in higher concentrations of major ions and possibly trace metals.

Elevated iron concentrations have been reported in groundwater from the Santa Fe Group in the Albuquerque area. Based on sequential extraction analyses, it is reported that iron arises from geochemical exchange with the aquifer rock materials. Sediments from three wells completed in the Santa Fe Group were exposed to various reagents to mimic weathering in order to estimate water-soluble, ligand- or anion-exchangeable fractions, and those less-mobile fractions from metal oxides, sulfide, organic complexes, and silicates. The iron was primarily found in metal oxides and silicates. In contrast, iron from the lower Kachina Formation was primarily found in sulfide minerals.

Elevated concentrations of selenium have been detected in the groundwater underlying Kirtland AFB. Selenium has been studied extensively in the Central Valley of California and other arid environments similar to the Albuquerque Basin where high volumes of irrigation water are used. Selenium has been shown to mobilize from evaporite minerals, resulting in high concentrations in irrigation return flows. Selenium is not attenuated by the physical, chemical, and biological properties of the soil like other minerals in agricultural settings.

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4. INVESTIGATION SCOPE AND APPROACH

This section presents the details pertaining to the investigation scope and approach used during the Kirtland AFB CSE Phase II. Investigation methods and approaches described below were utilized in accordance with the approved CSE Phase II Work Plan (HGL, 2007). Qualified UXO technicians provided MEC/UXO avoidance for all ground-based work efforts during the Kirtland AFB CSE Phase II.

4.1 Site Reconnaissance

Initial site reconnaissance was conducted in December 2006 at the onset of the CSE Phase II. The objective was to facilitate the development of project planning documents by becoming familiar with the installation MRAs, verify CSE Phase I, formulate technical approachs for MRAs that would meet project goals and objectives, and determine the most appropriate sensors/platforms for conducting geophysical surveys. The site reconnaissance team included HGL's PM, MEC operations manager, and one UXO technician. The team also included one UXO Technician from USAE who performed the CSE Phase I field effort and was familiar with the MRAs and installation protocol, as well as the geophysical survey team lead from Sky Research.

4.2 Geophysical Surveys

Geophysical surveys were conducted at 20 MRAs. The objective of the geophysical surveys was to determine the approximate extent of subsurface anomalies and the relative density of subsurface anomalies across the MRA.

Due to varying topography and vegetation across Kirtland AFB, the geophysical surveys were performed using two different geophysical sensors on three different platforms, with each platform used in the terrain for which it was best suited. Geophysical platforms used include the Helicopter-Mounted Magnetometry (HeliMag), towed-array, and litter/cart.

Each MRA was characterized as thoroughly as possible, taking into consideration the terrain, vegetation, size, past munitions use, etc. Full-coverage surveys were performed in areas that were accessible with the HeliMag.

Table 4-1 lists the MRAs included in the CSE Phase II geophysical investigation, and indicates the geophysical method that was used for the survey. Figure 4-1 shows the entire Kirtland AFB with the MRAs and graphically illustrates the geophysical survey methods used at each site.

Table 4-1. Kirtland AFB MRAs Investigated Using Geophysical Methods

MRA ID	MRA Name	Site Description	HeliMag	DGM	No Geophysical Survey
AL120	Proximity Fuze Range	Air-to-Ground Range	X	X	
AL769	Ordnance Drop Zone	Air-to-Ground Range	X	X	
AL771	Old Cable Site	Air-to-Ground Range		X	
DA130	Arroyo del Coyote Demolition Area	Open Burn/Open Detonation (OB/OD) Site	X	X	
DA782	Explosive Disposal Area	OB/OD Site		X	
ED770	Experimental Range	EOD Range	X	X	
ML125	Field Firing Range	Multi-Use Range		X	
ML200	Sandia Base Howitzer Range	Medium/Large Caliber Range	X	X	
ML201	Sandia Base Howitzer Range Buffer	Medium/Large Caliber Range	X	X	
ML760	Gun Fan Site	Medium/Large Caliber Range	X		
ML762	McCormick Ranch Buffer	Medium/Large Caliber Range	X		
ML774	Gun Site Fan	Medium/Large Caliber Range	X		
ML781	Firing-In Abutment	Multi-Use Range		X	
ML784	40mm Test and Training Range	Rifle Grenade Range			X
MU772	H-25 Site	Multi-Use Range		X	
PT123	Tijeras Small Arms Range	Multi-Use Range		X	
PT761	Tijeras Small Arms and Training Range	Multi-Use Range		X	
PT773	Coyote Canyon Tech Site	Pyrotechnics Range	X	X	
PT783	Bazooka Training Range	Multi-Use/Training and Maneuver Area	X	X	
SR763	Rifle Range	Small Arms Range			X
SR764	Rifle Range	Small Arms Range			X
SR765	WWII Pistol Range	Small Arms Range			X
SR766	Sub-Machine Gun Range	Small Arms Range			X
SR767	Rifle Range	Small Arms Range			X
SR768	Close Combat Infiltration Course	Multi-Use Range			X
SR777	Rifle Range	Small Arms Range			X
SR778	Airfield Pistol Range	Small Arms Range			X
SR780	Impact Area	Multi-Use Range		X	
TG100	Bomb Target	Air to Ground Range	X		
TS775	Airfield Skeet Range	Trap and Skeet Range			X
TS776	Skeet Range	Trap and Skeet Range			X

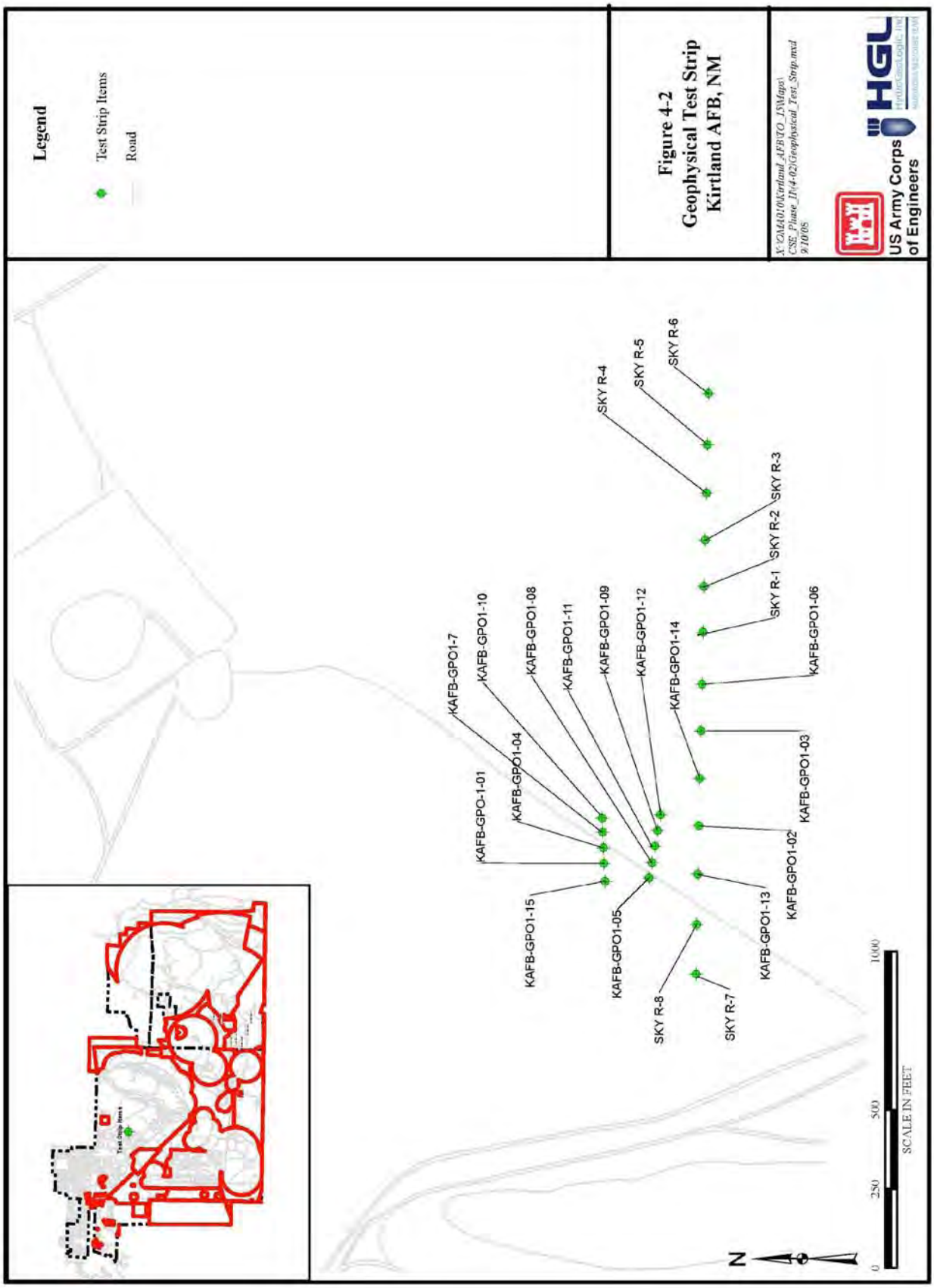
4.2.1 Geophysical Test Strip

Prior to conducting the geophysical survey, a site-specific geophysical test strip was established to test, evaluate, and demonstrate the capabilities of each geophysical system. Data collected during the test strip are presented in Table 4-2. Layout of the test area is depicted in Figure 4-2. The geophysical test strip consisted of 19 subsurface simulated MEC items placed in three east-west lanes (Figure 4-2).

Table 4-2. Geophysical Test Area Data

Point	Item	Depth (inches)	Orientation	Easting	Northing
KAFB-GPO1-01	75mm	15.00	Vertical	361172.01	3876783.94
KAFB-GPO1-02	75mm	32.50	Horizontal E-W	361208.04	3876693.01
KAFB-GPO1-03	75mm	36.00	45 Degree E-W Nose Down East	361299.43	3876691.10
KAFB-GPO1-04	60mm	12.00	Vertical	361187.03	3876784.57
KAFB-GPO1-05	60mm	13.00	Horizontal N-S	361158.25	3876740.70
KAFB-GPO1-06	60mm	28.00	45 Degree N-S Nose Down North	361344.18	3876690.01
KAFB-GPO1-07	40mm	8.00	Vertical	361201.95	3876785.16
KAFB-GPO1-08	40mm	8.50	Horizontal E-W	361172.91	3876738.15
KAFB-GPO1-09	40mm	9.50	45 Degree N-S Nose Down North	361203.72	3876732.60
KAFB-GPO1-10	20mm	3.00	Vertical	361215.69	3876785.87
KAFB-GPO1-11	20mm	5.00	Horizontal N-S	361188.83	3876735.15
KAFB-GPO1-12	20mm Casing	2.00	Horizontal E-W	361218.96	3876729.88
KAFB-GPO1-13	5" Shell	40.00	Horizontal E-W	361161.54	3876694.08
KAFB-GPO1-14	2.25" Rocket	24.75	Horizontal N-S	361253.64	3876692.13
KAFB-GPO1-15	Hand Grenade	12.38	Horizontal N-S	361154.97	3876783.02
SKY R-1	100lb Bomb	Flush	Horizontal N-S	361394.26	3876689.13
SKY R-2	60mm Mortar	Flush	Horizontal E-W	361438.13	3876688.04
SKY R-3	155” Rocket	Flush	Horizontal E-W	361482.55	3876686.80
SKY R-4	10" Metal Cache Box	Flush	NA	361528.09	3876685.80
SKY R-5	100lb Bomb	Flush	Horizontal E-W	361574.63	3876684.79
SKY R-6	60mm Mortar	Flush	Horizontal N-S	361623.64	3876683.83
SKY R-7	155” Rocket	Flush	Horizontal N-S	361065.57	3876695.74
SKY R-8	10" Metal Cache Box	Flush	NA	361113.15	3876695.09
NA – Not Applicaple					

Test strip data were analyzed to ensure each system met the performance requirements established for the geophysical survey. Proper dig permitting, authorization, and UXO avoidance was provided during test strip set-up activities, as well as during weekly equipment checks conducted by Sky Research. Calibration lines were surveyed by all sensors on a weekly basis. The weekly measurements provided a regular check to verify that the instruments were all operating accurately and the instruments, operators, and processers were all meeting DQOs. Appendix G contains field notes and results of equipment checks recorded during survey activities. These weekly tests were performed in addition to daily instrument checks completed at the start and end of each work day to ensure that the instruments were functioning properly.


Legend
Test Strip Items
Road
Figure 4-2
Geophysical Test Strip
Kirtland AFB, NM
X:\GM4010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\(4-02)Geophysical_Test_Strip.mxd
9/10/08
US Army Corps of Engineers
HGL
KAFB-GPO1-7
KAFB-GPO1-10
KAFB-GPO1-08
KAFB-GPO1-11
KAFB-GPO1-09
KAFB-GPO1-12
KAFB-GPO1-14
KAFB-GPO1-06
KAFB-GPO-1-01
KAFB-GPO1-04
KAFB-GPO1-03
KAFB-GPO1-15
KAFB-GPO1-05
KAFB-GPO1-02
KAFB-GPO1-13
SKY R-8
SKY R-7
SKY R-4
SKY R-5
SKY R-6
SKY R-3
SKY R-2
SKY R-1
N
0
250
500
1000
SCALE IN FEET

4.2.2 Geophysical Methodologies

HeliMag was normally utilized at larger MRAs with sparse or low-growing vegetation and where terrain was not a concern. When these features precluded safe flight and usable data for the HeliMag, the ground-based, towed-array platform was used. When the terrain or vegetation became too difficult or dense to navigate safely and obtain usable data with the towed-array, the two-person litter/cart was utilized.

4.2.2.1 HeliMag

HeliMag uses an array of seven Geometrics G-822 cesium vapor magnetometers spaced 1.5 meters apart, two global positioning system (GPS) antennas, and four acoustic altimeters mounted in a 9 meter-long boom constructed of Kevlar and carbon fiber. The boom is mounted forward of the MD50FF helicopter to minimize noise from the main rotor, engine, avionics, and aircraft body. Daily instrument checks were performed at the start and end of each work day to ensure that the instruments were functioning properly. Calibration lines also were surveyed by all sensors on a weekly basis. The weekly measurements provided additional verification that the instruments were all operating accurately and the instruments, operators, and processers were all meeting DQOs (Appendix G).

HeliMag normally flew the MRAs along their long dimension to maximize efficiency by minimizing the number of turns required. This survey method provided 100 percent coverage in areas surveyed. The HeliMag flew between 1.5 and 5 meters above the ground at speeds up to 40 knots. The pilot flew along predetermined survey lines aided by a pilot navigation system that displayed the current survey line and any deviations, along with relevant data needed to monitor the system (e.g., height above ground, boom attitude, etc.).

A hardware-based data acquisition system (HDAS) logged the data streams from the magnetometers and other system components (e.g., GPS, etc.) to individual sensor files written to the sensor operator's computer and provided real-time parameters to the pilot guidance system. The sensor operator monitored sensor readings and status via a graphical user interface.

4.2.2.2 Towed-Array

The towed-array, consisted of a Trimble AgGPS antenna mounted in the center of three Geonics EM61-MK2 metal detectors lined up to form a 3 by 0.5 meter coil and was towed behind a utility vehicle. This platform was capable of surveying between 5 and 20 acres per day depending on site conditions. The vehicle speed was between 1 to 2 miles per hour during survey activities. A software-based data acquisition system (SDAS) collected and displayed data from the sensors.

The towed-array normally covered 10 percent of the MRAs by following transects spaced 30 meters apart. After establishing a baseline in each MRA, a navigation system projected the path for each transect. A small screen and light bar provided course corrections to keep the system on track. The site boundaries were marked prior to surveying.

4.2.2.3 Litter/Cart

For the litter/cart, the EM61 coil was suspended from two fiberglass poles carried by geophysical survey personnel. The Trimble AgGPS was mounted over the center of the coil and provided positioning data. The SDAS collected and displayed survey data.

In keeping with the 10 times the sensor width transect spacing, the transect spacing for the litter/cart was reduced to 10 meters. Personnel had to carry the equipment; therefore, the Trimble AgGPS heads-up display was not used. Instead, additional personnel walked in front and to the side of the survey crew.

4.2.3 Geophysical Survey Objectives

As discussed in Section 4.2, the objectives of the geophysical surveys were to determine the approximate extent of the subsurface anomalies and relative density of subsurface anomalies across the MRA. This was accomplished by developing anomaly density maps from the processed geophysical data. These color-coded maps (see Section 5) provide a quick assessment of relative density of anomalies across the MRA and provide a basis for estimating the extent of the MRA by noting where anomaly densities significantly decrease on the border of the MRA. These data, combined with historical, visual surveys and ground truthing results (see Section 5), provide significant information for the overall assessment of the MRA with respect to past MEC usage and recommendations for future munitions response actions. Knowing the approximate extent and relative density of anomalies will assist in determining the scope (including technologies and methodologies), cost, and schedule for future munitions response actions, if warranted.

4.2.4 Relative Density of Anomalies

The anomaly density maps discussed above were developed by inputting anomaly locations into an anomaly density model. Linear anomaly density distribution between identified anomalies was assessed and the color-coded anomaly density maps were generated.

Criteria for selecting anomalies are included below. The intent of the criteria utilized was to maximize the identification of all subsurface anomalies while filtering out background noise and its associated false negatives.

Magnetic anomalies

- Amplitude greater than 5 nano-Tesla (nT) above background
- Anomaly dipolar in nature
- Anomalies associated with large geologic features are removed
- Anomalies associated with cultural features are removed

EM anomalies

- Amplitudes for all four channels must exhibit decay
- Profile must have a steep bell-shaped curve
- Anomalies associated with cultural features are removed

Anomaly density maps for each MRA are presented in Section 5.

4.3 Visual Surveys

Visual survey activities included areas that were not surveyed with the HeliMag, towed-array or litter/cart. The field team performed visual surveys to characterize the site as well as identify and confirm the presence of MEC and munitions-related items. Summaries of the amount of area covered and the findings from the visual surveys can be found in Section 5 for each MRA.

Each visual survey field team was equipped with the Trimble GeoXT GPS/Data Collection tool. Visual survey teams used the automatic GPS tracklog feature to record the actual paths traversed during the visual survey. Locations of important items of interest also were recorded in the GPS as well as other visual

indicators, such as surface depressions, that are potential indicators of OB/OD areas and potential UXO/DMM burial trenches or pits. A handheld metal detector was used for safety during the visual surveys.

At the end of each workday, the field team downloaded and transferred the electronic survey data to the Geographic Information System (GIS) manager. The GIS manager downloaded and retained the electronic data in the GIS Server. The GIS Manager incorporated the electronic data into the Kirtland AFB CSE Phase II GIS project and composed maps to graphically represent the survey data. Electronic survey data maps were retained in the HGL GIS server. The visual survey results are found in Section 5.

4.4 Ground Truthing

Ground truthing efforts were conducted after all geophysical results were compiled and mapped. UXO technicians utilized a meandering path approach to characterize the site conditions of the HeliMag, towed-array, and litter/cart geophysical areas. Similar to visual survey efforts, a handheld metal detector was used for safety. The field team recorded other visual indicators such as surface depressions and non-MEC related items that could be the likely source for anomalies (e.g., fencing, metal signage, etc.). The ground truthing results are presented in Section 5.

4.5 Environmental Media and Sampling Analysis

Limited soil sampling was conducted at selected small arms range (SAR) and non SAR sites. At SAR sites, a combination of in situ and ex situ sampling and analysis was conducted using X-ray fluorescence (XRF) Direct Reading technology for analysis of lead. A NitonTM XLi/XLp 300 series with a 40 millicurrie Cd-109 source was used for field screening soil concentrations of lead. The two SARs designated as skeet ranges also were sampled for polycyclic aromatic hydrocarbons (PAHs) using USEPA Method 8270 by fixed-base laboratory analysis. At non SAR sites, MC samples were collected only near significant finds of MEC, concentrations of MD, suspected detonation sites and storage bunkers. Qualified UXO Technicians provided MEC/UXO avoidance for all field sampling activities.

Surface soil samples were collected to determine if MC had been released to the environment. Surface water, sediment and groundwater sampling and analysis were determined not necessary based on interim conceptual site models included in planning documents (HGL, 2007). Surface soil sample results were used to determine if further investigations were needed. Subsurface soil samples were collected as needed.

Table 4-3 summarizes the analyte list and laboratory methods used to analyze samples collected at Kirtland AFB. Table 4-4 includes the number and types of field samples collected and analyzed during the CSE Phase II.

Table 4-3. CSE Phase II Analyte List by MRA Type

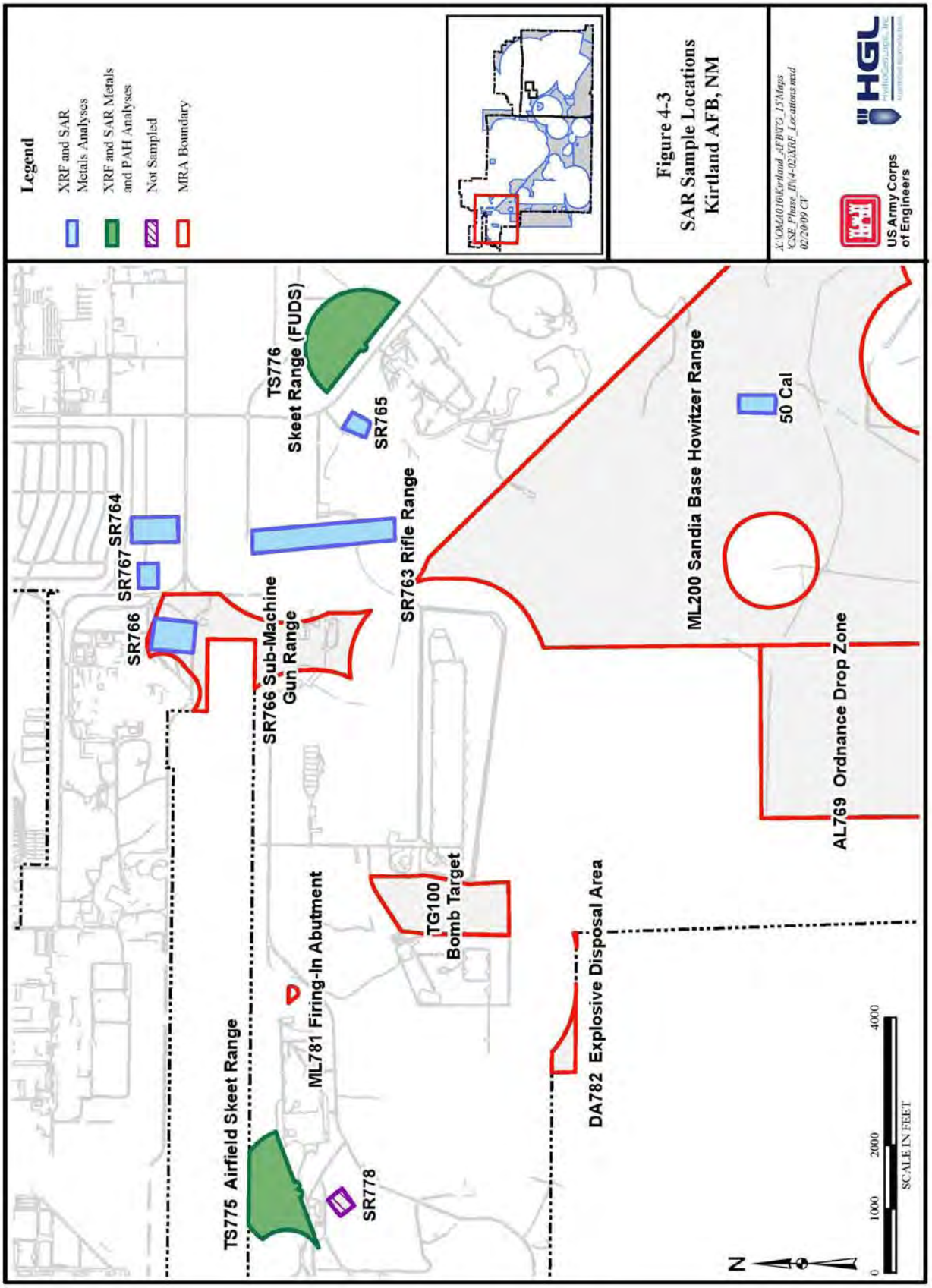
Analyte	USEPA Method SW-846	MRA Type
	PAHs	
Acenaphthene	3541/8270	SAR Skeet Ranges
Acenaphthylene	3541/8270	SAR Skeet Ranges
Anthracene	3541/8270	SAR Skeet Ranges
Benzo(a)anthracene	3541/8270	SAR Skeet Ranges
Benzo(a)pyrene	3541/8270	SAR Skeet Ranges
Benzo(b)fluoranthene	3541/8270	SAR Skeet Ranges
Benzo(g,h,i)perylene	3541/8270	SAR Skeet Ranges
Benzo(k)fluoranthene	3541/8270	SAR Skeet Ranges

Table 4-3. CSE Phase II Analyte List by MRA Type (Concluded)

Analyte	USEPA Method SW-846	MRA Type
PAHs (concluded)		
Chrysene	3541/8270	SAR Skeet Ranges
Dibenz(a,h)anthracene	3541/8270	SAR Skeet Ranges
Fluoranthene	3541/8270	SAR Skeet Ranges
Fluorene	3541/8270	SAR Skeet Ranges
Indeno(1,2,3-cd)pyrene	3541/8270	SAR Skeet Ranges
Naphthalene	3541/8270	SAR Skeet Ranges
Phenanthrene	3541/8270	SAR Skeet Ranges
Pyrene	3541/8270	SAR Skeet Ranges
Metals		
Antimony	3050B/6010B	SAR and Non SARs
Barium	3050B/6010B	SARs
Cadmium	3050B/6010B	Non SARs
Copper	3050B/6010B	SAR and Non SARs
Iron	3050B/6010B	SARs
Lead	3050B/6010B	SAR and Non SARs
Magnesium	3050B/6010B	SARs
Zinc	3050B/6010B	SAR and Non SARs
Mercury	7471A/7471A	Non SARs
Explosives		
HMX	8330/8330	Non SARs
RDX	8330/8330	Non SARs
TNT	8330/8330	Non SARs

Table 4-4. Number and Types of Samples Collected and Analyzed

Parameters	Media	Samples
Six SAR and Two SAR Skeet Ranges Evaluated		
Lead	Surface Soils	561 Field Measurements Using XRF
SAR Site Evaluation		
Metals	Surface Soil	43
Skeet Range Evaluation		
Metals	Surface Soil	16
PAHs	Surface Soil	43
Non SAR Site Evaluation		
Explosives and Metals	Surface Soil	84
Explosives	Surface Soil	80
	Total Environmental Samples	**266**
SAR Quality Control (QC) Samples		
Field Duplicates	Surface Soil	10
Matrix Spike/Matrix Spike Duplicate (MS/MSD) Pairs	Surface Soil	4
Non SAR QC Samples		
Field Duplicates	Surface Soil	14
MS/MSD Pairs	Surface Soil	9
	Total QC Samples	**37**
	Total Samples	**303**


Legend
XRF and SAR Metals Analyses
XRF and SAR Metals and PAH Analyses
Not Sampled
MRA Boundary
Figure 4-3
SAR Sample Locations
Kirtland AFB, NM
US Army Corps of Engineers
HGL
TS776 Skeet Range (FUDS)
SR765
SR764
SR767
SR766
SR763 Rifle Range
SR766 Sub-Machine Gun Range
ML200 Sandia Base Howitzer Range
50 Cal
AL769 Ordnance Drop Zone
TG100 Bomb Target
ML781 Firing-In Abutment
DA782 Explosive Disposal Area
TS775 Airfield Skeet Range
SR778
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SCALE IN FEET

4.5.1 XRF Survey and Surface/Subsurface Soil Sampling at Small Arms Ranges

Six SARs (SR763, SR764, SR765, SR766, SR767, and .50 Caliber Target) and two trap and skeet ranges (TS775 and TS776) were sampled. SAR SR777 was not sampled because it could not be identified on historical photographs nor was evidence of the range identified during the visual survey. SAR SR778 was not sampled because it is located under an asphalt-paved fire training area. In addition to the original list of sites, a firing range, designated the .50 Caliber Target, was located during reconnaissance of the ML200 area and was added to the XRF survey and soil sampling list. The sampling approach focused on smaller areas (firing points to impact berms) and did not encompass the large range fans included in the AFRIMS database. USEPA Method 6200 was used for guidance for XRF activities. A project-specific XRF action level was set at 300 parts per million (ppm) to determine the need for additional sampling.

Areas included in XRF analysis are illustrated in Figure 4-3. A GPS unit was used to guide the field team to the appropriate areas. In situ readings were collected from an established grid and based on the in situ readings, additional ex situ samples were collected for lead analysis. The in situ and ex situ sampling processes are described below. The SAR sites were sampled following a rectangular grid. The trap and skeet ranges had transect lines that extended out from the firing locations to the site boundary at approximate 30 degree orientations. The emphasis for sampling at the trap and skeet ranges was the shot fall areas of 300 ft and 600 ft from the firing points. Details of all sampling results are presented by MRA in Section 5.

In Situ XRF Sampling. At each in situ sampling location, the surface area was cleared of any vegetation and/or small rocks, the XRF unit placed directly on the surface, and a reading collected after approximately one minute. At all sampling locations, the soil was sandy and dry. Additionally, there were no rain events during the sampling activities. Lead readings from the XRF were recorded in the field logbook and later transferred to a spreadsheet for review by USACE. If a reading was greater than 300 ppm, an ex situ sample was collected for further assessment. With the exception of TS776, none of the SAR sites had in situ lead readings above 300 ppm.

Ex Situ XRF Sampling. Ex situ samples at SAR sites were chosen based on whether lead was detected because many of the in situ sample locations did not register readings above the limit of detection on the XRF unit. In general, samples recorded at the two skeet ranges showed a wider range of lead readings. Initially, all ex situ samples were submitted to the laboratory for analysis to meet the 10 percent requirement for using the XRF. After further evaluation by the USACE, Omaha, additional ex situ sampling was requested at a meeting with HGL in February 2008. The additional sampling was necessary for a better representation of data at each SAR and skeet range. The additional ex situ sampling was conducted in conjunction with the Non SAR sampling event that took place in March 2008. Ten percent of the ex situ samples collected in March 2008 were submitted for laboratory analysis.

After in situ readings were collected, the field team leader determined the best locations for the ex situ sampling based on the initial XRF results. Ideally, results would have ranged from below, near, and above the action level of 300 ppm; however, most results were below 300 ppm. Therefore, ex situ samples were collected at locations where lead was detected. At each ex situ location a soil sample was collected with a dedicated disposable stainless steel spoon and placed in a disposable aluminum pie pan. The soil was homogenized and any rocks or other debris were removed. The XRF was placed on the soil and a reading collected. The analysis time was increased for the ex situ samples over the in situ samples to improve accuracy. Three readings were collected for each ex situ sample and the readings were then averaged. Sample identifications included the site name and a sequential numerical designation. Each sample location was recorded with the GPS unit using the sample identification number.

Laboratory Surface Soil Sampling and XRF Results. Soil samples were submitted to TestAmerica Laboratories, Inc., in Chicago, Illinois, for analysis of metals by USEPA SW-846 Method 6010B Inductively Coupled Plasma – Atomic Emission Spectrometry (ICP-AES). Samples collected from the SAR sites were analyzed for antimony, barium, copper, iron, lead, magnesium, and zinc. Analytical data are included in Appendix H. Samples collected from the Non SAR sites were analyzed for antimony, cadmium, copper, lead, mercury, and zinc and reported in milligrams per kilogram (mg/kg). This data is included in Section 5.

The correlation between laboratory lead concentrations and ex situ XRF readings was evaluated to determine if the data from the XRF represented site conditions. Table 4-5 summarizes the ex situ XRF screening results, the laboratory analytical data results, and the XRF percent relative standard deviation (%RSD). The XRF and laboratory results were plotted and a linear, least-squares regression was calculated as determined in USEPA Method 6200. In accordance with USEPA Method 6200, to be considered screening level data, the correlation coefficient needs to be greater than 0.7. Table 4-5 also includes the plotted results and the correlation coefficient (r^2) for the sampling conducted in October/November 2007. The r^2 for this sample set is 0.8739.

Because the correlation is instrument-specific and a different XRF unit was used for the March 2008 sampling, Table 4-6 summarizes the screening and analytical results for the March 2008 event. Table 4-6 also provides the plotted results and the r^2 value of 0.9857 for the sampling conducted in March 2008. Three of the samples from the initial sampling event, TS776-005, TS776-006, and TS775-003, contained significant discrepancies between the XRF result and the laboratory result. As such, data from these three samples are considered to be statistical outliers; thus, the results were not included in the correlation coefficient calculation. The outliers may have been caused by matrix, technology differences between the laboratory method and the XRF, and differences in sample preparation procedures. Although the soil appeared to be uniform and was homogenized in the field, the fine particles may not have been uniformly mixed with the course particles. Sample preparation in the laboratory can be more extensive and include sample drying, reduction of particle size and the homogenization of the resulting fine materials at a higher degree than what was done in the field. In the field, enough soil is collected to fill an 8-ounce jar; however, the laboratory only uses 2 grams of soil per sample. XRF readings are taken from roughly a centimeter-square area and may not analyze the same soil that ends up analyzed by the laboratory. Samples analyzed by ICP-AES measure characteristic emission spectra by optical spectrometry while the XRF uses a sealed radioisotope source to rearrange electrons that release energy and result in emission of X-rays characteristic of the specific atom. Any or all of these reasons could be responsible for the discrepancy in the three samples.

Table 4-5. Ex Situ XRF Lead Results[1] vs Laboratory Analytical Data October/November 2007 Sampling Event

Sample No.	XRF Result 1	XRF Result 2	XRF Result 3	XRF Average	XRF %RSD	Laboratory Result (mg/kg)
SR763-001	21.2	27.1	19.5	22.6	17.65	13
SR763-002	29.5	32.2	50.8	37.5	30.93	26
SR763-003	48.4	31.9	47.4	42.6	21.72	30
SR763-004	26.1	28.6	30.3	28.3	7.47	14
SR763-005	18	24.3	17.7	20.0	18.63	5.9
SR763-006	31.2	25.7	29.2	28.7	9.70	15
SR763-007	29.9	27.4	29.3	28.9	4.52	19
SR763-008	27.5	29.4	19.4	25.4	20.91	11
SR763-009	29.7	26.8	34.6	30.4	12.97	14
SR763-010	24.4	20.4	27.3	24.0	14.44	13
SR763-010D	24.4	20.4	27.3	24.0	14.44	11
SR763-011	50.1	36.3	37.1	41.2	18.80	25
SR763-012	27.3	26.7	33.2	29.1	12.34	15
SR763-013	38.2	42.1	37.3	39.2	6.51	23
SR763-014	37.4	33.4	27.2	32.7	15.72	17
SR767-001	28.8	37.4	45.3	37.2	22.18	24
SR767-002	21.5	31.6	19.9	24.3	26.11	7.5
SR767-003	26.6	28.8	33.1	29.5	11.21	20
SR767-004	40.1	47.1	42.6	43.3	8.19	24
SR767-005	18.6	20.4	31.9	23.6	30.57	15
SR767-006	45.2	59.4	52.2	52.3	13.58	36
SR767-006D	45.2	59.4	52.2	52.3	13.58	36
TS776-001	357.4	365.5	373.9	365.6	2.26	520
TS776-002	221.4	213.2	206.7	213.8	3.45	240
TS776-003	73.2	82.5	64.8	73.5	12.05	56
TS776-004	42.5	54.6	33.2	43.4	24.72	30
TS776-005	47.3	75.5	58.3	60.4	23.53	31000
TS776-006	898.4	1121	444.9	821.4	41.95	26000
TS776-007	70.1	51	63.1	61.4	15.74	41
TS776-031	46.3	66.2	121	77.8	49.72	42
TS776-032	95.4	79.9	76.5	83.9	12.01	74
TS776-032D	95.4	79.9	76.5	83.9	12.01	66
TS776-033	52	69	60.3	60.4	14.07	40
SR764-001	32.4	21.7	22	25.4	23.99	15
SR764-002	50.2	26.2	39.3	38.6	31.13	28
SR764-003	117.8	90.4	68.6	92.3	26.71	47
SR764-004	33	33.4	32.4	32.9	1.53	14
SR764-005	91.3	101	106.1	99.5	7.56	100
SR764-006	116.3	109.6	117.8	114.6	3.81	310
SR764-007	64.7	59.8	68.3	64.3	6.64	66
SR765-001	33.3	38.2	37.7	36.4	7.41	20
SR765-002	31.3	30.2	42.4	34.6	19.50	22
SR765-003	72	79.9	67.4	73.1	8.65	49
SR765-004	33.9	38.5	59.8	44.1	31.33	42
50CAL-001	20.1	25.8	27.2	24.4	15.41	6.8
50CAL-002	19.9	19	23.6	20.8	11.72	9.3
50CAL-003	23.6	22.2	29.1	25.0	14.59	11
50CAL-004	20.3	22.7	22.2	21.7	5.84	7.3
SR766-001	24.8	27.2	175.8	75.9	113.96	16

Table 4-5. Ex Situ XRF Lead Results[1] vs Laboratory Analytical Data October/November 2007 Sampling Event (Concluded)

Sample No.	XRF Result 1	XRF Result 2	XRF Result 3	XRF Average	XRF % RSD	Laboratory Result (mg/kg)
SR766-002	26.7	24.5	24.7	25.3	4.81	16
SR766-003	21.3	21.2	29.6	24.0	20.09	12
TS775-001	34.1	21.7	21.9	25.9	27.42	19
TS775-002	92.4	155.6	172.3	140.1	30.08	130
TS775-003	109.9	105.3	64.8	93.3	26.60	55000

[1] – All XRF Results are for lead in parts per million (ppm)
Correlation Graph follows

Correlation Graph 4-1 XRF Field Results vs Laboratory October/November 2007 Sampling

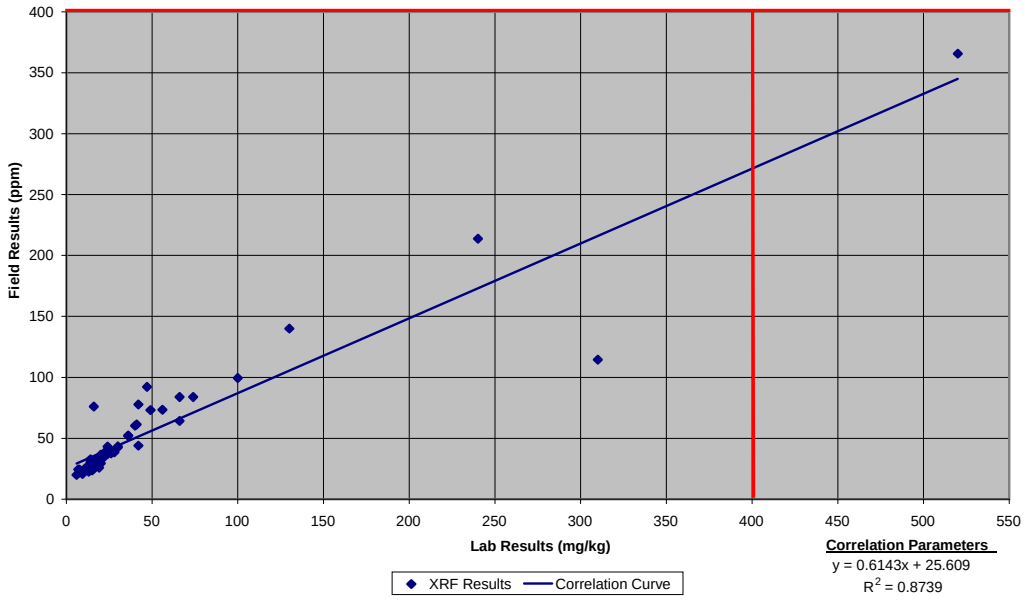
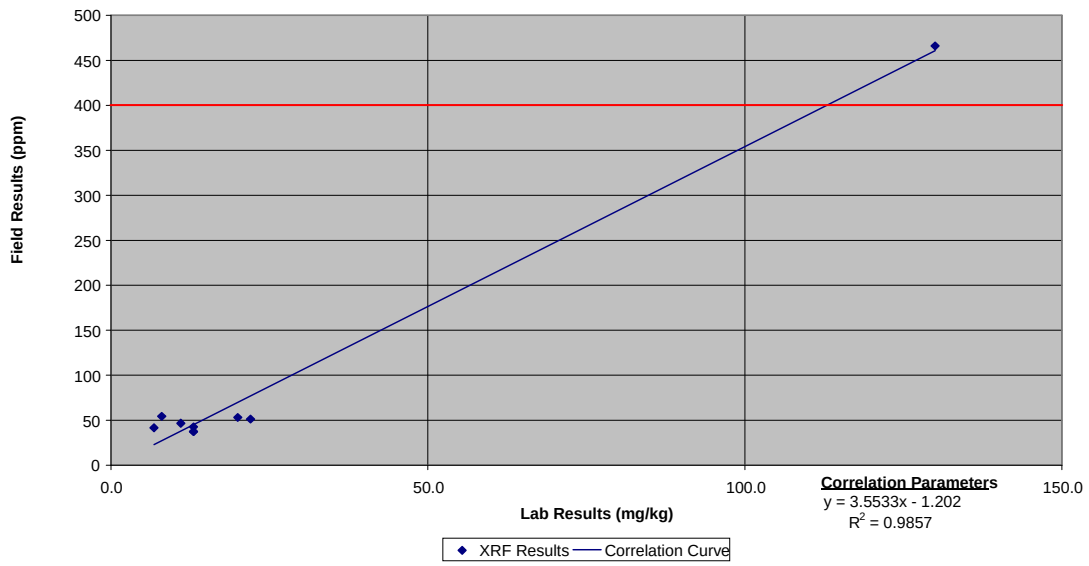


Table 4-6. Ex Situ XRF Lead Results[1] vs Laboratory Analytical Data March 2008 Sampling Event

Sample No.	XRF Result 1	XRF Result 2	XRF Result 3	XRF Average	XRF %RSD	Laboratory Result (mg/kg)
50CAL-005	50.4	30.1	44.6	41.7	25.07	6.8
SR763-008	58.1	43.7	61.3	54.4	17.23	8
SR764-015	48.3	47.6	58.2	51.4	11.53	22
SR765-005	36.9	49.6	41.7	42.7	15.02	13
SR767-007	54.9	40.5	44.6	46.7	15.89	11
TS775-011	30.4	47.1	34.5	37.3	23.33	13
TS775-011D	30.4	47.1	34.5	37.3	23.33	13
TS776-034	48.1	48	63.2	53.1	16.47	20
TS776-035	210	71.2	1118	466	122.01	130

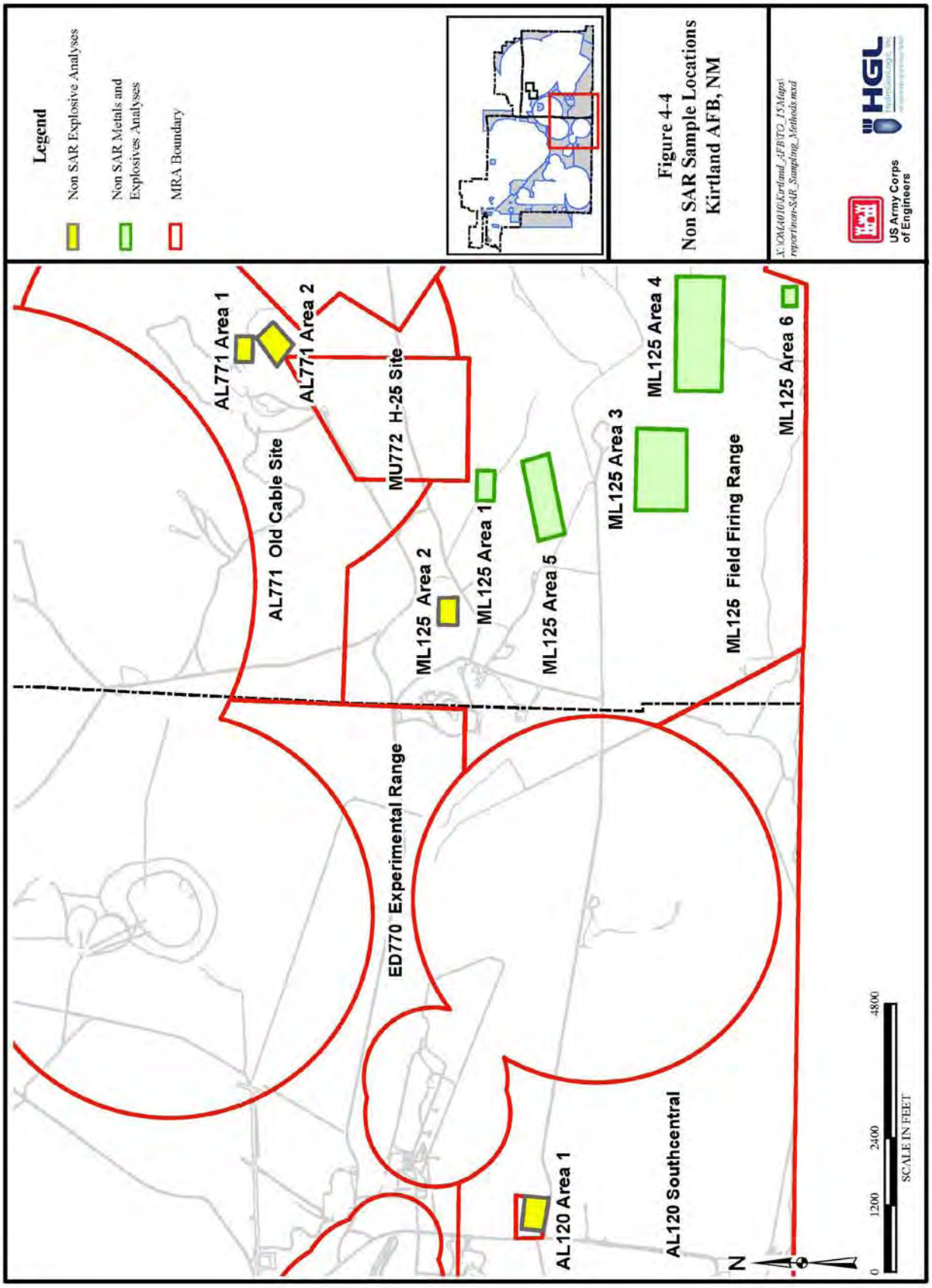
[1] – All Screening Results are for lead in ppm
Correlation Graph follows

Correlation Graph 4-2.
XRF Field Results vs Laboratory Analytical Data
March 2008 Sampling Event



4.5.2 Surface Soil Sampling at Non Small Arms Ranges

In accordance with the field sampling plan, soil samples at non SAR MRAs were collected after the geophysical survey, visual survey, and ground truthing results were available to sample areas where MEC/UXO items were relatively intact but broken open, had low-ordered and present MC near the MEC item, or where MC existed on the ground surface. Three MRAs (AL120, AL771, and ML125) were identified as containing areas that met the sampling criteria (Figure 4-4). Depending on the MC found, four to eight samples were collected from around the center of the area. One sample was collected upgradient and the remaining three samples were collected from downgradient of the designated center. In areas where the terrain was fairly flat, samples were collected from each cardinal direction. Metals and explosives samples were collected approximately 5 ft from the designated center. Locations sampled for explosives only were sampled at 2-foot and 5-foot intervals away from the designated center. Samples were collected to a depth of 0.5-ft with a stainless steel trowel. Vegetative matter and rocks were removed and the sample was homogenized in place before being placed in an 8-ounce glass jar. As with the SAR sites, each sample location was recorded with the GPS unit using the sample identification number.


Legend
Non SAR Explosive Analyses
Non SAR Metals and Explosives Analyses
MRA Boundary
Figure 4-4
Non SAR Sample Locations
Kirtland AFB, NM
X:\OMA010\Kirtland_AFB\TO_15\Maps\report\non-SAR_Sampling_Methods.mxd
US Army Corps of Engineers
HGL
AL771 Area 1
AL771 Area 2
AL771 Old Cable Site
MU772 H-25 Site
ML125 Area 2
ML125 Area 1
ML125 Area 5
ML125 Area 3
ML125 Area 4
ML125 Field Firing Range
ML125 Area 6
ED770 Experimental Range
AL120 Area 1
AL120 Southcentral
N
0
1200
2400
4800
SCALE IN FEET

4.6 Screening Levels

Criteria used to compare sampling results were selected after review of guidance from the *NMED Technical Background Document for Development of Soil Screening Levels Revision 4.0* and the USEPA Region 6 *Human Health Medium-Specific Screening Levels* (New Mexico Environment Department (NMED), 2006; USEPA, 2007). The NMED guidance presents "Soil Screening Level" (SSL) concentrations for 208 chemicals commonly associated with environmental releases within New Mexico. For carcinogenic chemicals, the NMED SSLs correspond to a carcinogenic risk level of one-in-one-hundred thousand (1E-05). This risk is defined as the incremental probability that an individual will develop cancer over a lifetime as a result of exposure to the chemical in question. For non-carcinogenic chemicals, the NMED SSLs correspond to a hazard quotient of 1. The hazard quotient concept assumes that there is some threshold level of exposure that must be exceeded to trigger adverse health effects. At concentrations less than the threshold level, it is unlikely that even sensitive receptor populations would experience adverse health effects. If an individual contaminant has the capacity to elicit both types of responses, the NMED selected SSL values that represent the lowest (most stringent) contaminant concentration in the environmental media under consideration.

SSLs presented in the NMED guidance document were back-calculated to an "acceptable level" from exposure equations and pathway models that were rearranged to give a contaminant concentration in soil that corresponded to a specific level of target risk or hazard (i.e., a carcinogenic risk of 1E-05 or hazard quotient of 1). The equations used in the back-calculation combined exposure assumptions with toxicity criteria developed by USEPA (USEPA, 1997) and the National Center for Environmental Assessment (NCEA) (USEPA, 2003) in a manner that is consistent with the Superfund concept of "reasonable maximum exposure" (USEPA, 1989).

USEPA Region 6 has used a similar approach to develop soil screening values. These values, however, corresponded to a carcinogenic risk level of one-in-one million (1E-06); for non-carcinogenic compounds the hazard quotient corresponded to a value of 1, as in the NMED approach. Like the NMED approach, in cases where a substance could have both carcinogenic and non-carcinogenic effects, the USEPA screening value was selected to correspond to the lesser concentration value (thereby providing a criteria value that is more protective of human health). USEPA Region 6 has provided an internet version of the Risk-Based Human Health Screening values at their website.

The USEPA Region 6 Risk-Based Human Health Screening values are typically risk-based for the soil media, but there are two significant exceptions: (1) for several volatile chemicals, screening levels are based on the soil saturation equation ("sat"); and (2) for relatively less toxic inorganic and semi-volatile contaminants, a non-risk based "ceiling limit" concentration is given as 1E+5 mg/kg ("max"). Neither of these exceptions; however, applied to the chemicals evaluated in the CSE Phase II for Kirtland AFB.

Key assumptions used in USEPA Region 6's calculation of the screening concentration values are summarized below:

- For soil-to-air pathways, the USEPA methodology used contaminant-specific volatilization factors for volatile substances, and particulate emission factors (PEFs) for non-volatile contaminants. The calculations reflected average annual conditions and chronic exposure; the screening values provided are not appropriate for assessing the potential for acute exposure. A default PEF of 1.36×10^9 cubic meter per kilogram (m^3/kg) was used to relate the contaminant concentration in surface soils to the concentration of respirable dust particles in the air resulting from fugitive dust emissions. The default value evaluates windborne emissions and does not consider dust emissions from traffic or other mechanical disturbance.

- Age-adjustment factors were used to calculate carcinogenic risks during the first 30 years of life to reflect differences in contact rates between children and adults. In addition, the age-adjusted factors were modified to provide an extra level of protection for exposure to chemicals that are carcinogenic by mode of mutagenicity. The modifications varied by age to provide an extra protective factor of 10 for children less than 2 years of age and a factor of 3 between the ages of 2 years and 16 years.
- Receptor characteristics such as body weight, ingestion rates, etc., were derived from USEPA guidance (USEPA, 1991a; 1991b; 2004a).

Conversations with NMED personnel indicated that no state-specific ecological screening values exist. In the absence of state-specific screening values, USEPA Ecological Soil Screening Levels and benchmark values from other sources (Efroymson, et al, 1997a; Efroymson, et al, 1997b) were used to assess the need for further assessment of ecological risk.

4.6.1 Soil Screening Values

Soil screening values for a residential receptor were selected as the basis of comparison to the soil sample analytical results. The residential receptor provides the most protective values for consideration of potential future land use and provides an additional factor of safety for the current intermittent use of these facilities by authorized military personnel and trespassers.

In this CSE Phase II screening level human health risk assessment (HHRA), the sample results were compared to the more protective value (i.e., lower concentration) of the USEPA Region 6 and NMED screening levels. Table 4-7 presents the screening levels provided by both agencies for a residential receptor, in most cases the USEPA screening value concentration was less than the corresponding NMED value. In the event that only one agency reported a value for a substance, that value was used as the screening criterion.

Table 4-7. Soil Screening Level Concentrations (mg/kg)

Analyte	Soil Pathways: Direct Contact, Ingestion, Inhalation			
	NMED	Endpoint	USEPA Region 6	Endpoint
Explosives (mg/kg)				
2,4,6-Trinitrotoluene (TNT)	30.6	nc	16	nc
RDX	44.2	ca	4.4	ca
HMX	3,060	nc	3,100	nc
Metals (mg/kg)				
Antimony	31.3	nc	31	nc
Barium	15,600	nc	16,000	nc
Cadmium	39	nc	39	nc
Copper	3,130	nc	2,900	nc
Iron	23,500	nc	55,000	nc
Lead	400	IEUBK	400	-
Magnesium	NA	-	NA	-
Mercury	100,000	max	23	-
Zinc	23,500	nc	2,300	nc
PAHs (mg/kg)				
Acenaphthene	3,730	nc	3,700	nc
Acenaphthylene	NA	-	NA	-
Anthracene	22,000	nc	2,200	nc
Benzo(a)anthracene	6.21	ca	0.15	ca
Benzo(a)pyrene	0.621	ca	0.015	ca
Benzo(b)fluoranthene	6.21	ca	0.15	ca
Benzo(g,h,i)perylene	NA	-	NA	-
Benzo(k)fluoranthene	62.1	ca	1.5	ca
Chrysene	615	ca	15	ca
Dibenz(a,h)anthracene	0.621	ca	0.015	ca
Fluoranthene	2,290	nc	2,300	nc
Fluorene	2,660	nc	2,600	nc
Indeno(1,2,3-c,d)pyrene	6.21	ca	0.15	ca
Naphthalene	79.5	nc	120	nc
Phenanthrene	1,830	nc	NA	nc
Pyrene	2,290	nc	2,300	nc

Ca – carcinogen
IEUBK - Integrated Exposure Uptake Biokinetic Model for Lead in Children (USEPA , 1994).
nc - non-carcinogen
NA – Not Available
- - Data not available

4.6.2 Surface Water/Sediment Screening Values

As described in Section 8, surface water is not considered to be a potential exposure pathway for human receptors because surface water is ephemeral and usually not present at Kirtland AFB. With the exception of a few isolated springs that supply small pools in the immediate vicinity of such locations (e.g., Coyote Springs), there are no perennial surface waters within the CSE Phase II study area.

4.6.3 Ecological Soil Screening Levels

For a number of chemicals, USEPA has developed ecological soil screening levels (Eco-SSLs) protective of different terrestrial communities (plants, invertebrates, birds and mammals). If no Eco-SSL was available for a particular chemical, then other sources of benchmark values were reviewed. These sources included Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision (Efroymson, et al, 1997a) and Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Processes: 1997 Revision (Efroymson, et al, 1997b). Table 4-8 presents the Ecological Soil Screening Levels. Table 10.1, in Section 10, includes the maximum analyte detections for each site where samples were collected.

4.6.4 Screening Values Uncertainty Analysis

Screening values are by definition generic and based on conservative assumptions and default parameter values for a hypothetical site. The SSLs are biased towards high values to minimize the possibility that the screening process does not lead to premature termination of site investigations or remedial response. Consequently, the screening level evaluation will almost always over-estimate the potential human health and/or ecological risks.

Table 4-8. Ecological Soil Screening Level Values

Analyte	Ecological Soil Screening Levels (mg/kg)				Soil Benchmark Values (mg/kg)	
	Terrestrial Plant	Soil Invertebrate	Mammal	Bird	Value	Comment/Source
Antimony	NSV	78	0.27	NSV	5	plant toxicity, Oak Ridge National Laboratory (ORNL), 1997a
Barium	NSV	330	2,000	NSV	500	plant toxicity, ORNL, 1997a
Cadmium	32	140	0.36	0.77	NA	
Copper	70	80	28	49	NA	
Iron	A					
Lead	120	1700	56	11	NA	
Mercury	NSV	NSV	NSV	NSV	0.3 0.1	plant toxicity, ORNL, 1997a earthworm toxicity, ORNL, 1997b
Zinc	160	120	79	46	NA	
low molecular weight PAHs	NSV	29	100	NSV		
High molecular weight PAHs	NSV	18	1.1	NSV		
2,4,6-Trinitrotoluene	NSV	NSV	NSV	NSV	10	Talmage, et al, 1999
HMX	NSV	NSV	NSV	NSV	6.3	Kuperman, 2003

If Eco-SSLs were available, these values were used preferentially. If a chemical was not characterized by Eco-SSLs, then other benchmark values were used.
NSV - No Screening Value
NA - not applicable; Ecological Soil Screening Levels available
High molecular weight PAHs - four or more rings
Low molecular weight PAHs - less than four rings
A - No benchmark value available because iron toxicity depends on soil pH and Eh

The choice of residential receptor screening values introduces another deliberately conservative filter to the screening process. At the Kirtland AFB sites included in the CSE Phase II investigation, the current and projected land use is for field-level military training uses or as vacant land adjacent to active military training sites. Current users of these sites are authorized military personnel and trespassers who would be exposed to contaminants only intermittently over far shorter time frames than the 30-year period used in calculating residential exposure to carcinogenic substances.

The source area assumptions used in calculating the SSLs assume a homogenous source. By the nature of the munitions activities at the site, contaminants would typically be erratically distributed across the area and consist of "hot spots" surrounded by uncontaminated soils. Thus, application of the screening process without regard to the spatial distribution of the contamination will tend to over-estimate the potential hazard.

Sample results were compared individually to the screening levels to assess risk. This approach emphasizes a "worst-case" approach and may over-state the risk across the site as a whole. This possibility is compounded by the sampling approach that was adopted for this effort. Soil sample locations were selected to correspond to those areas with the greatest potential to show the presence of high concentrations of the suspect contaminants (HGL, 2007). Sampling results were extrapolated to those areas of MRAs where site-specific soil sample analytical data were not obtained. This approach introduces some uncertainty into the hazard assessment. However, all sites were field surveyed and the soil samples collected were based on a "hot spot" or "worst case" sample location strategy with respect to field survey results. These factors tend to bias the evaluation of non-sampled sites towards over-estimating the risk.

Overall, the uncertainties associated with the screening approach tend to over-estimate the potential hazards at the MRAs included in the CSE Phase II investigation.

4.7 Data Quality

Quality Assurance (QA) is defined as the overall system of activities for assuring the reliability of data produced. The system integrates the quality planning, assessment and corrective actions of various groups in the organization to provide the independent Quality Control (QC) program necessary to establish and maintain an effective system for collection and analysis of environmental samples and related activities.

The generation of valid and complete data was accomplished through the CSE Phase II by review, validation and documentation. The QA/QC procedures are summarized in this section and analytical results are presented in Appendix H. All procedures were conducted in accordance with the *Kirtland Air Force Base Comprehensive Site Evaluation Phase II Final Work Plan* (HGL, 2007).

A Quality Assurance Project Plan (QAPP) was developed as part of the CSE Phase II sampling and analysis plan. The QAPP was implemented through the integration of defined QC elements for activities associated with the task assignment. The QAPP was included as part of the approved Work Plan (HGL, 2007).

Required documentation was maintained as specified in the Kirtland AFB CSE Phase II Work Plan. The following documents were maintained:

- **Field Logbooks/Forms:** Bound logbooks with numbered pages were used to log daily activities and data collected during field activities. Equipment calibration records were maintained at the back of the site logbook. Sampling activities were recorded daily on the Daily Contractor Quality Control report.

- **Chain of Custody:** In accordance with the QAPP, chain of custody forms were completed for samples collected at all SAR and non SAR sites.
- **Document Control:** Documents followed the Document Tracking and Review procedure.

4.7.1 Data Quality Objectives

DQOs are qualitative and quantitative statements that clarify the objectives of each action, define the appropriate type of data needed, and specify the tolerable levels of potential decision errors for the data used to support decisions. The DQO development processes described in Engineer Manual 200-1-2, TPP Process; USEPA Publication QA/G-4, Guidance for the Data Quality Objectives Process; and Engineers Regulation 1110-1-12, Engineering Design and Quality Management were used to develop the CSE Phase II investigation DQOs at Kirtland AFB. The DQOs were updated in response to input from stakeholders and availability of new data to guide the data collection for subsequent CSE Phase II activities.

The DQOs for the CSE Phase II at Kirtland AFB included elements applicable to the following:
- Overall CSE Phase II project
- Munitions constituent sampling
- Geophysical surveying

Each of these three DQO elements applied to the CSE Phase II at Kirtland AFB are described in the following subsections.

4.7.1.1 <u>Overall CSE Phase II Project DQO</u>

A. State the Problem
- Resolving the uncertainty regarding the potential release of MC from range operations that pose a risk to human health and the environment.

B. Identify the Decision
- Is there likely to be an off-range release that poses a potential risk to human health and the environment?

C. Identify Inputs to the Decision
- Additional source data (soil sampling) to validate CSE Phase I Interim Conceptual Site Models (ICSMs).
- Field reconnaissance and subsurface geophysical data to resolve questions concerning densities of potential MEC/UXO.

D. Define Boundaries of Study
- Kirtland AFB MRAs/MRSs.

E. Develop a Decision Rule
- Geophysical Data
  - CSE Phase I background research, field reconnaissance data, and data from the WAA program were used to determine most likely locations of potential MEC/UXO. Based on evaluation of this data, geophysical and surface visual reconnaissance data were collected at Kirtland AFB MRAs. Geophysical data were evaluated to determine if they are indicative of subsurface MEC/UXO and related anomaly densities, as necessary. In conjunction with the MC sampling data associated with the site, the data will be evaluated as part of a “weight of

evidence" approach in arriving at a decision of whether to recommend further investigations or NFA.

- Soil
  - Soil samples were collected at MRAs/MRSs having the highest likelihood of contributing MC. If maximum contaminant concentrations within MRAs exceeded constituent screening levels, the data were evaluated in the decision to investigate further. If constituent screening levels were not exceeded, a recommendation of NFA is likely.

F. Specify Tolerable Limits of Decision Error
- Evidence of subsurface anomalies did not necessarily trigger further investigation. Evidence of subsurface anomalies and associated MC presence or indication of MC migration was linked as part of a weight of evidence-based decision on whether or not to recommend further investigation. Appropriate geophysical survey technology was used to ensure subsurface detection capabilities were sufficient to identify potential anomalies.
- Screening levels for soil are based on DoD policy and laboratory analysis parameters listed in the QAPP. Sampling and analytical methods were selected for detection limits, accuracy, and precision.

G. Optimize the Design for Collecting Data
- For the geophysical survey, the CSE Phase I background data, site reconnaissance data, and WAA data were used. Transect methodology was used in an attempt to intersect anomaly concentrations.
- For chemical analysis of soil, sample numbers and positions were determined to most efficiently investigate potential MC contamination.

4.7.1.2 Munitions Constituent Sampling DQO

A. State the Problem
- Do source areas have MC media concentrations that would indicate release of MC that could potentially affect receptors?

B. Identify the Decision
- Based on results of MC sampling, determine whether MC concentrations in soil exceed screening levels and whether receptors could potentially be affected.

C. Identify Inputs to the Decision
- MC concentrations.
- Analytical methods for MC.
- Screening levels for MC.

D. Define Boundaries of Study
- Surface soils at MRAs.

E. Develop a Decision Rule for Soil
- If maximum concentrations of MC within a source area exceed screening concentrations and a contaminant pathway and receptor exist, the source area will be considered for further investigation.

F. Specify Tolerable Limits of Decision Error for Soil
- Tolerable limits of decision error are specified in the QAPP, based on method detection limits and quantitation limits for analytical methods. Constituent screening levels are based on NMED

standards and USEPA Region 6 screening levels where no established NMED levels exist. Screening levels are presented in Table 4-7.

G. Optimize the Design for Collecting Soil Data
- Sample numbers and positions were calculated to most efficiently investigate potential MC contamination.

4.7.1.3 Geophysical Surveying DQO

A. State the Problem
- Identify anomaly densities and locations in MRAs.

B. Identify the Decision
- Does the presence of anomaly densities in an MRA, combined with other relevant data (i.e., soil MC sampling and analytical data, complete pathway, and presence of receptors) indicate a potential risk to human health and the environment?

C. Identify Inputs to the Decision
- Historical information concerning past munitions and range-related practices at MRAs.
- Field reconnaissance, WAA surveys, concerning potential locations of munitions-related activity.
- Geophysical survey data.

D. Define Boundaries of Study
- MRA/MRS boundaries. Maps showing transect lines for MRA boundaries were included in the Kirtland AFB CSE Phase I Report (USAE, 2007).

E. Develop a Decision Rule
- If geophysical and media sampling data indicate a likelihood of anomalies indicative of MEC items that could result in a release of MC or MEC, and a contaminant pathway and receptors are present, the MRA will be considered for further investigation.

F. Specify Tolerable Limits of Decision Error
- No quantitative decision criteria exist for the evaluation of these data. Appropriate subsurface geophysical survey technology was used to ensure detection of anomalies. All geophysical survey data inputs were evaluated in conjunction with MC media sampling results to determine the potential for an off-range release of range-related MC and MEC that could pose a threat to human health and the environment.

G. Optimize the Design for Collecting Data
- Prior to conducting geophysical field surveys and media sampling, and collecting data from CSE Phase I background information and site reconnaissance, the WAA was evaluated to determine the locations for subsurface geophysical surveys.
- During the field geophysical surveys, the following data items/samples were recorded/obtained:
  - Equipment verification data (daily prior to field activities).
  - Geophysical track data (continually during search mode operations).
  - Differential Global Positioning System location data for the geophysical track (collected at all times while geophysical equipment was in use; frequency of data points in accordance with equipment performance specifications).
- Data was collected using parallel transects over the entire footprint of the MRAs/MRSs.

The following data quality indicators were used to attain the DQOs through evaluation of all the analytical data collected:

- Precision – a measure of the scatter in the data due to random error. For most environmental measurements, the major sources of random error are sampling and analytical procedures. Sampling and analytical precision is expressed as the relative percent difference (RPD) between the field and/or laboratory duplicates.
- Bias – a measure of the difference between analytical results for a parameter and the true value due to systematic errors. Potential sources of systematic errors include sample collection, physical/chemical instability of samples, interference effects, calibration of the measurement system and artificial contamination. Bias is expressed as the percent recovery of the surrogate or spike analyte from a sample or standard.
- Representativeness – a qualitative parameter that expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point or an environmental condition. Representativeness of the environmental conditions at the time of sampling is achieved by selecting sampling locations, methods and times so that the data describe the site conditions the project seeks to evaluate. Representative samples are ensured through following proper protocols for sample handling (storage, preservations, packaging, custody and transportation), sample documentation and laboratory sample handling and documentation procedures.
- Completeness – a measure of the number of valid measurements obtained in relation to the total number of measurements planned. The closer the numbers are, the more complete the measurement process. In general, completeness greater than 95 percent will fulfill the DQOs.
- Comparability – a qualitative parameter expressing the confidence with which one data set can be compared to another. The comparability goal is achieved by maintaining consistency in sampling conditions, selection of sampling procedures, sample preservation methods and analytical methods.

4.7.2 Analytical Methodology

Analytical services for the sampling effort were provided by TestAmerica Laboratories, Inc., located in Chicago, Illinois. TestAmerica Laboratories is a National Environmental Laboratory Accreditation Conference (NELAC)-accredited laboratory. Analytical support for collected soils samples analyzed by TestAmerica Laboratories used *USEPA SW-846, Third Edition,Test Methods for Evaluating Solid Waste* (USEPA, 2004b) methodologies along with laboratory Standard Operating Procedures (SOPs). The analytical scope included analysis for select explosives, using USEPA Method 8330, selected metals, using USEPA Methods 6010B and 7471A, and PAHs, using USEPA Method 8270C. Appendix I, Data Validation Reports, contains further detail on the data collected.

4.7.3 Data Review

Analytical data packages were provided in Contract Laboratory Program (CLP)-like Level III deliverables with Environmental Restoration Program Information Management System (ERPIMS) and American Standard Code for Information Exchange delimited electronic data deliverable files from TestAmerica Laboratories. Analytes detected below the reporting limit (RL) and above the method detection limit (MDL) were reported as estimated values. During the validation process, data qualifiers were applied. These qualifiers also were added to the electronic version in an HGL database. Data validation reports are included in Appendix I.

All data received from the laboratory were reviewed and validated by the HGL project chemist to determine whether the project-specific DQOs, as defined in the associated work plans and sampling and analysis plans, were met. Sample batches were analyzed with no more than 20 samples per batch.

4.7.4 Data Validation

The data validation process determines the acceptability or unacceptability of the analytical data quality based on a set of pre-defined criteria. Data validation is defined as the systematic process for reviewing a data package against a set of criteria to provide assurance that the data is adequate for its intended uses. These criteria depend upon the purpose for which data is collected. The intended use of the data and the associated acceptance criteria for data quality were determined before the data collection effort began. Data validation services for the CSE Phase II sampling effort were provided by HGL personnel located in Lenexa, Kansas. HGL used a combination of project-specific Work Plan/QAPP criteria and the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* to validate data (USEPA, 2004c).

All analytical data packages were validated to ensure compliance with specified analytical requirements, QA/QC requirements, data reduction procedures, data reporting requirements and required accuracy, precision, and completeness criteria. This includes, but is not limited to the following:

- Data provided in the laboratory deliverable are scientifically sound, appropriate to the method, and completely documented
- QC samples are within established guidelines
- Documentation is complete and correct (all anomalies in the preparation and analysis have been documented; noncompliance forms, if required, are complete; holding times are documented)
- The data are ready for incorporation into the final report
- The data package is complete and ready for data archive
- Holding times
- Blank results
- Initial and continuing calibration results
- Laboratory Control Sample/ Laboratory Control Sample Duplicate results
- MS/MSD results
- Laboratory duplicate results
- Serial dilution results
- Post-digest spike results (if applicable)
- Laboratory case narrative
- Completeness of the data package
- Sample data including quantitation reports and compound identification
- Sample run, preparation, and batch log sheets (including digestion/extraction data)

Analytical results were assessed for accuracy and precision of laboratory analysis to determine the limitations and quantity of data. The quality of the data collected in support of the sampling activity was considered acceptable, unless qualified rejected “R” during the validation process. Samples qualified “J” or “UJ” were considered acceptable as estimated with noted definitions. Data validation reports are in Appendix I.

4.8 Data Management

4.8.1 Electronic Data

The electronic data files provided for Kirtland AFB are securely stored within a database on a secure private network located at the HGL office in Reston, Virginia. Access to these files is restricted to only those personnel with key responsibilities for the project. The ERPIMS deliverables for the laboratory analytical data are included in Appendix H. DGM files are included in Appendix G.

4.8.2 Hardcopy Data

Hardcopy data files are stored with the secured project files located at the HGL office in Albuquerque, New Mexico. Access to the office is limited to HGL personnel.

4.8.3 GIS Data

The GIS data layer files are stored on secure private networks in the HGL Reston, Virginia; Lenexa, Kansas; and Albuquerque, New Mexico offices.

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5. MUNITIONS RESPONSE SITE CHARACTERISTICS

This section describes the site characteristics for the 31 MRAs evaluated under the Kirtland AFB CSE Phase II. Site characteristics common to all MRAs are described below and site characteristics specific to each MRA are provided by subsection.

Background Determination: Background concentrations of naturally occurring COCs in groundwater and soil at Kirtland AFB and adjacent SNL/New Mexico (SNL/NM) were established in a 1996 report (IT Corp., 1996) and approved by the NMED. These established background concentrations were used as a comparison for all laboratory analytical results for metals in soil samples collected during the CSE Phase II. The comprehensive study of naturally occurring COCs at SNL/NM and Kirtland AFB included 20 hazardous metals, 10 radionuclides, and nitrate plus nitrite. Approximately 75,000 data point records were initially considered as part of the analyses. The data to establish background concentrations were taken from 110 published and unpublished sources that reported the analytical results of soil and groundwater samples obtained at Kirtland AFB. The data sources include one SNL/NM report from 1961 and 109 sources from SNL/NM and Kirtland AFB over a 20-year period from 1975 to 1995.

Background soil data sets were subdivided into spatial groups to account for composition variations resulting from sampling location and depth. Divisions for soil were made so that areas with similar compositions were grouped together. Comparison of spatial groups led to the establishment of five Spatial Super Groups including: North, Tijeras, Southwest, Coyote Test Field, and Offsite. Sample results for each MRA are compared against background concentrations established for the appropriate Super Group. Background values are provided in data screening tables for metals throughout Section 5.

Nearby Population: As of 2007, the City of Albuquerque metropolitan area hosts a population of approximately 518,000 people (U.S Census Bureau, 2008). The Kirtland AFB work force is composed of more than 40,000 people, including more than 3,700 active duty and 1,100 Air National Guard and reservists, and 35,000 civilian employees, including civilian employees who work for other Federal agencies, base support agencies, and contractors (Kirtland AFB, 2008). The Pueblo of Isleta, south of Kirtland AFB, contains over 329 square miles. Based on 1998 tribal census data, there are 3,814 tribal members living on the reservation. All MRAs are located in Bernalillo County and are within a 2-mile radius of a population of 500 persons per square mile.

Natural Resources: The gray vireo, a state threatened species as listed by the New Mexico Department of Game and Fish (NMDGF), is the only federally or state-listed species known to occur at Kirtland AFB (Kirtland AFB, 2007). No known threatened plant species listed exist within Kirtland AFB (Kirtland AFB, 2007) and, neither the NMDGF nor the U.S. Fish and Wildlife Service (USFWS) has designated or identified any critical habitat at Kirtland AFB. Of the state-listed threatened or endangered species, no plant species currently listed by the New Mexico Forestry and Resource Conservation Division (NMFRCD) are known to occur at Kirtland AFB. The federally listed Rio Grande Silvery Minnow and the Southwestern Willow Flycatcher and their critical habitat occur along the Rio Grande River and its riparian corridor, outside of Kirtland AFB (Kirtland AFB, 2006e).

Sensitive Environments: The 1997 *Natural Resources Management Plan* prepared for Kirtland AFB describes the native vegetation of grasslands and woodlands at Kirtland AFB, noting transition zones between plains mesa grassland and desert scrub community types in the lower elevations, and a juniper savanna transition zone between desert grassland and piñon-juniper woodland in higher elevations. The base is bisected by two arroyos, Tijeras Arroyo and Arroyo del Coyote. There are numerous other smaller tributaries to these arroyos at Kirtland AFB.

A special flood hazard information report was prepared by the USACE - Albuquerque District for Tijeras Arroyo and Arroyo del Coyote in September 1979 (USACE, 1979). This report provides information on the areas within Kirtland AFB that are subject to flooding from Tijeras Arroyo and Arroyo del Coyote. Most of the floods in the Albuquerque area are experienced during the period of May to October as a result of high intensity summer thunderstorms. Approximately two-thirds of the annual 8-inch rainfall occurs during this period, while July and August usually have the most severe storms accounting for almost one-third of the yearly total. Floods are characterized by high peak flows, small volumes, and short duration.

EOD Notification: Kirtland AFB EOD was notified when MEC was found and a record kept in an MEC Accountability Inventory spreadsheet. Staff shortages were slowing EOD response, so it is unknown if all UXO reported has been disposed of.

5.1 AL120 Proximity Fuze Range

AL120 is the largest MRA at Kirtland AFB, comprising 4,440 acres. Throughout the course of the CSE Phase II investigation, information pertaining to the existence and locations of firing fans at AL120 was compiled to reconcile the MRA boundary. Figure 5-1.1 depicts all heavy-caliber firing fans on Kirtland AFB identified during the CSE Phase II.

5.1.1 Site Description

AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities. AL120 is divided into five non-contiguous areas existing within all but the northwest quadrant of Kirtland AFB (Figure 5-1.2). These five areas are referred to as southwest, southcentral, southeast, northeast and northcentral. Two of the five AL120 areas, the southwestern and southcentral portions, are located in mostly flat to gently rolling grassland. The northcentral area of AL120 is located in piñon-juniper studded foothills. The northeast and southeast portions of AL120, located along the eastern boundary of Kirtland AFB, are situated in steep, mountainous terrain.

5.1.2 History of MEC Activities

Historical information indicates extensive impact from past military munitions testing and training on AL120, including the Navy's BuOrd development and production testing of the VT fuze from January 1942 through October 1952; Sandia Base defense training; and weapons research, development, and testing. Nine historical firing points are associated with the NMPG/NMER development of the VT fuze. The available history of MEC activities for these firing points is provided below (Figure 5-1.1).

- **NMPG Firing Point 1:** This firing point operated from 1941 to September 1942 and served as a firing point for 57mm guns. Activities included down-range, sabot, and vertical recovery shots. The guns were fired to the east.
- **NMPG Firing Point 2:** This range operated from September 1942 to 1945 and served as a firing point for 20mm, 57mm, and 75mm guns. Activities included down-range, sabot, and vertical recovery shots. The guns were fired to the east.
- **NMPG Firing Point 3:** This range operated from 1943 to June 1952 and served as a firing point for 3″/50 guns. Activities included down-range, sabot, and vertical recovery shots. The guns were fired to the northeast, based on the assumption that firing would not be directly toward the HQ building and based on a photograph showing the direction of gun barrels.
- **NMPG Firing Point 4:** This range operated from 1943 to June 1952 and served as a firing point for 90mm M1 guns. There is only evidence of vertical recovery.
- **NMPG Firing Point 5:** This range operated from 1943 to June 1952 and served as the firing point for .50-caliber machine guns. Firing at this range was to the east in the same direction as Firing Points 6 and 7, based on proximity to these firing points.
- **NMPG Firing Point 6 (Main Firing Line):** This range operated from 1943 to June 1952. Firing at this range included 90mm M1, 76mm M1A2, 8 Tube 5" Rockets, 57mm, 20mm, 75mm, Navy 6 Pounder, 105mm Howitzer, 120mm, 5"/38 (MK30 Mod 48, MK21 Mod 7), 3.7" British, 3"/50 MK22, 58mm, 4.5" Rocket Launcher, 5"/54, and 3"/70. Based on 1943 and 1945 maps, firing at this point was towards the east-southeast.
- **NMPG Firing Point 7:** This range operated from 1943 to June 1952 and served as the firing point for 57mm guns. Activities included down-range shots and vertical recovery. The guns were fired toward the east-southeast, based on 1943 and 1945 maps.

- **NMPG Firing Point 8:** This range operated from 1943 to June 1952 and served as the firing point for 57mm guns. Activities included down-range and sabot shots. The shots were fired to the east.
- **NMPG Firing Point 9:** This range operated from 1943 to June 1952 and served as the firing point for 3"/50 and 5"/38 guns. The guns were fired to the southeast at two separate targets areas.

In addition, two DOE firing fans are located within AL120 shown on Figure 5-1.1 (ER Site 64 and ER Site 84).

- **ER Site 64:** Both 155mm projectiles and rockets were fired at DOE's Madera Canyon Gun Site (Figure 2-7). The target area for the 155mm projectiles is believed to be the target area originally identified as SR780. Because the target was subsequently identified inside of a currently active DOE area, the acreage originally assigned to SR780 as been assigned to AL120 northcentral.
- **ER Site 84:** Located at Building 6750 in DOE's TA-III, ER Site 84 consists of a 75mm gun able to shoot projectiles into the southern portion of TA-III and earth penetrators directly into the ground. The projectiles were primarily conventional projectiles made of solid steel, although some outdoor tests used lead and depleted uranium (DU) as both projectiles and targets. The firing fan for this 75mm gun extends slightly into the corner of ML774 and includes almost all of AL120 southwest; however, the main hazard area for the gun is contained within the Building 6750 compound and its berms in the active area of TS-III.

Figure 5-1.3 provides an overview of munitions related findings for AL120. The specific AL120 areas are further covered in detail later in this section.

5.1.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for AL120 is that of constrained land use. Areas designated as constrained land use have restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (Kirtland AFB, 2005a). Currently portions of AL120 are developed and used by multiple organizations. The undeveloped portions of AL120 are open space used for military operations.

5.1.4 Access Controls

Entry onto portions of AL120 are restricted to authorized personnel only by signage. All of AL120 is openly accessible except for the following areas:

- The southwest portion of AL120 is bordered on the south and west by the Installation boundary chain link fence. Part of the north side of the southwest portion of AL120 is bordered by a chain link security fence.
- The southcentral portion of AL120 is bordered by the Installation boundary chain link fence on the south side.
- The southeast and northeast portions of AL120 are bordered by severely rugged terrain. The eastern Installation boundary between Kirtland AFB and Cibola National Forest, in the far northeastern portion of AL120, is not completely fenced (Figure 5-1.3). Several gates and natural barriers restrict vehicular access onto the Installation and AL120 from the eastern boundary.
- The northcentral portion of AL120 is bordered by non-fenced operational areas of the Installation.

5.1.5 Restrictions

As described above, the only restrictions at AL120 are the Installation boundary, secure areas, and severely rugged terrain.

5.1.6 Field Investigation Results

The various field investigations conducted in each area of AL120 are illustrated in Figures 5-1.2 through 5-1.21. Figure 5-1.1 through 5-1.4 are overview maps providing information on the entire AL120 area, while Figures 5-1.5 through 5-1.21 are area-specific and provide much greater detail. CSE Phase II activities included HeliMag, towed-array, litter/cart, visual survey, ground truthing, and media sampling at the various portions of AL120 as follows:

- HeliMag, towed-array, and ground truthing investigation activities were conducted in the southwest portion (Figure 5-1.6).
- HeliMag, towed-array, litter/cart, ground truthing, and media sampling investigation activities were conducted in the southcentral portion (Figure 5-1.10).
- Visual survey investigation activities were conducted in the southeast portion (Figure 5-1.13) and northeast portion (Figure 5-1.16).
- HeliMag, towed-array, litter/cart, visual survey, and ground truthing investigation activities were conducted in the northcentral portion (Figure 5-1.19).

5.1.6.1 Site Reconnaissance Observations

Site reconnaissance observations were made at the various portions of AL120 as follows:

- The southwest portion of AL120 is relatively flat grassland, located on the alluvial fan/mesa emanating from the Manzano highlands to the east. A mechanical time fuze (MK51 Mod 2), located near the helicopter strip, was observed during the reconnaissance.
- The southcentral portion of AL120 is flat grassland. A 5-inch diameter rocket was observed during the reconnaissance.
- The southeast and northeast portions of AL120 consist of mountainous and thickly vegetated, often steep slopes and ridgelines. No munitions-related items were observed at that time.
- The northcentral portion of AL120 is characterized by moderate to steep rolling piñon-juniper/grassland foothills. No munitions-related items were observed at that time.

5.1.6.2 Geophysical Survey Results

Figure 5-1.2 is an overview of DGM results for AL120. In the southwest portion of AL120, 406 acres of HeliMag were conducted (Figure 5-1.5). Geophysical survey results indicated a low anomaly density.

In the southcentral portion of AL120, 1,317 acres of HeliMag, 528 acres of towed-array, and 60 acres of litter/cart were conducted (Figure 5-1.9). Geophysical survey results indicate high anomaly density trending north/south throughout the center of this area.

Due to the severity of the terrain, no geophysical investigation activities were conducted in the southeast and northeast portions of AL120.

In the northcentral portion of AL120, 205 acres of HeliMag, 41 acres of towed-array, and 148 acres of litter/cart were conducted (Figure 5-1.18). Geophysical survey results indicated three areas of high anomaly density.

5.1.6.3 Visual Survey

No visual surveys were conducted in the southwest or southcentral portions of AL120.

In the southeast portion of AL120, 570 acres were visually surveyed (Figure 5-1.13 through 5-1.15). Limited munitions debris was found and included 5-inch projectiles.

In the northeast portion of AL120, 1,080 acres were visually surveyed (Figure 5-1.16 and 5-1.17). No munition debris was found.

In the northcentral portion of AL120, 78 acres were visual surveyed (Figures 5-1.19 and 5-1.20). Munitions debris, including a smoke grenade, flare, 2.75 illum round, 75mm, 7.62 blanks and a bomb crater with frag were observed during the visual survey.

5.1.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data were then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 feet apart during ground truthing, the mileage was then multiplied by 3. The ground truthing numbers reported include the multiplier.

In the southwest portion of AL120, 15 miles of ground truthing were conducted (Figures 5-1.6 through 5-1.8). An auxiliary air field and other cultural debris were observed in this area of the MRA. A 2.75-inch fuze that was broken open was also observed. During the CSE Phase I, a 57mm HE round was found in this area and has been labeled the "McCormick UXO."

In the southcentral portion of AL120, 108 miles of ground truthing were conducted (Figure 5-1.10 through 5-1.12). The high density anomalies are attributable to cultural features associated with nearby buildings and a large power line that parallels Lovelace Road. An approximately 7.5-acre propellant dispersal site was discovered during ground truthing activities.

Due to the severity of the terrain, no geophysical investigation activities or ground truthing were conducted in the southeast or northeast portion of AL120.

In the northcentral portion, 25 miles of ground truthing were conducted (Figure 5-1.19 through 5-1.21). The areas of high anomaly density are associated with cultural features used for training exercises.

5.1.6.5 Media Sampling Results

No media sampling was conducted in the southwest, southeast, northeast, and northcentral portions of AL120. Media sampling was conducted only in the southcentral portion of AL120.

Soil samples were collected from AL120 as part of the CSE Phase II. Surface soil samples were collected in order to characterize potential HE-related contamination. Sample locations are presented in Figure 5-1.22. Samples were analyzed for the following explosives: TNT, RDX and HMX. The analytical results are presented in Table 5-1.1 located in Appendix H. These explosives were not detected in concentrations above detection limits in any of the samples collected in AL120.

5.1.6.6 Background Determination

Samples for comparison to background concentrations of explosives were not collected at AL120.

5.1.7 Identification of Potential Receptors

Based on the Interim Conceptual Site Model (ICSM), current potential receptors for all portions of AL120 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.1.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. All portions of AL120 are located in Bernalillo County, which has a population density of more than 500 persons per square mile. AL120 is located up to 2 miles from residential areas and an industrial area.

5.1.7.2 Buildings Near/Within MRA

There is one building located in the southwest portion of AL120. The Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the southwest portion of AL120.

Approximately 40 buildings exist in the southcentral portion of AL120. The Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the southcentral portion of AL120.

No buildings exist in the southeast and northeast portions of AL120. However, the Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of both the southeastern and northeastern portions of AL120.

Approximately 10 buildings exist in the northcentral portion of AL120. The Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the northcentral portion of AL120.

5.1.7.3 Utilities On/Near MRA

Electric, water, and sewer utilities are located within the southwest, southcentral, and northcentral portions of AL120 leading to and from the buildings located within AL120. Both underground and overhead utilities are present.

5.1.8 Natural Resources

The northcentral and southcentral portions of AL120 include areas considered to be potential gray vireo habitat. The gray vireo, a state-threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB. The USFWS considers the gray vireo a sensitive species (Kirtland AFB, 2007).

5.1.9 Sensitive Environments

Based on a USACE 1995 *Wetland Inventory Survey* (USACE, 1995) and a 2001 *Wetland Delineation Report* prepared for Kirtland AFB (Ogden, 2001), 13 wetland sites were documented on the Installation. One wetland site is associated with Coyote Springs in the northcentral portion of AL120. Figure 5-1.23 depicts the location of springs along the Arroyo del Coyote, including the Coyote Springs cluster and others in AL120. The wetland located at the Coyote Springs is considered the lone, perennial surface water feature within AL120.

Additionally, the southwest, northcentral, and southcentral portions of AL120 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

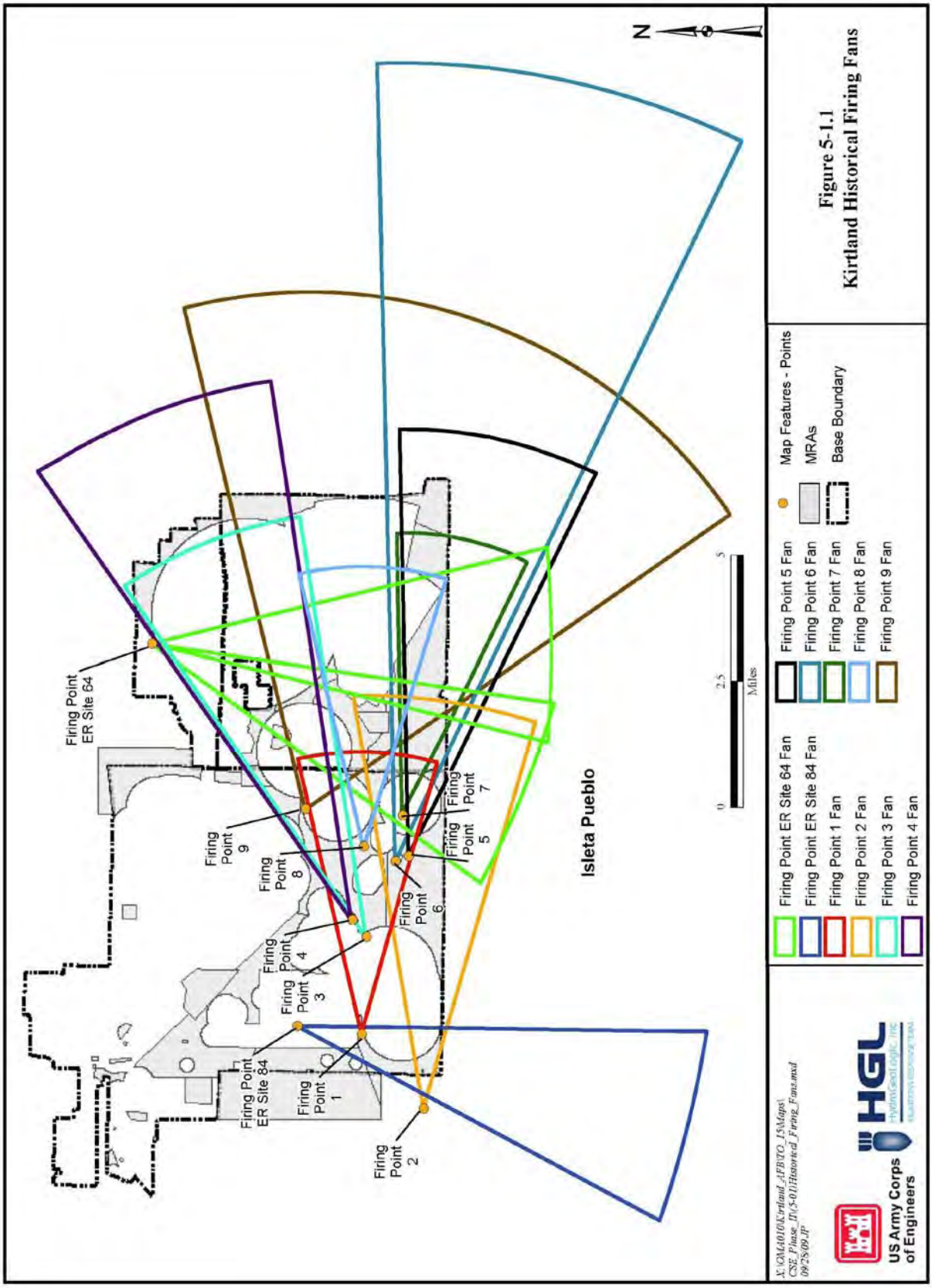
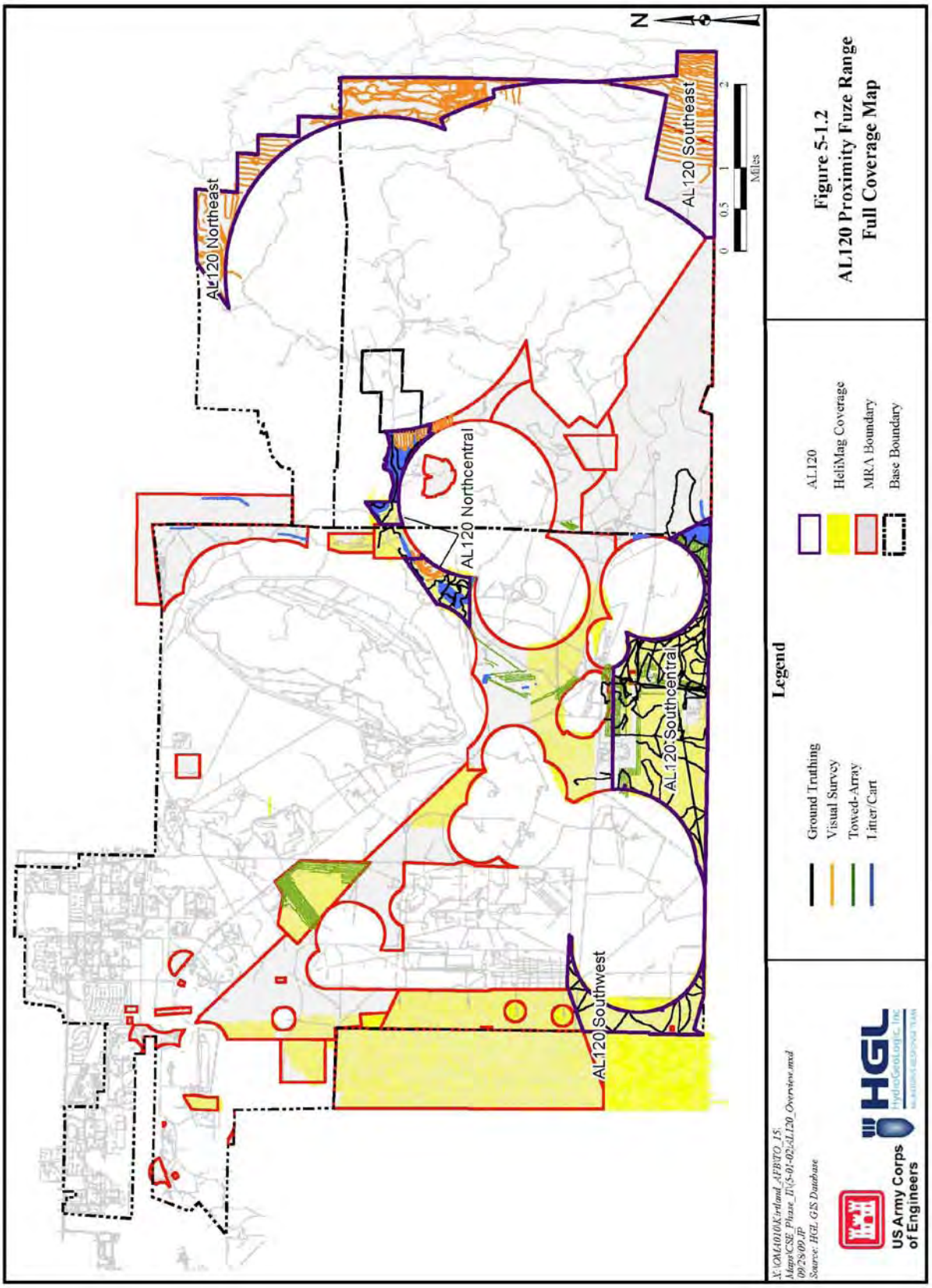


Figure 5-1.1
Kirtland Historical Firing Fans


N
AL120 Northeast
AL120 Southeast
AL120 Northcentral
AL120 Southcentral
AL120 Southwest
0 0.5 1 2
Miles
Legend
Ground Truthing
Visual Survey
Towed-Array
Litter/Cart
AL120
HeliMag Coverage
MRA Boundary
Base Boundary
Figure 5-1.2
AL120 Proximity Fuze Range
Full Coverage Map
US Army Corps of Engineers
HGL

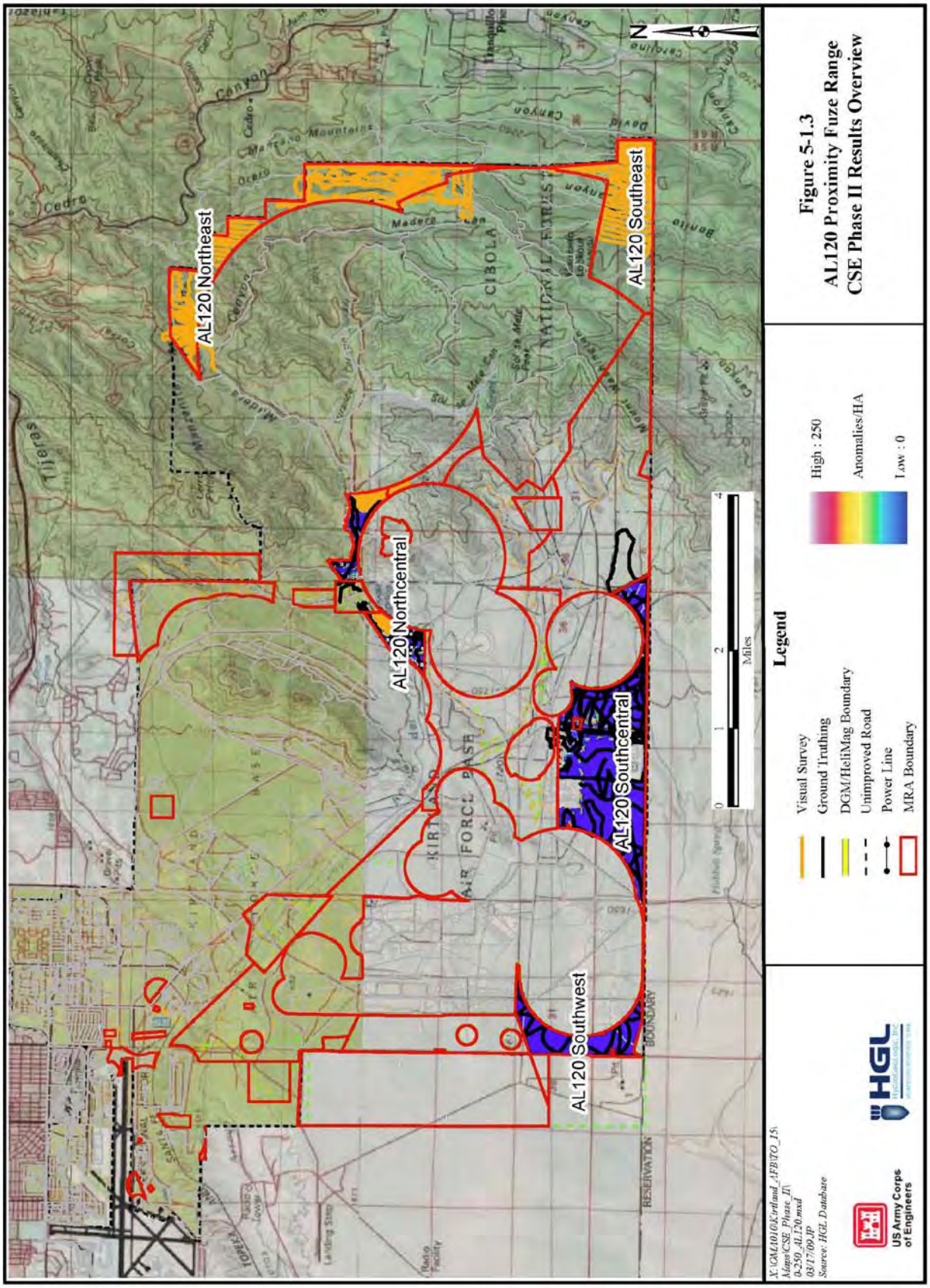


Figure 5-1.3
AL120 Proximity Fuze Range
CSE Phase II Results Overview

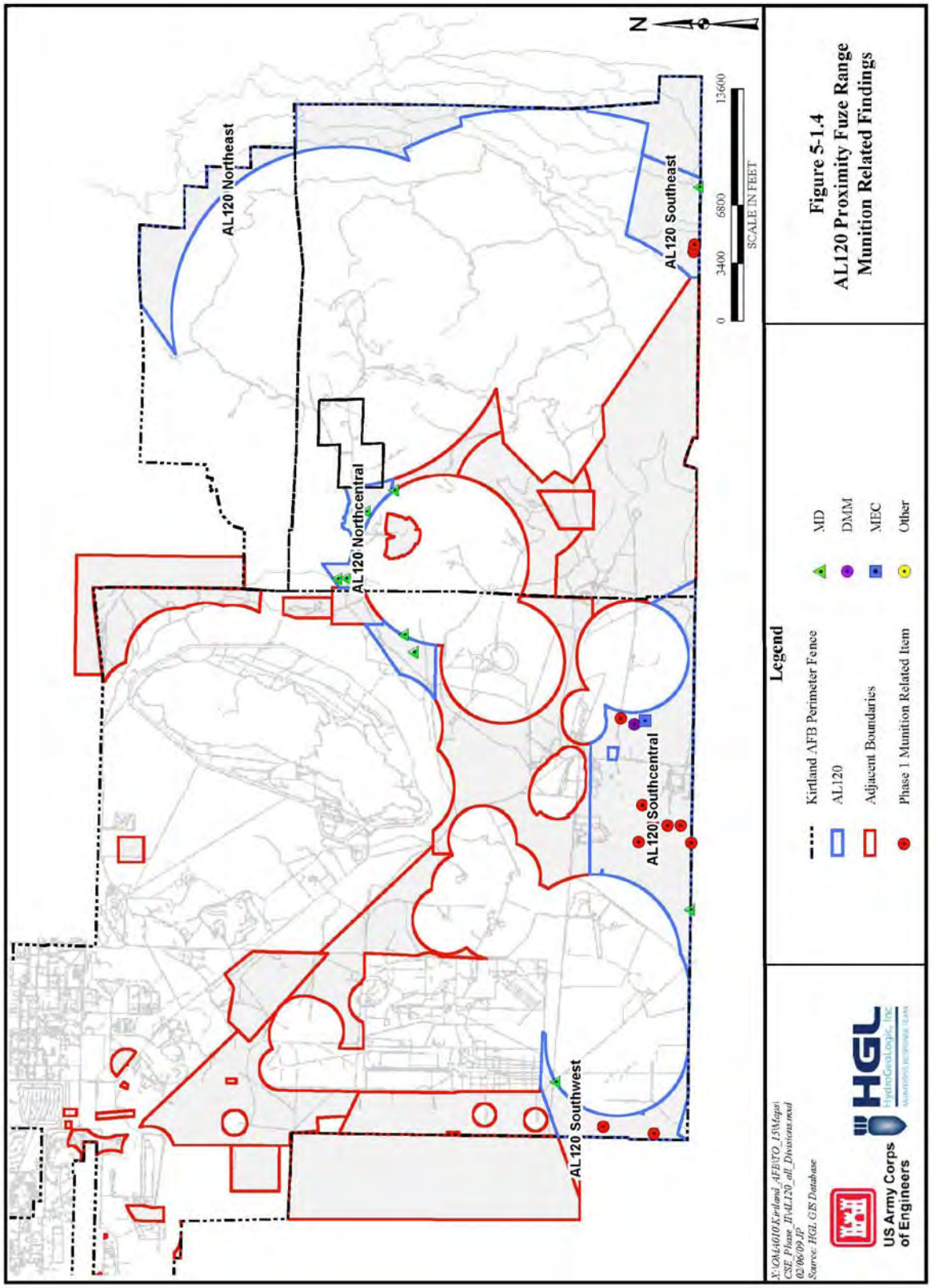


Figure 5-1.4
AL120 Proximity Fuze Range Munition Related Findings

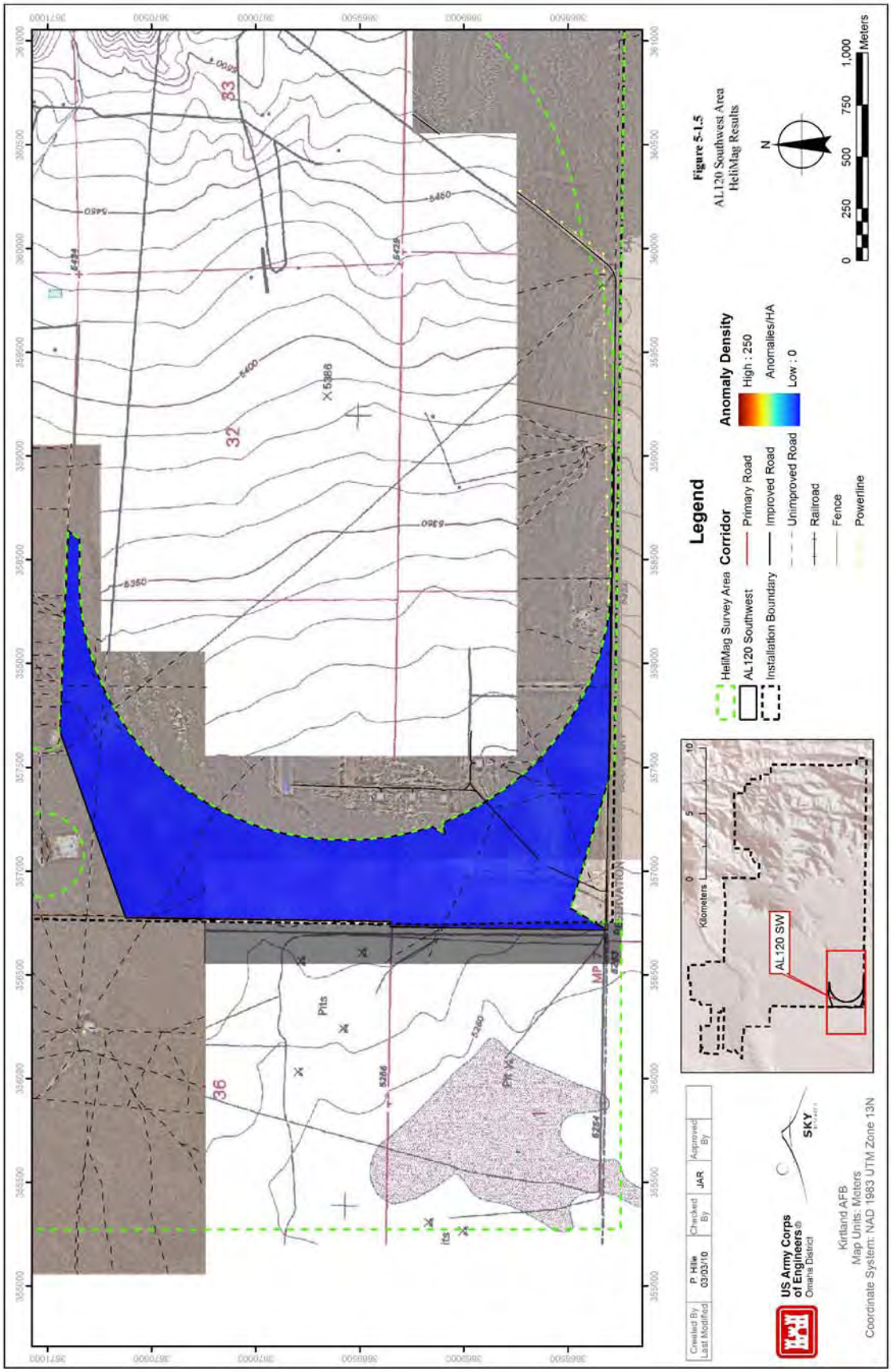
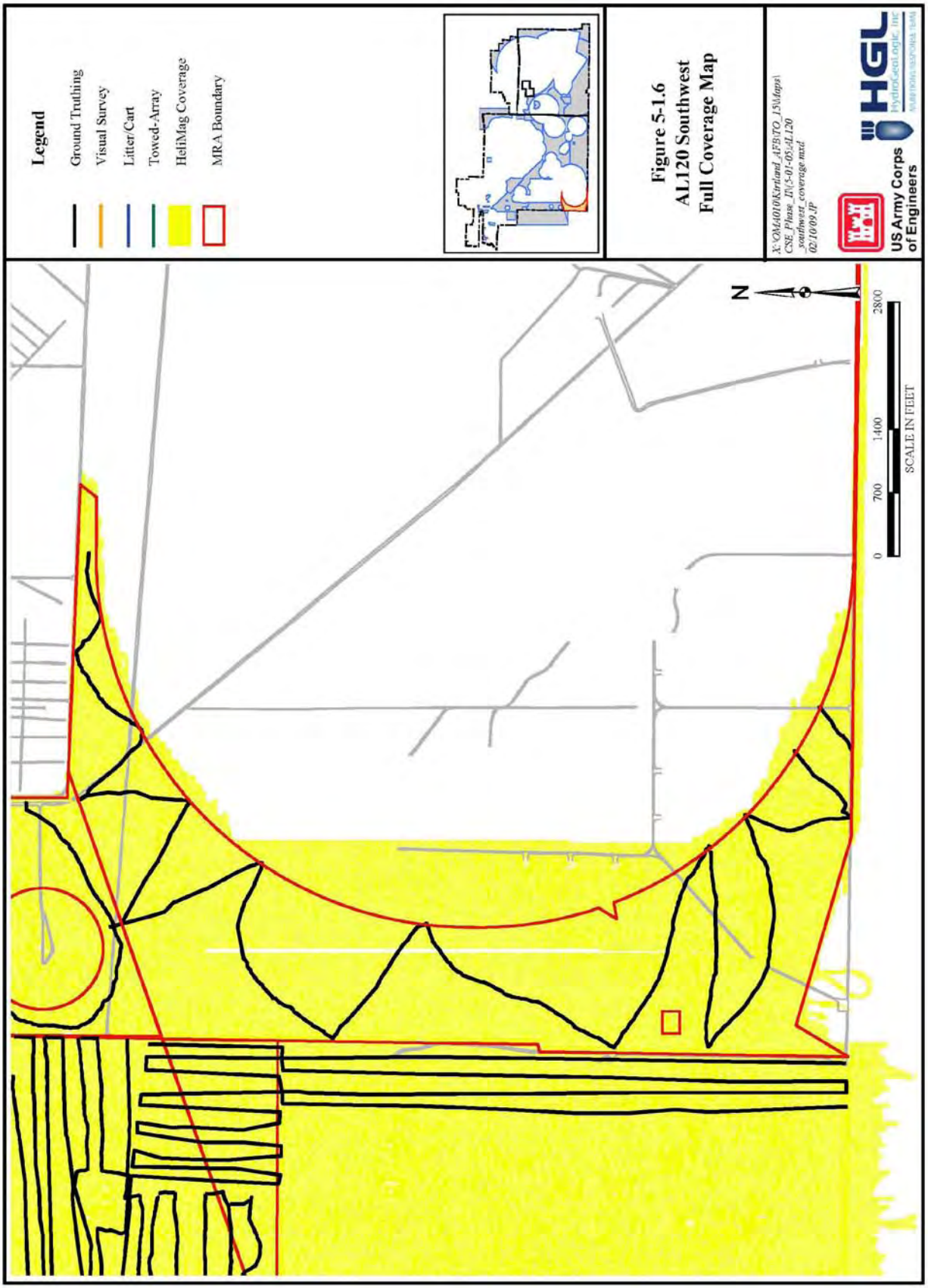


Figure 5-1.5
AL120 Southwest Area
HeliMag Results


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-1.6
AL120 Southwest
Full Coverage Map
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-01-05-AL120
_southwest_coverage.mxd
02/10/09 JP
US Army Corps
of Engineers
HGL
N
0
700
1400
2800
SCALE IN FEET

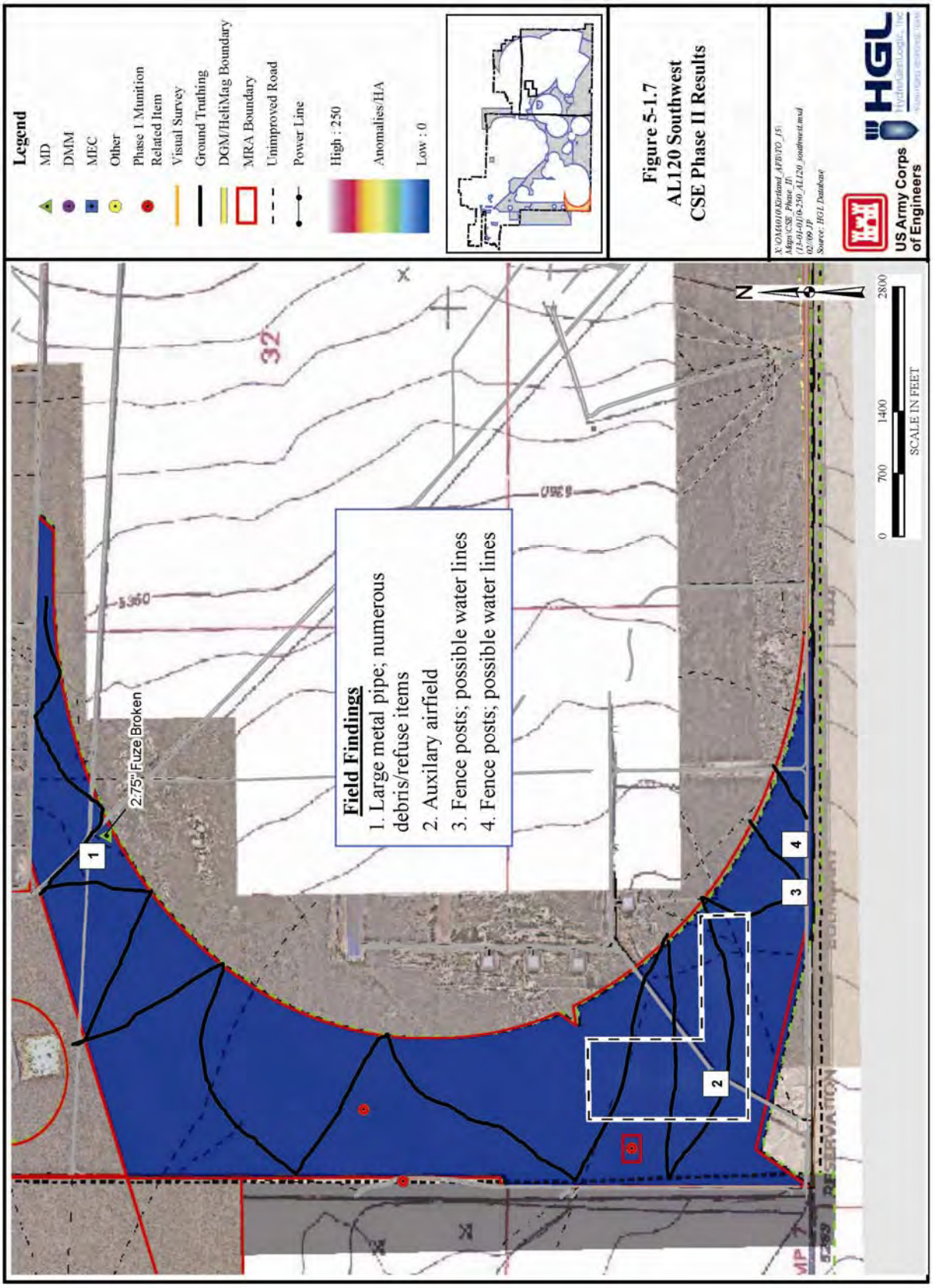
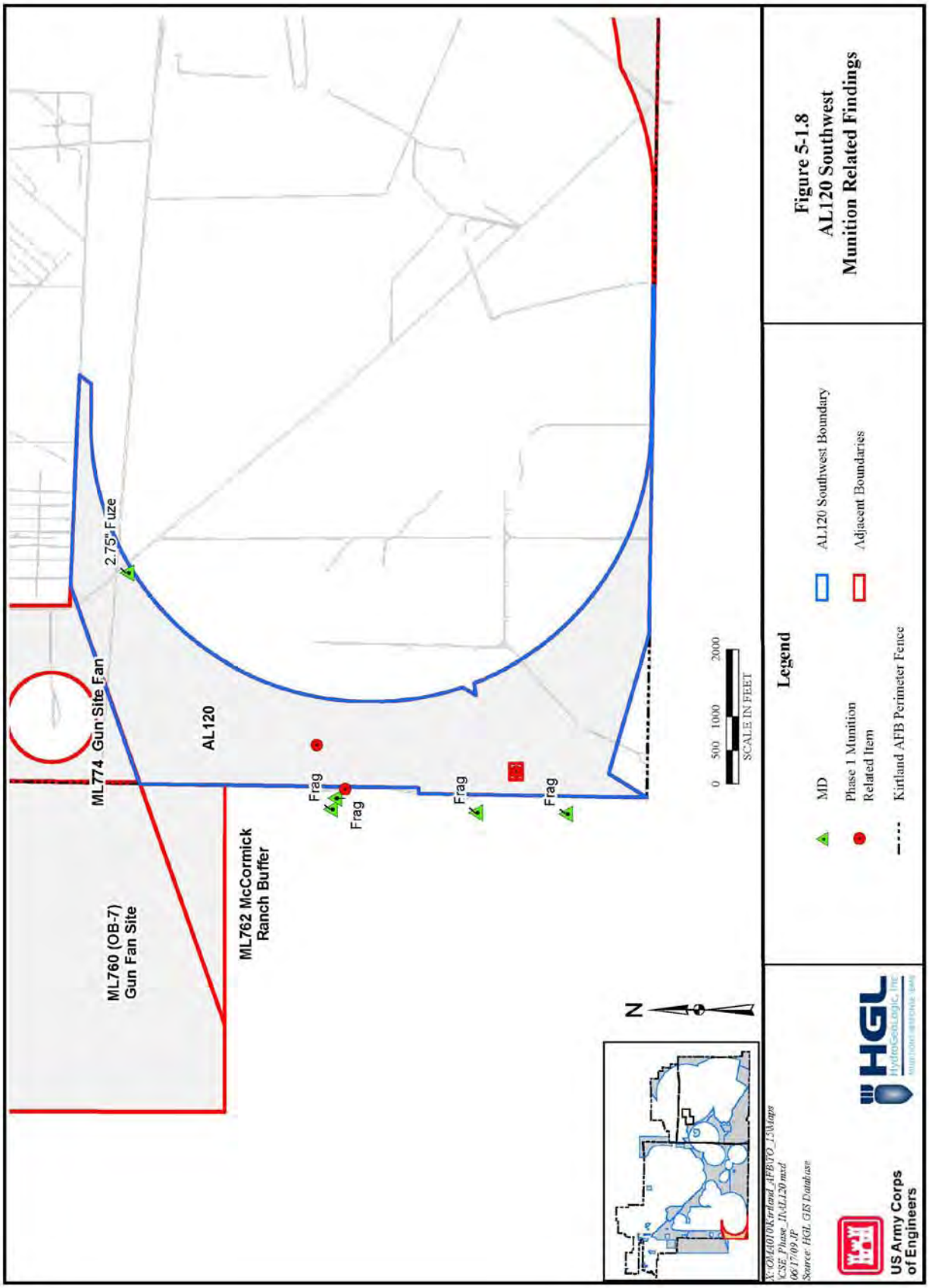


Figure 5-1.7
AL120 Southwest
CSE Phase II Results


ML760 (OB-7)
Gun Fan Site
ML762 McCormick
Ranch Buffer
ML774 Gun Site Fan
AL120
2.75" Fuze
Frag
Frag
Frag
Frag
0 500 1000 2000
SCALE IN FEET
N
Legend
MD
Phase 1 Munition
Related Item
Kirtland AFB Perimeter Fence
AL120 Southwest Boundary
Adjacent Boundaries
US Army Corps
of Engineers
HGL
HydroGeologic, Inc.
Figure 5-1.8
AL120 Southwest
Munition Related Findings

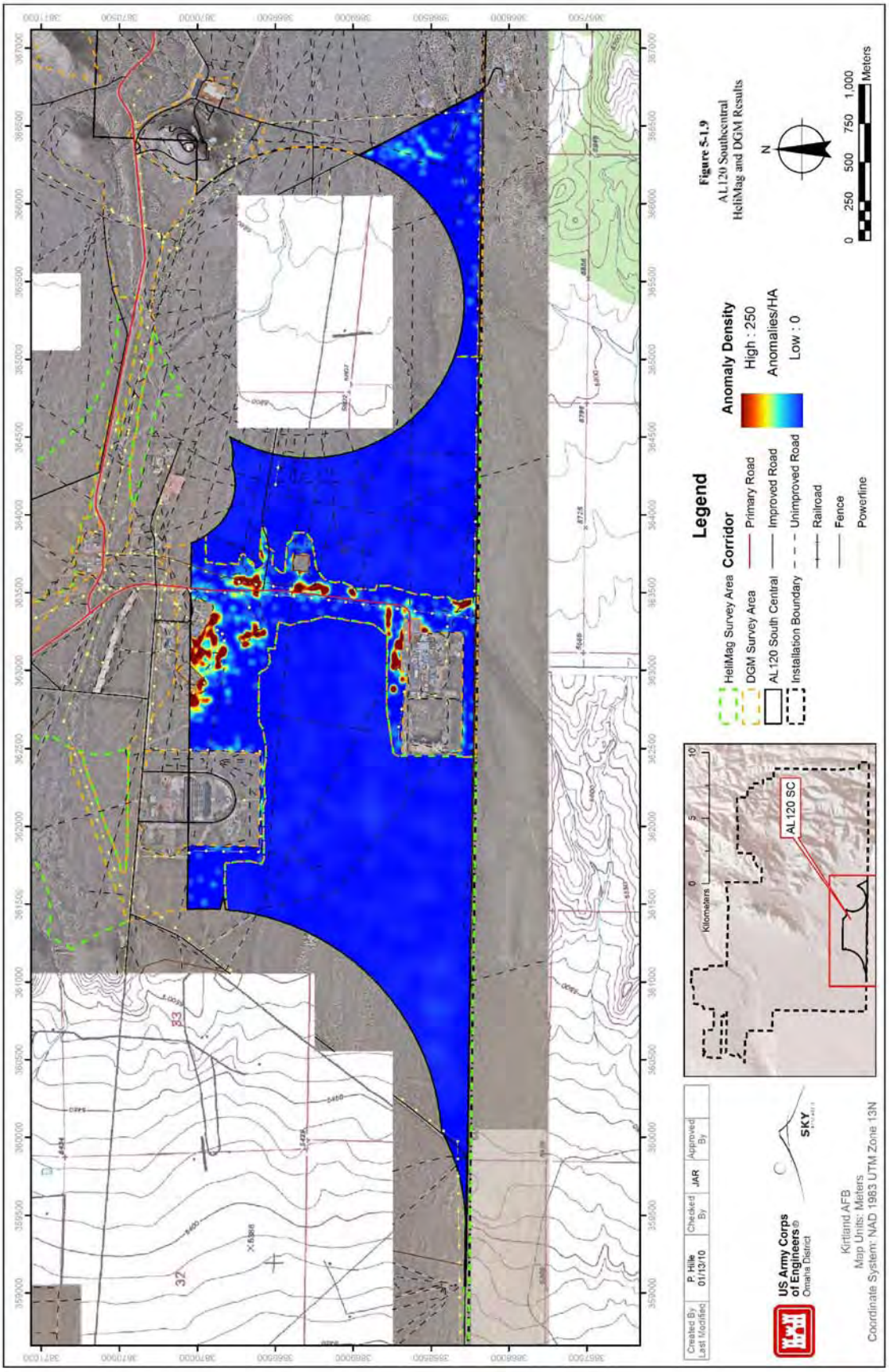


Figure 5-1.9
AL120 Southcentral
HeliMag and DGM Results

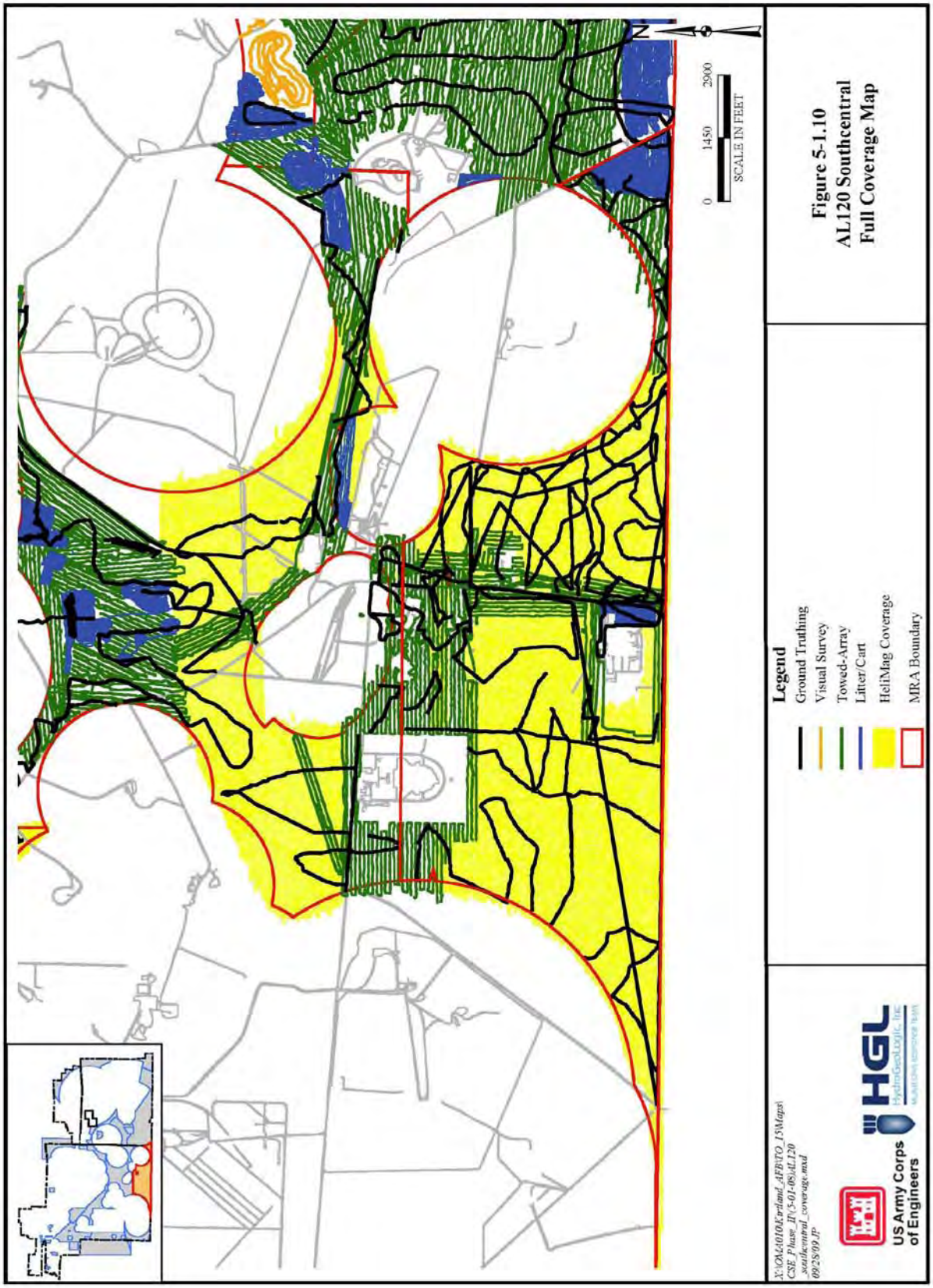


Figure 5-1.10
AL120 Southcentral
Full Coverage Map

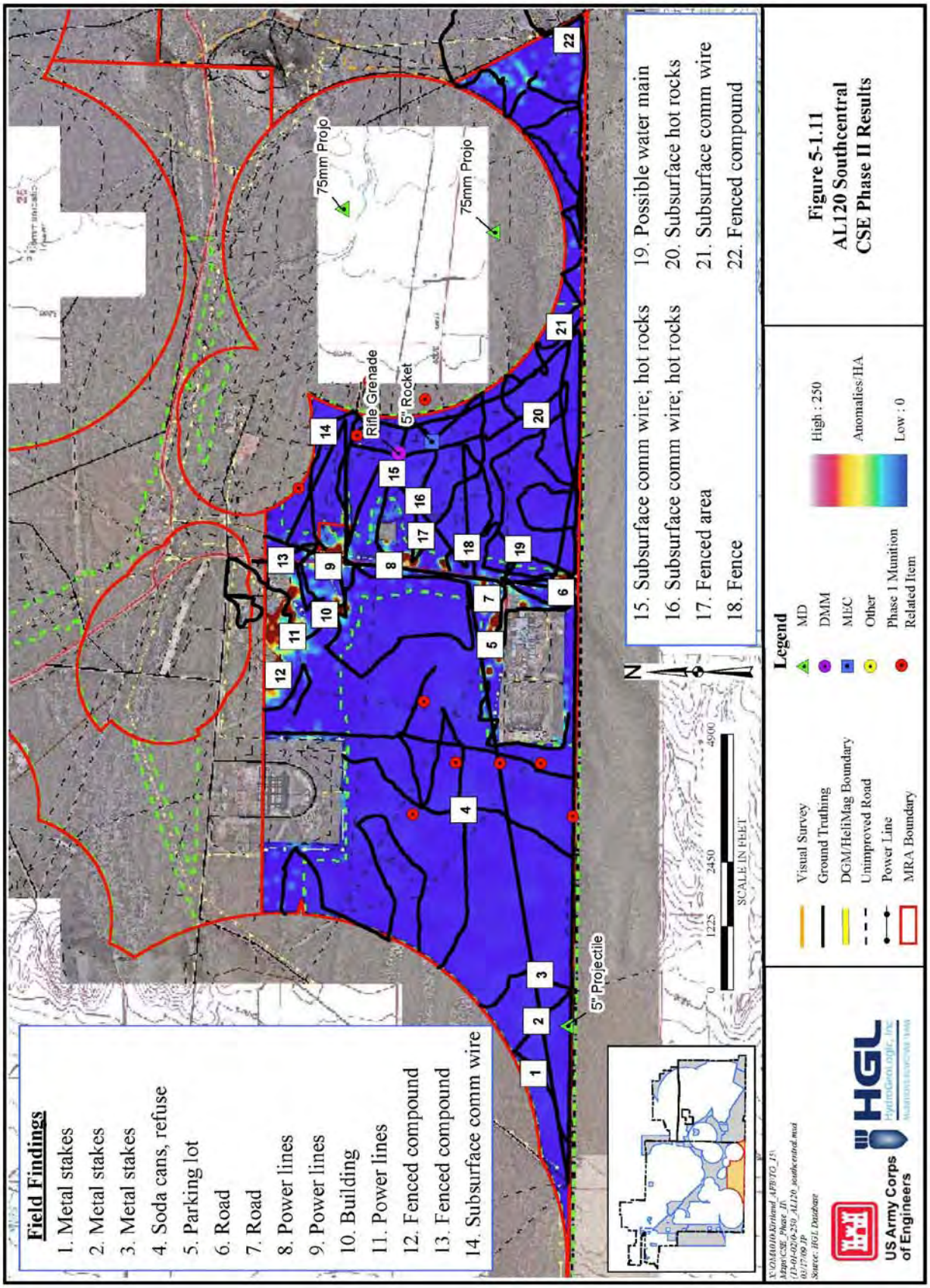


Figure 5-1.11
AL120 Southcentral
CSE Phase II Results

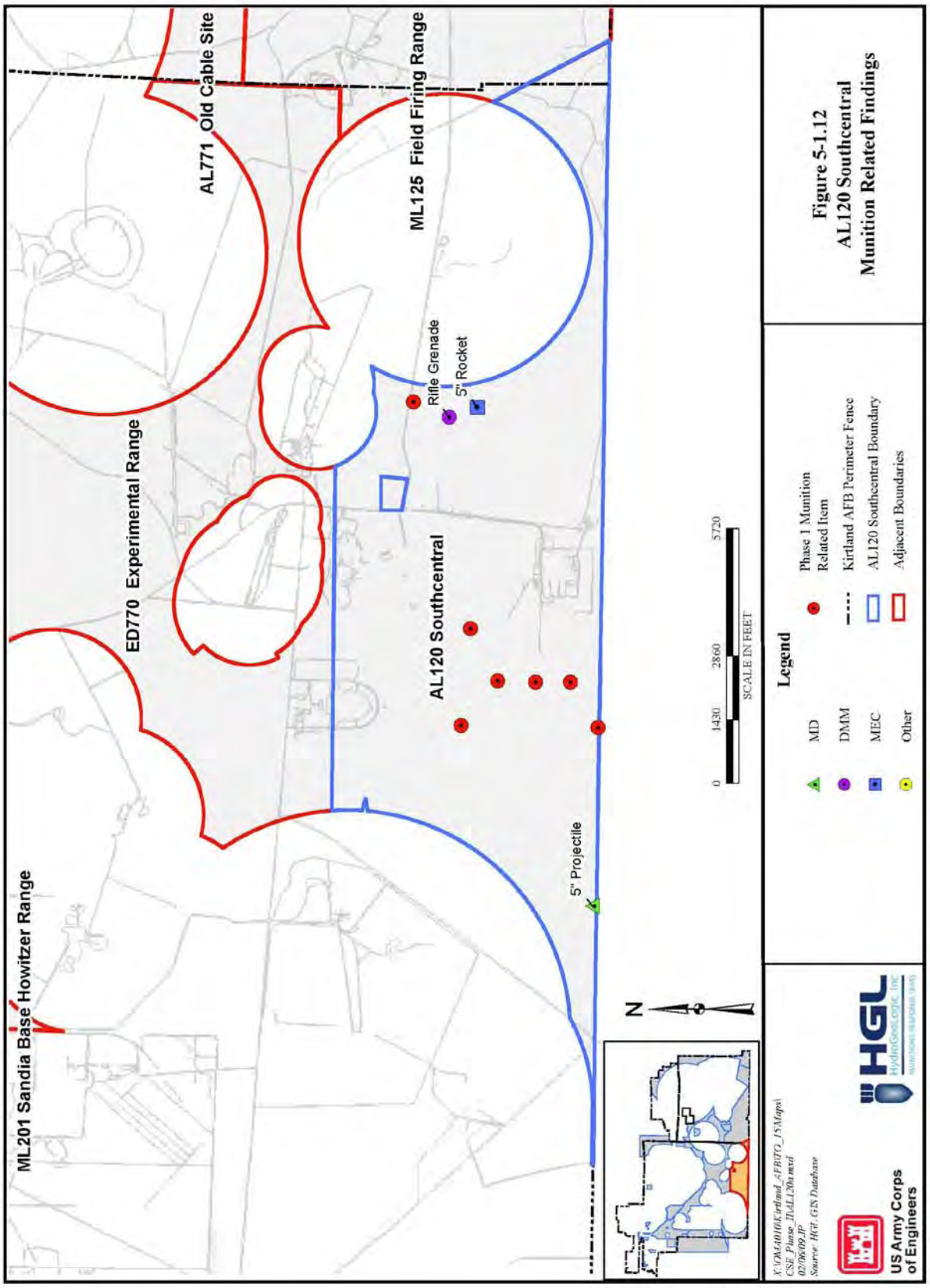
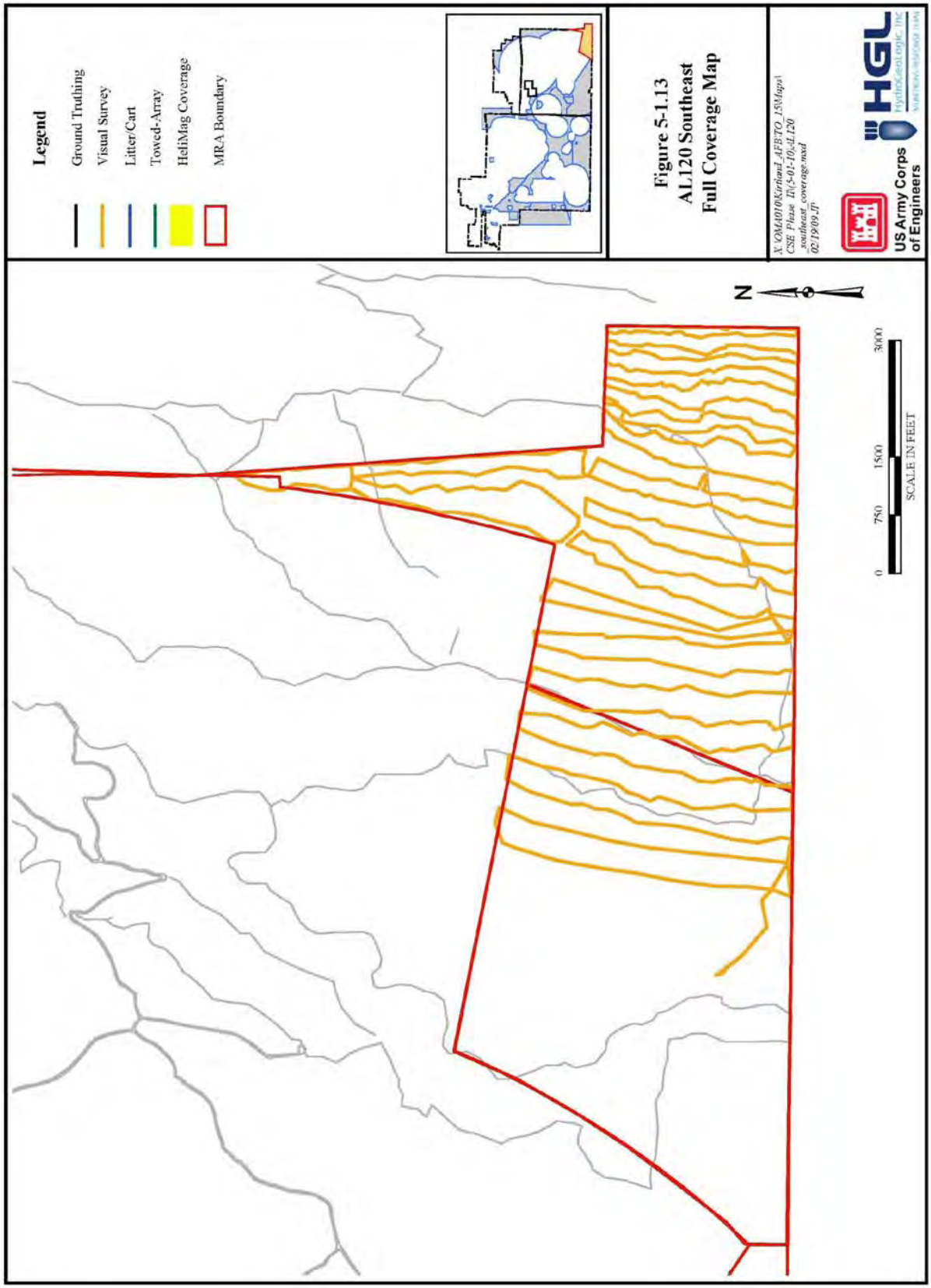


Figure 5-1.12
AL120 Southcentral
Munition Related Findings


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-1.13
AL120 Southeast
Full Coverage Map
X:\OM4010\Kirtland_AFB\TO_15\Maps\
CSE Phase II\5-01-10\AL120
_southeast_coverage.mxd
02/19/09 JT
US Army Corps
of Engineers
HGL
Hydrogeologic, Inc.
N
0
750
1500
3000
SCALE IN FEET

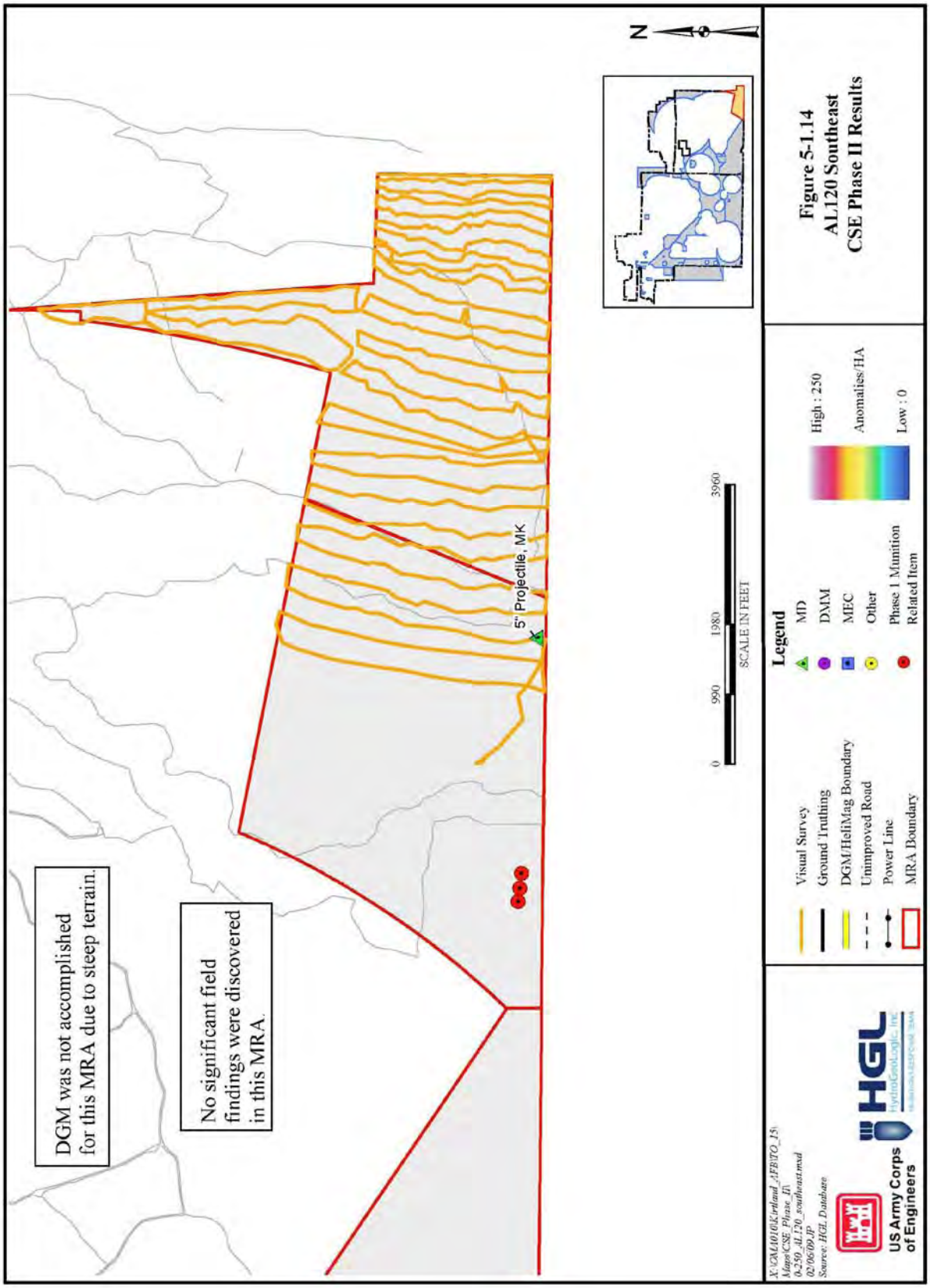
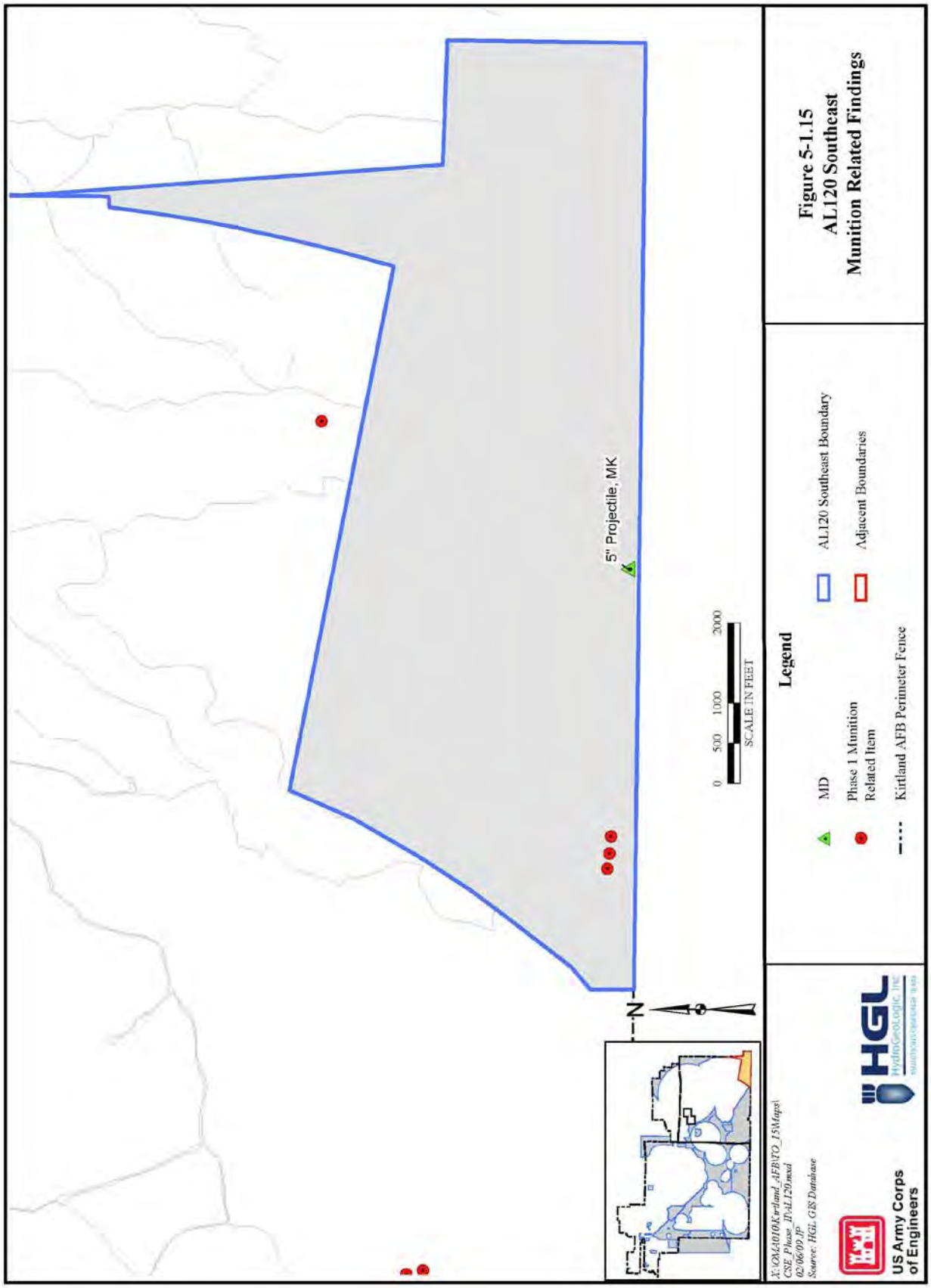
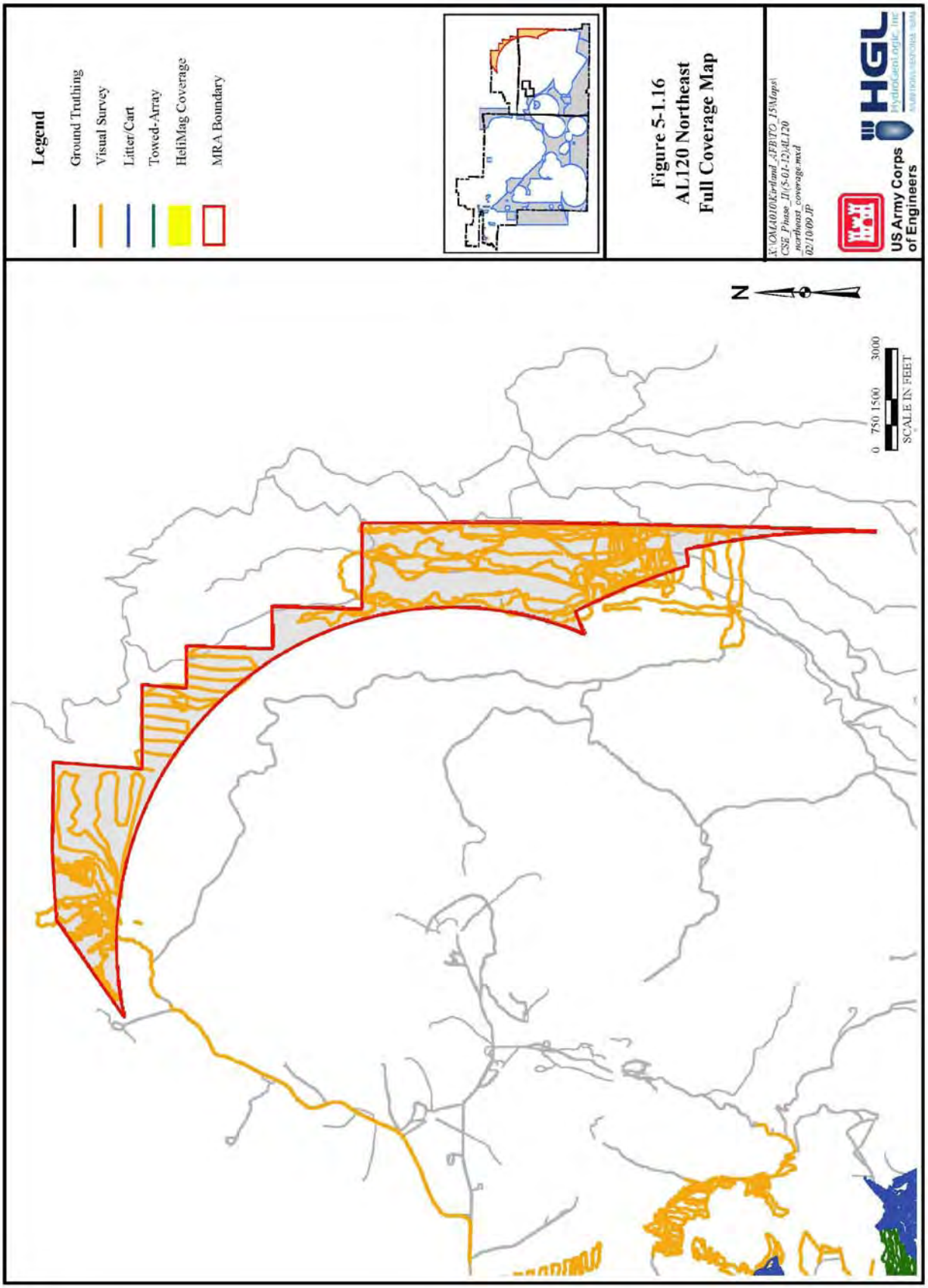
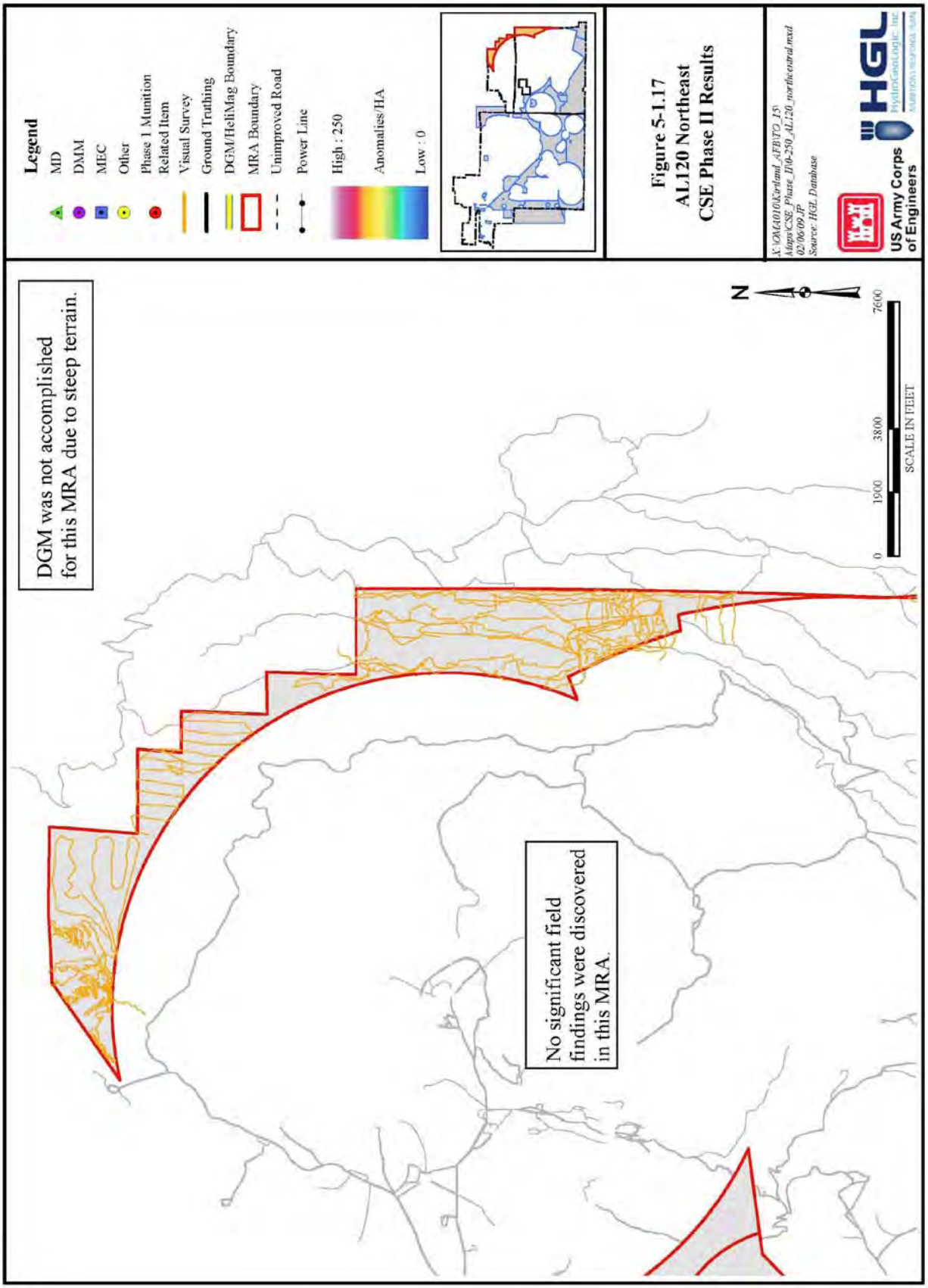


Figure 5-1.14
AL120 Southeast
CSE Phase II Results


5" Projectile, MK
0 500 1000 2000
SCALE IN FEET
N
Legend
MD
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
AL120 Southeast Boundary
Adjacent Boundaries
Figure 5-1.15
AL120 Southeast
Munition Related Findings
US Army Corps of Engineers
HydroGeoLogic, Inc.
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\AL120.mxd
02/06/09 JP
Source: HGL GIS Database


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-1.16
AL120 Northeast
Full Coverage Map
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-01-12\AL120
northeast_coverage.mxd
02/10/09 JP
US Army Corps
of Engineers
HGL
N
0 750 1500 3000
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/HA
Low : 0
Figure 5-1.17
AL120 Northeast
CSE Phase II Results
X:\OMA010\Kirtland_AFB\TO_15\
Maps\CSE_Phase_II\0-250_AL120_northcentral.mxd
02/06/09 JP
Source: HGL Database
US Army Corps of Engineers
HGL
DGM was not accomplished for this MRA due to steep terrain.
No significant field findings were discovered in this MRA.
N
0
1900
3800
7600
SCALE IN FEET

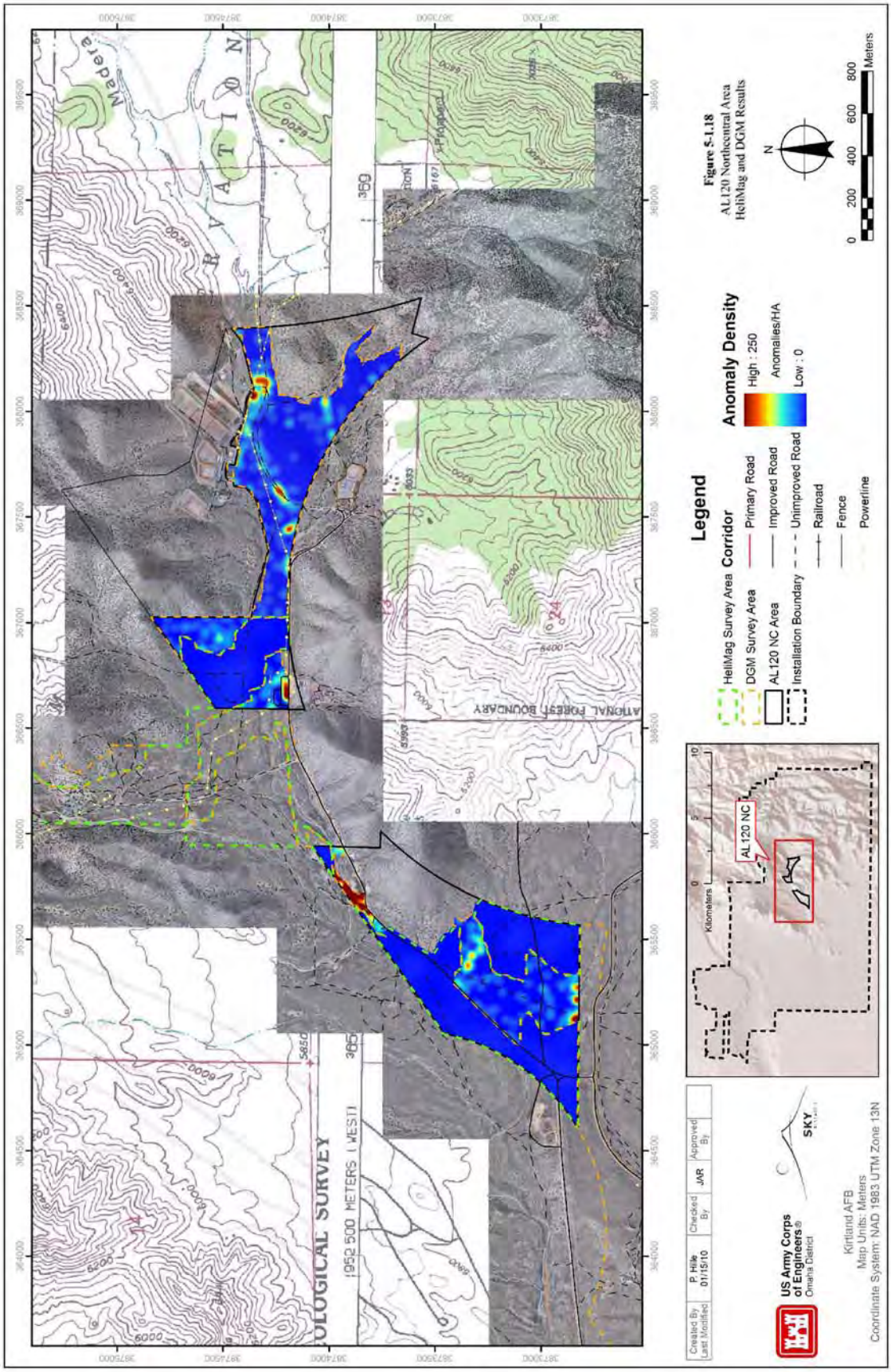
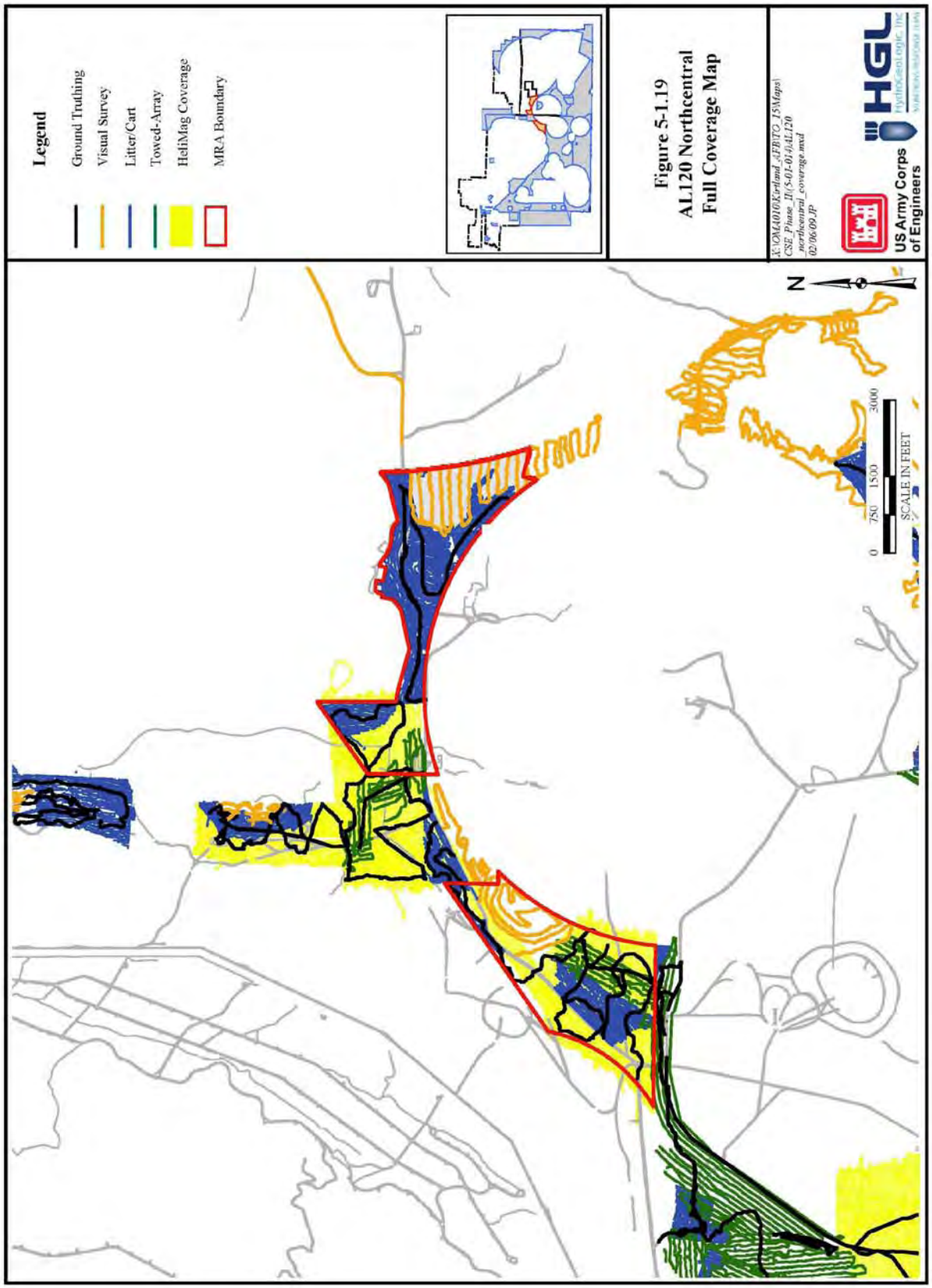
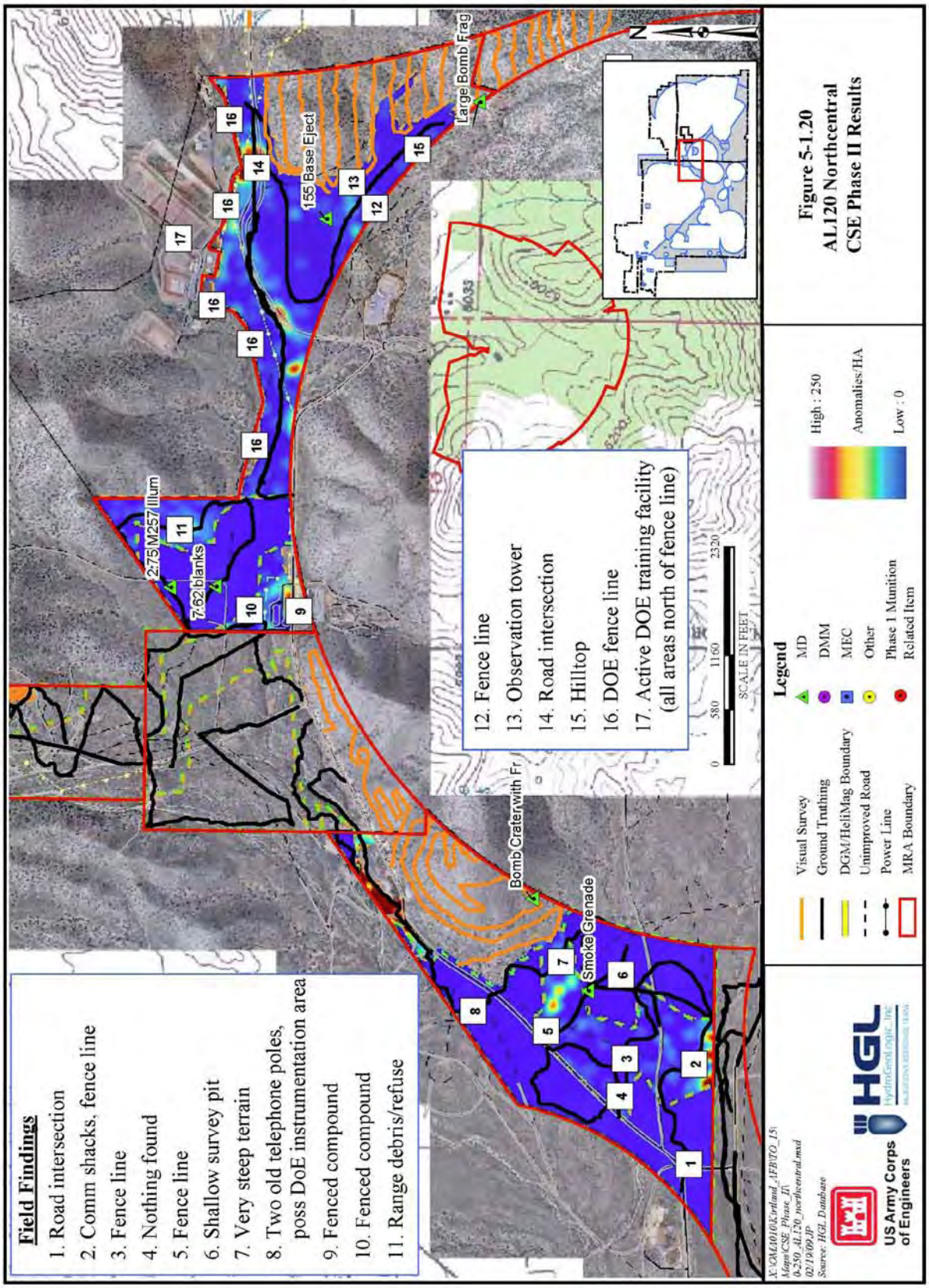


Figure 5-1.18
AL120 Northcentral Area
HeliMag and DGM Results


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-1.19
AL120 Northcentral
Full Coverage Map
X:\CMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-01-01\AL120
_northcentral_coverage.mxd
02/06/09 JP
US Army Corps
of Engineers
HGL
HydroGeologic, Inc
N
0 750 1500 3000
SCALE IN FEET


Field Findings
1. Road intersection
2. Comm shacks, fence line
3. Fence line
4. Nothing found
5. Fence line
6. Shallow survey pit
7. Very steep terrain
8. Two old telephone poles, poss DoE instrumentation area
9. Fenced compound
10. Fenced compound
11. Range debris/refuse
12. Fence line
13. Observation tower
14. Road intersection
15. Hilltop
16. DOE fence line
17. Active DOE training facility (all areas north of fence line)
2.75 M257 Illum
7.62 blanks
155 Base Eject
Large Bomb Frag
Bomb Crater with Fr
Smoke Grenade
SCALE IN FEET
0
580
1160
2320
Legend
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
Unimproved Road
Power Line
MRA Boundary
MD
DMM
MEC
Other
Phase 1 Munition Related Item
High : 250
Anomalies/HA
Low : 0
Figure 5-1.20
AL120 Northcentral
CSE Phase II Results
US Army Corps of Engineers
HGL
X:\GM1010\Kirtland_1FBTO_15\Maps\CSE_Phase_II\0-250_AL120_northcentral.mxd
02/19/09 JP
Source: HGL Database

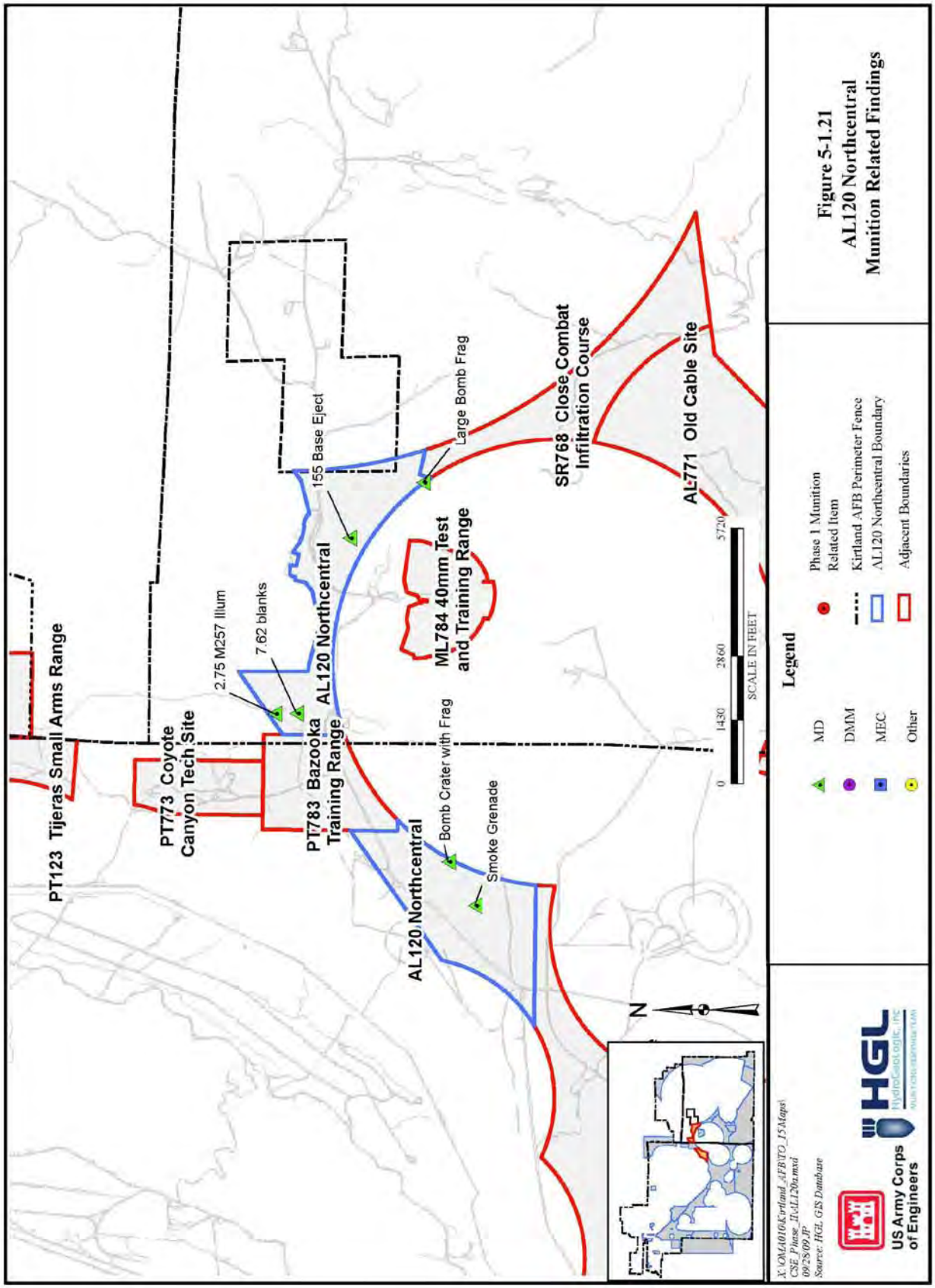


Figure 5-1.21
AL120 Northcentral
Munition Related Findings

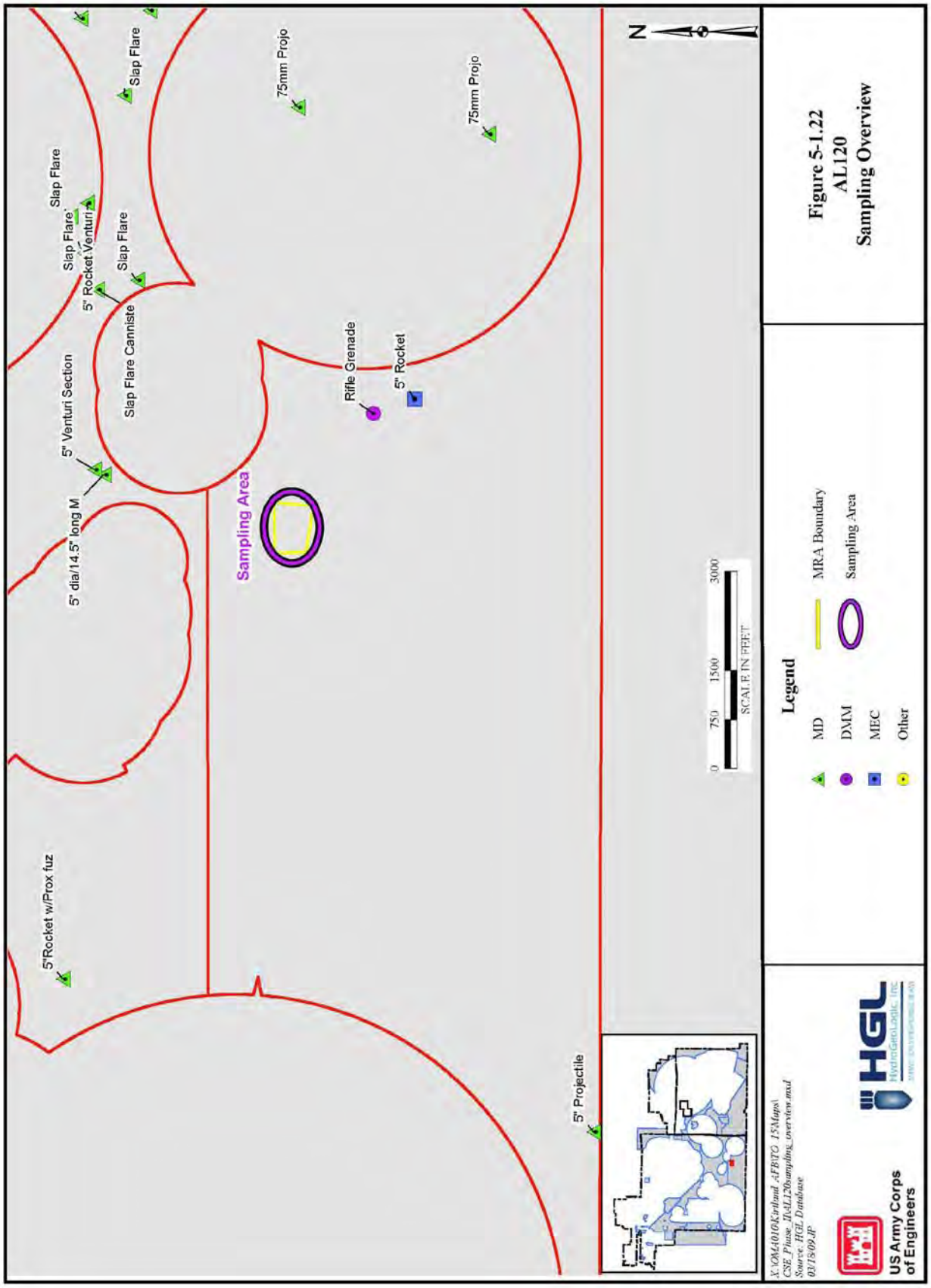


Figure 5-1.22
AL120
Sampling Overview

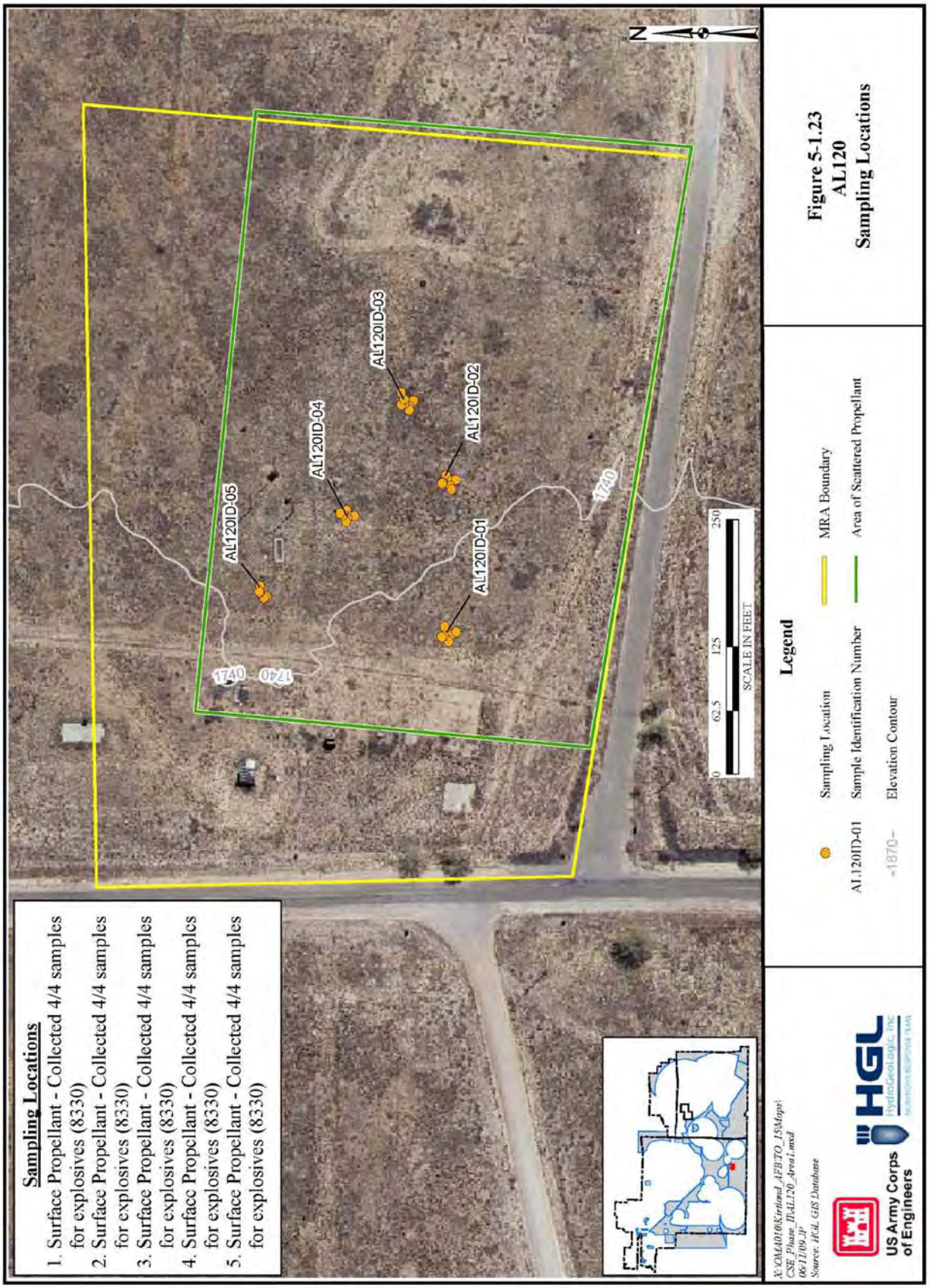


Figure 5-1.23
AL120
Sampling Locations

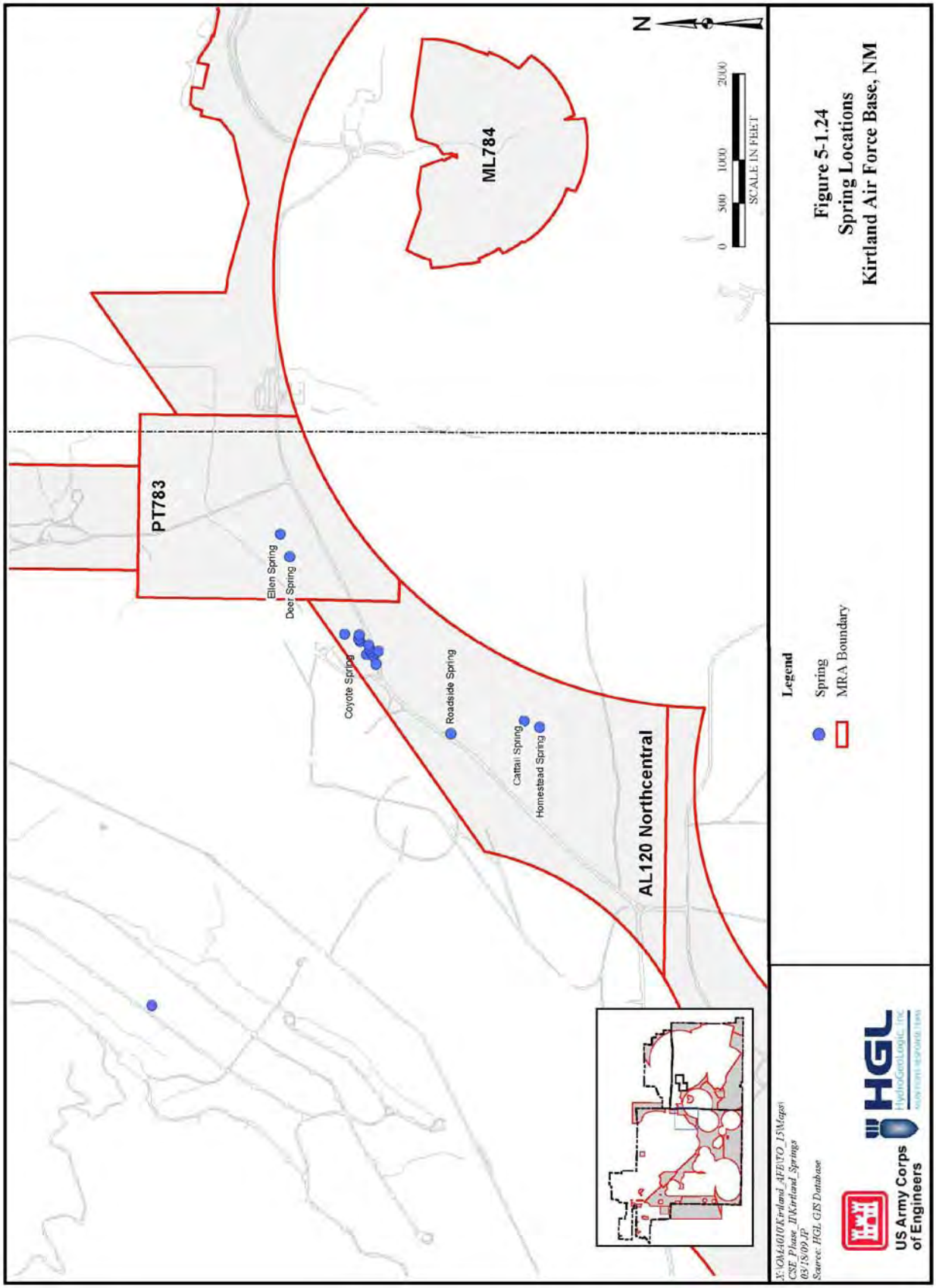


Figure 5-1.24
Spring Locations
Kirtland Air Force Base, NM

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5.2 AL769 Ordnance Drop Zone

5.2.1 Site Description

AL769 Ordnance Drop Zone was an air-to-ground range located in the northwest portion of Kirtland AFB near the western boundary (Figure 5-2.1). The 174.4-acre MRA exists in an area of relatively flat grassland.

5.2.2 History of MEC Activities

The history and use of this MRA is currently unknown with the exception that range activities ceased prior to 2002. Generally, "Ordnance Drop Zones" were used as a "safe" drop zone to jettison aircraft ordnance and/or external fuel tanks from military planes that experienced emergency situations during take-offs or landings.

5.2.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for AL769 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, AL769 is undeveloped open space.

5.2.4 Access Controls

Barbed wire fencing along with "Do Not Enter" signage is prevalent around the northeast boundary of the MRA.

5.2.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto AL769 is restricted and partially monitored.

5.2.6 Field Investigation Results

CSE Phase II activities at the site included HeliMag, litter/cart, visual survey, and ground truthing.

5.2.6.1 Site Reconnaissance Observations

During the initial site reconnaissance it was determined that the majority of AL769 would be surveyed by HeliMag and a small portion in the northeast corner would be surveyed using litter/cart. This northeast area is characterized by sloping land and multiple gullies that descend into the Tijeras Arroyo.

5.2.6.2 Geophysical Survey Results

The geophysical survey included 136 acres of HeliMag and 38 acres of litter/cart (Figure 5-2.2). The geophysical surveys revealed a low anomaly density (Figure 5-2.1).

5.2.6.3 Visual Survey

No visual survey was conducted at AL769.

5.2.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 9 miles of ground truthing were completed in this MRA (Figure 5-2.2). Ground truthing results identified a large metal fence post and metal drone cable. No munitions-related items were observed during CSE Phase II activities.

5.2.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the approved CSE Phase II Work Plan, AL769 did not meet the criteria for soil sample collection.

5.2.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.2.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for AL769 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.2.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. AL769 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.2.7.2 Buildings Near/Within MRA

There are no buildings within AL769. Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.2.7.3 Utilities On/Near MRA

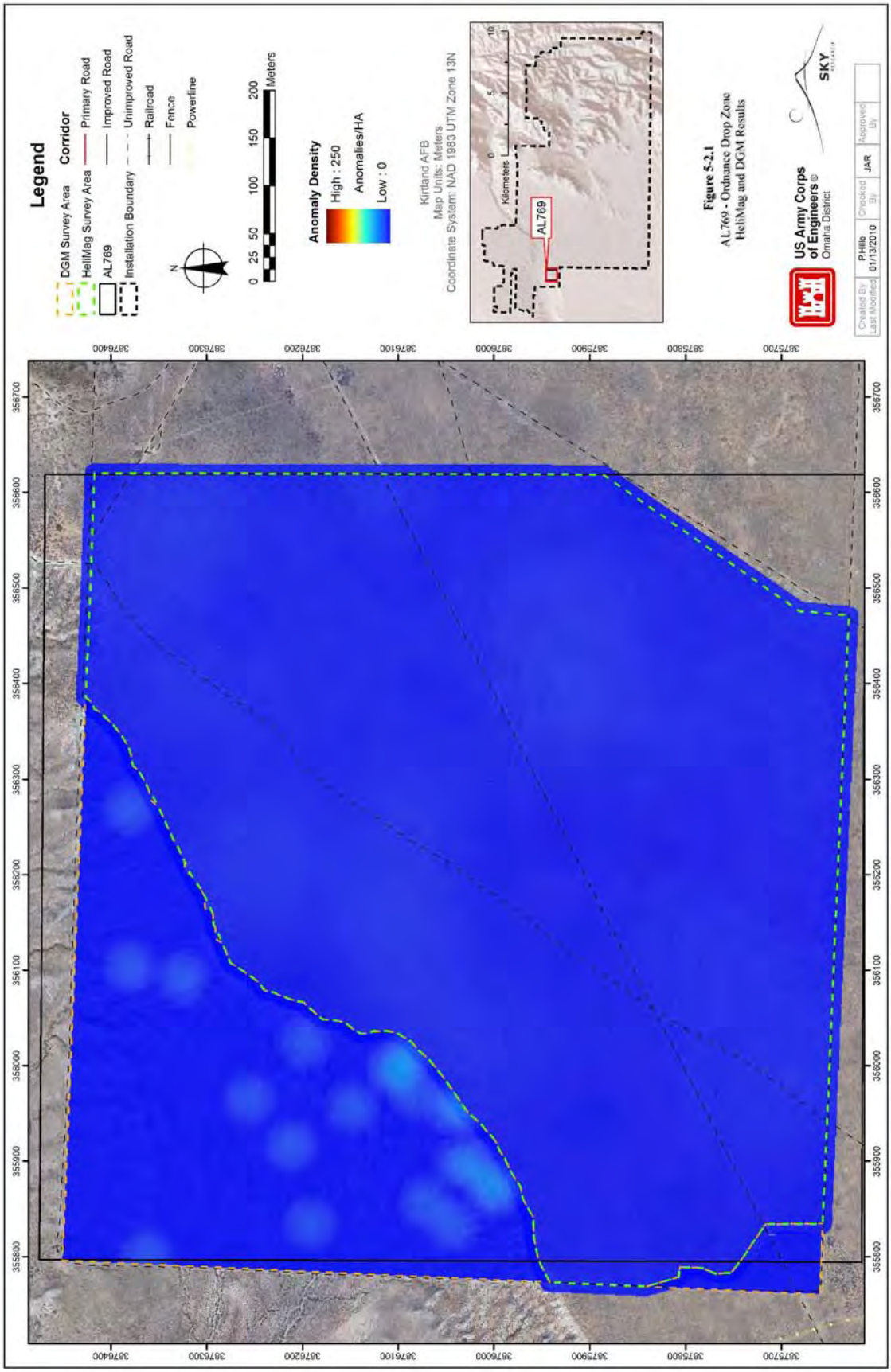
There are no utilities on or near AL769.

5.2.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising AL769.

5.2.9 Sensitive Environments

No sensitive environments are known to exist in or near AL769 (Renner, 2008).


Legend
DGM Survey Area
HeliMag Survey Area
AL769
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 25 50 100 150 200 Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
0 5 10
Kilometers
AL769
Figure 5-2.1
AL769 - Ordnance Drop Zone
HeliMag and DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By P.Hills
Last Modified 01/13/2010
Checked By JAR
Approved By
387700
387600
387500
387400
387300
387200
387100
387000
386900
386800
386700
355800
355900
356000
356100
356200
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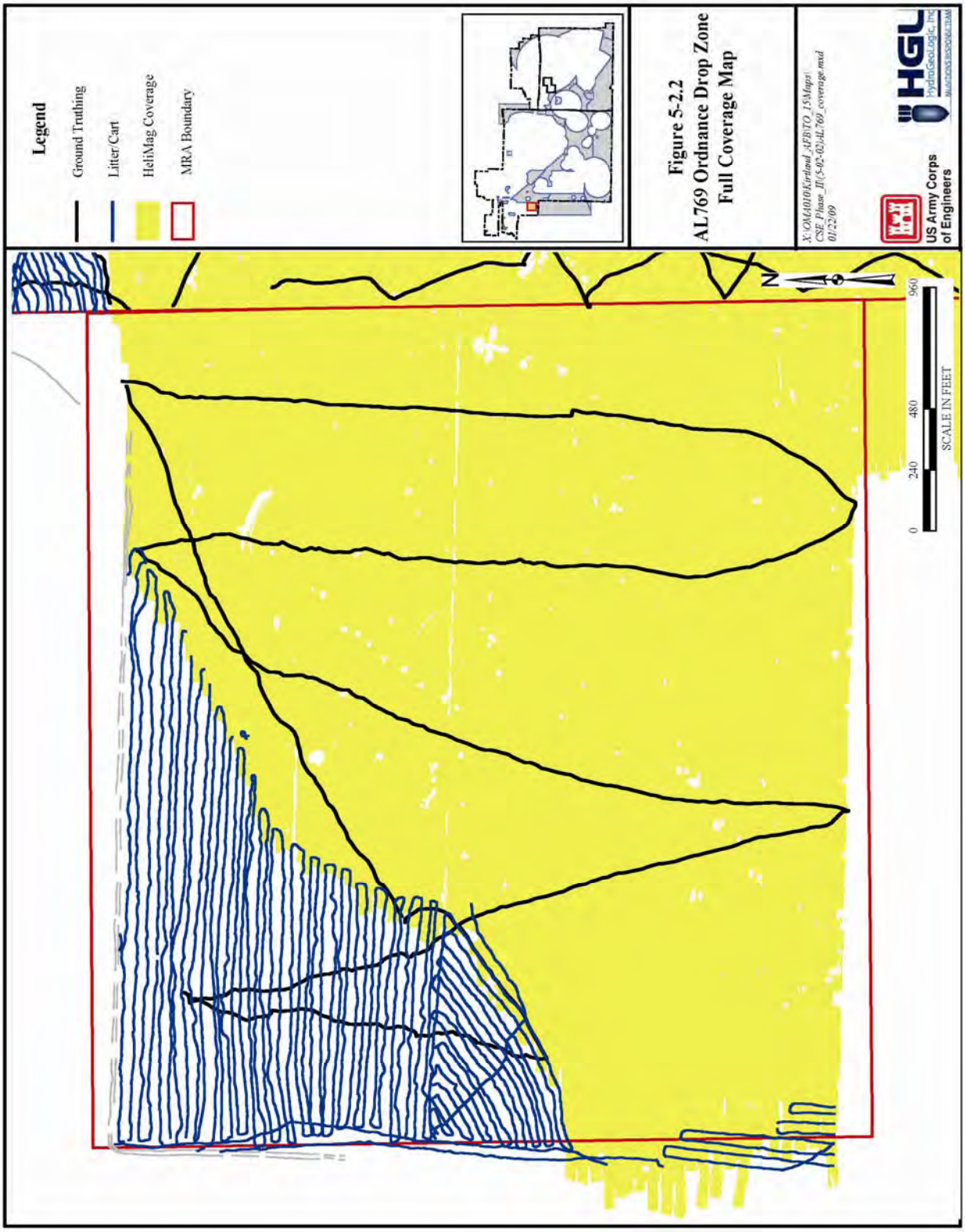
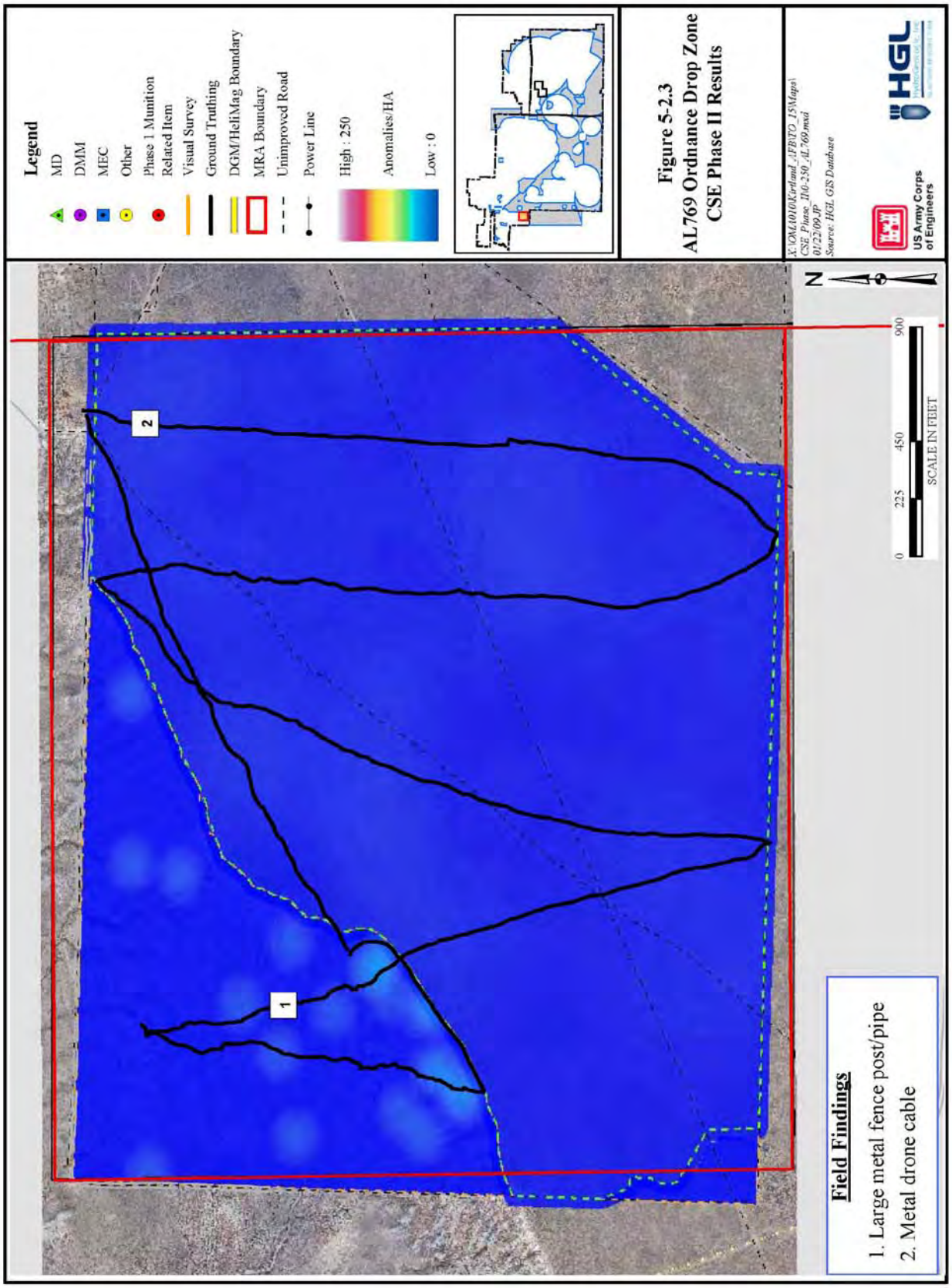
356400
356500
356600
356700


Legend
Ground Truthing
Litter/Cart
HeliMag Coverage
MRA Boundary
Figure 5-2.2
AL769 Ordnance Drop Zone
Full Coverage Map
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-02-02\AL769_coverage.mxd
01/22/09
HGL
HydroGeoLogic, Inc.
US Army Corps
of Engineers
N
0
240
480
960
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/HA
Low : 0
Figure 5-2.3
AL769 Ordnance Drop Zone
CSE Phase II Results
X:\OALI010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\0-250_AL769.mxd
01/22/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
N
0 225 450 900
SCALE IN FEET
1
2
Field Findings
1. Large metal fence post/pipe
2. Metal drone cable

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5.3 AL771 Old Cable Site

5.3.1 Site Description

AL771 Old Cable Site is classified as an air-to-ground range located in the southcentral portion of Kirtland AFB (Figure 5-3.1). The 586.4-acre MRA consists of rolling grassland hills bisected by steep arroyos transgressing into rocky, piñon-juniper studded foothills.

5.3.2 History of MEC Activities

This MRA was used as a test site and projectile impact area. The dates of operation are unknown.

5.3.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for AL771 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002).

Currently the northeastern portion of AL771 is being utilized by DOE as a high energy testing facility. Field evidence indicate that the AL771 area is currently being utilized as a training and maneuver site. Numerous items of military field gear (e.g., binoculars, M-16 magazines, ear plugs, gloves, etc.,) were identified during the visual survey and ground truthing portions of the CSE Phase II.

5.3.4 Access Controls

AL771 is located in a remote area of Kirtland AFB. Although the area has signs warning against unauthorized entry, it is not fenced. AL771 is monitored via vehicle patrol and is surrounded on three sides by steep, rocky slopes.

5.3.5 Restrictions

The DOE facility located within AL771 is currently active and restricted from unauthorized personnel, so it was not investigated as part of the CSE Phase II. The remainder of the area is accessible after notification of DOE/SNL security.

5.3.6 Field Investigation Results

CSE Phase II activities at the site included towed-array, litter/cart, visual survey, ground truthing, and media sampling.

5.3.6.1 Site Reconnaissance Observations

AL771 consists of sloped terrain exceeding 30 to 40 degrees, which determined that the MRA could not be surveyed with HeliMag. Four separate areas of the MRA were assigned to be surveyed by the litter/cart. The easternmost portion of this MRA was visually surveyed as this area is extremely steep and survey by any other means was deemed an unacceptable safety hazard. The majority of this area consists of sloped terrain exceeding 30 degrees with several areas in excess of 40 degrees.

5.3.6.2 Geophysical Survey Results

The geophysical survey included 160 acres of towed-array and 92 acres of litter/cart (Figure 5-3.2). Geophysical survey results indicated three areas of high anomaly density (Figure 5-3.3). A fourth area of high anomaly density was indicated; however, due to a change in the active operational .50 caliber range boundary, the area was removed from the MMRP after completion of the field work.

5.3.6.3 Visual Survey

Approximately 335 acres of visual survey transect lines were completed in the MRA (Figure 5-3.2). Areas of MEC, MD and range activity were observed in the form of Ballistite (rocket propellant), 3.5″ and 5″ rockets, 5″ projectiles and a collapsed bunker, as well as non-MEC items (Figure 5-3.4).

5.3.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 feet apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 8.4 miles of ground truthing were completed in the MRA (Figure 5-3.2). Areas of MEC, MD and range activity were observed in the form of 3.5″ and 5″ rockets, 5″ frag, a 3.5″ rocket fuze, 5″ projectiles, a slap flare, and small arms ammunition casings, as well as numerous non-MEC items (Figure 5-3.4).

5.3.6.5 Media Sampling Results

Soil samples were collected from AL771 as part of the CSE Phase II. Surface soil samples were collected to characterize potential HE-related contamination. Sample locations are presented in Figures 5-3.5, 5-3.6, and 5-3.7. Samples were analyzed for the explosives TNT, RDX, and HMX. The analytical results are reported with comparisons to screening levels in Table 5-3.1 located in Appendix H. These explosives were not detected in any of the samples collected in AL771.

The propellant found on this site was positively identified as Ballistite, a nitrocellulose and nitroglycerin-base propellant, thereby precluding the need for perchlorate sampling.

5.3.6.6 Background Determination

Samples for comparison to background concentrations of explosives were not collected at this MRA.

5.3.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of AL771 located outside the DOE facility include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors. Potential receptors inside the DOE facility boundary include authorized personnel and ecological receptors.

5.3.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. AL771 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. An industrial area is located up to 2 miles from the boundary of the MRA.

5.3.7.2 Buildings Near/Within MRA

There are five buildings within AL771 and only one is numbered. The Population Near Hazard data indicate there are approximately 15 inhabited structures located up to 2 miles from the boundary of the MRA.

5.3.7.3 Utilities On/Near MRA

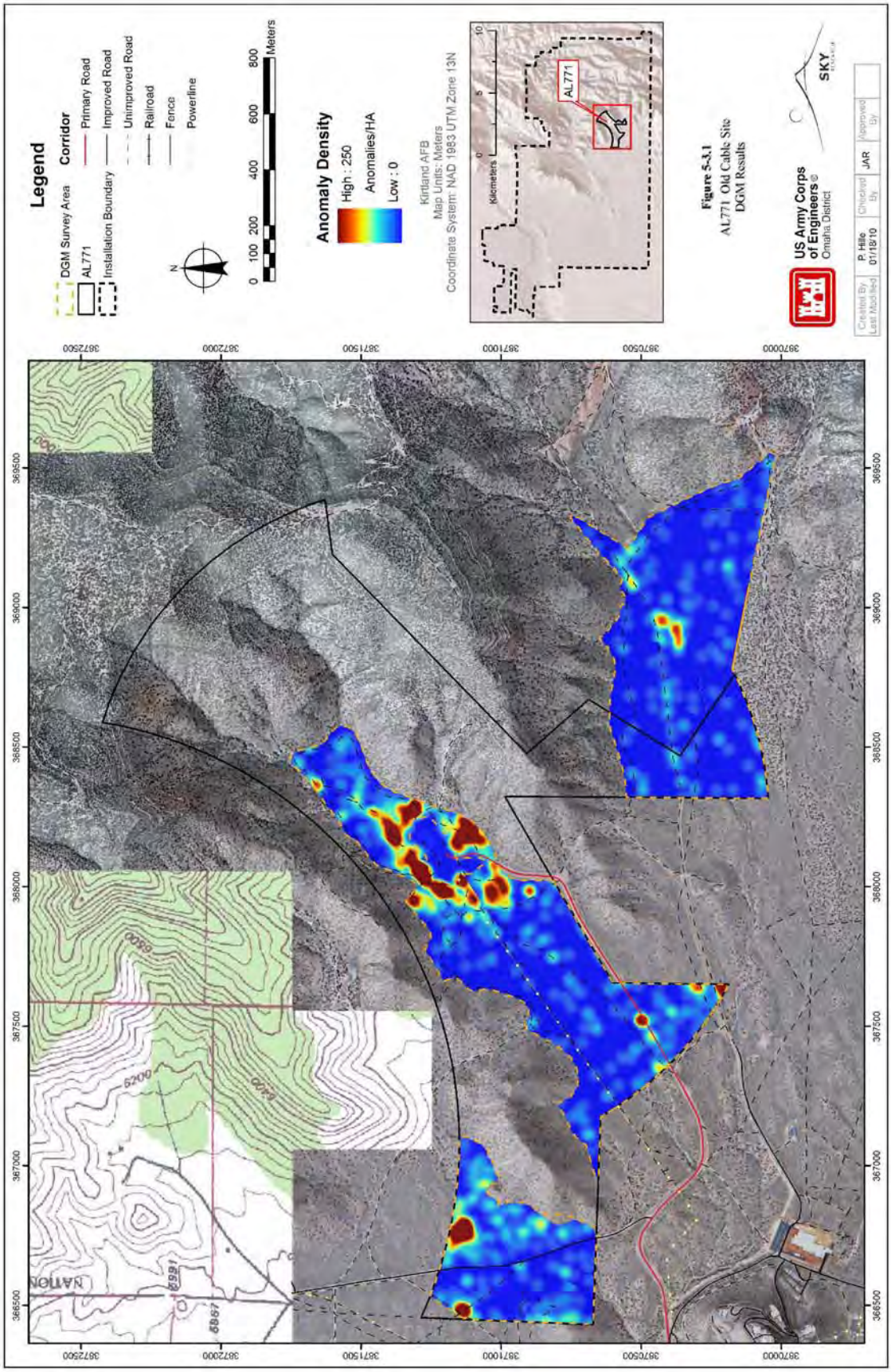
CSE Phase II field activities determined that there are electrical utilities located throughout the MRA. A waterline also exists within the MRA.

5.3.8 Natural Resources

AL771 includes areas considered to be potential gray vireo habitat. The gray vireo, a state-threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on Kirtland AFB (Kirtland AFB, 2007).

5.3.9 Sensitive Environments

Due to the location of AL771 along the foothills of the Manzanita Mountains, unnamed arroyos exist near this site. Additionally, AL771 either contains, or is in close proximity to, cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
AL771
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 100 200 400 600 800
Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
0 5 10
Kilometers
AL771
Figure 5-3.1
AL771 Old Cable Site
DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By P. Hite
Last Modified 01/18/10
Checked By JAR
Approved By
366500
367000
367500
368000
368500
369000
369500
387000
387500
387150
387200
387250
6200
6400
6600
6800
6591
6567

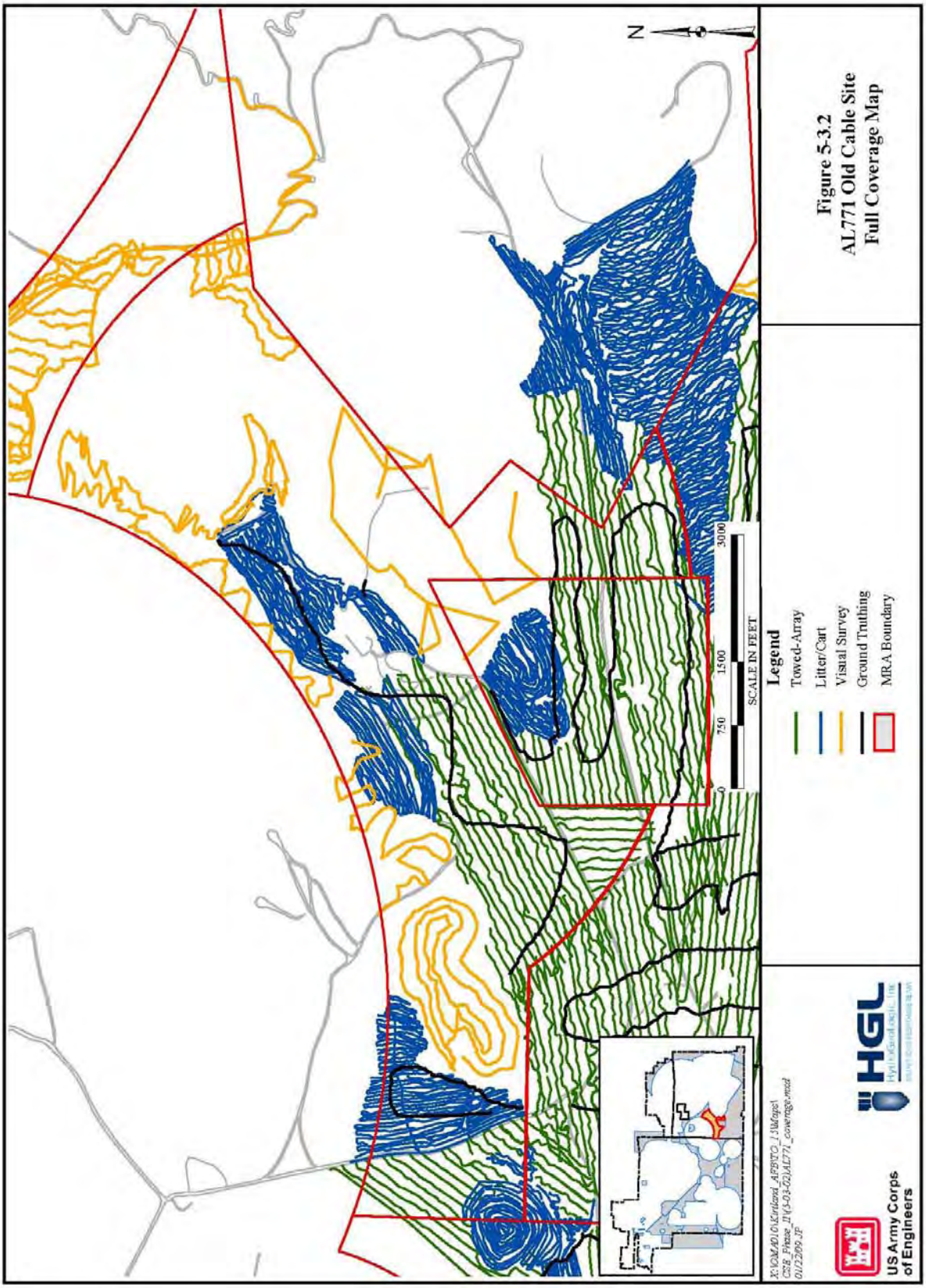


Figure 5-3.2
AL771 Old Cable Site
Full Coverage Map

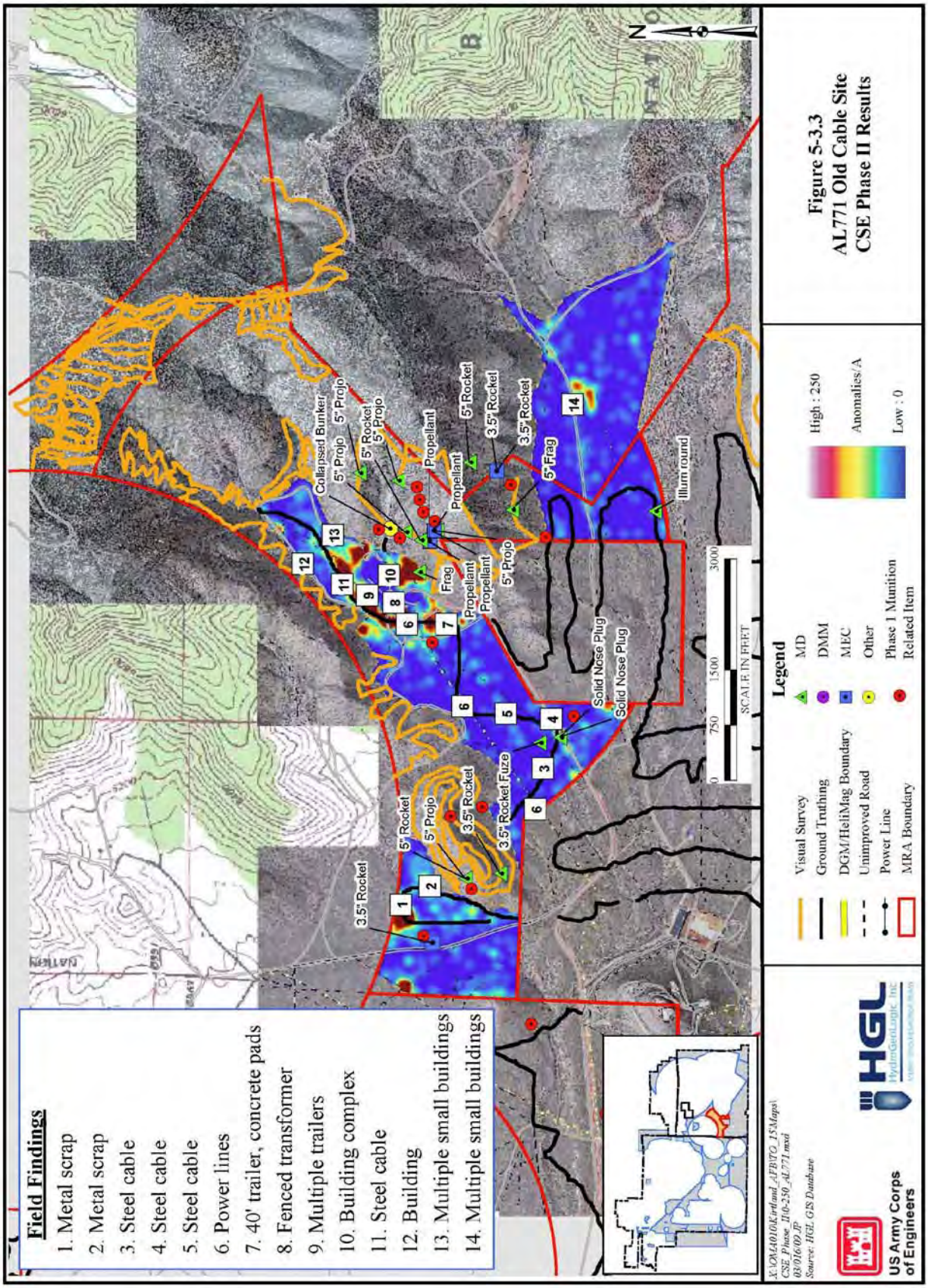


Figure 5-3.3
AL771 Old Cable Site
CSE Phase II Results

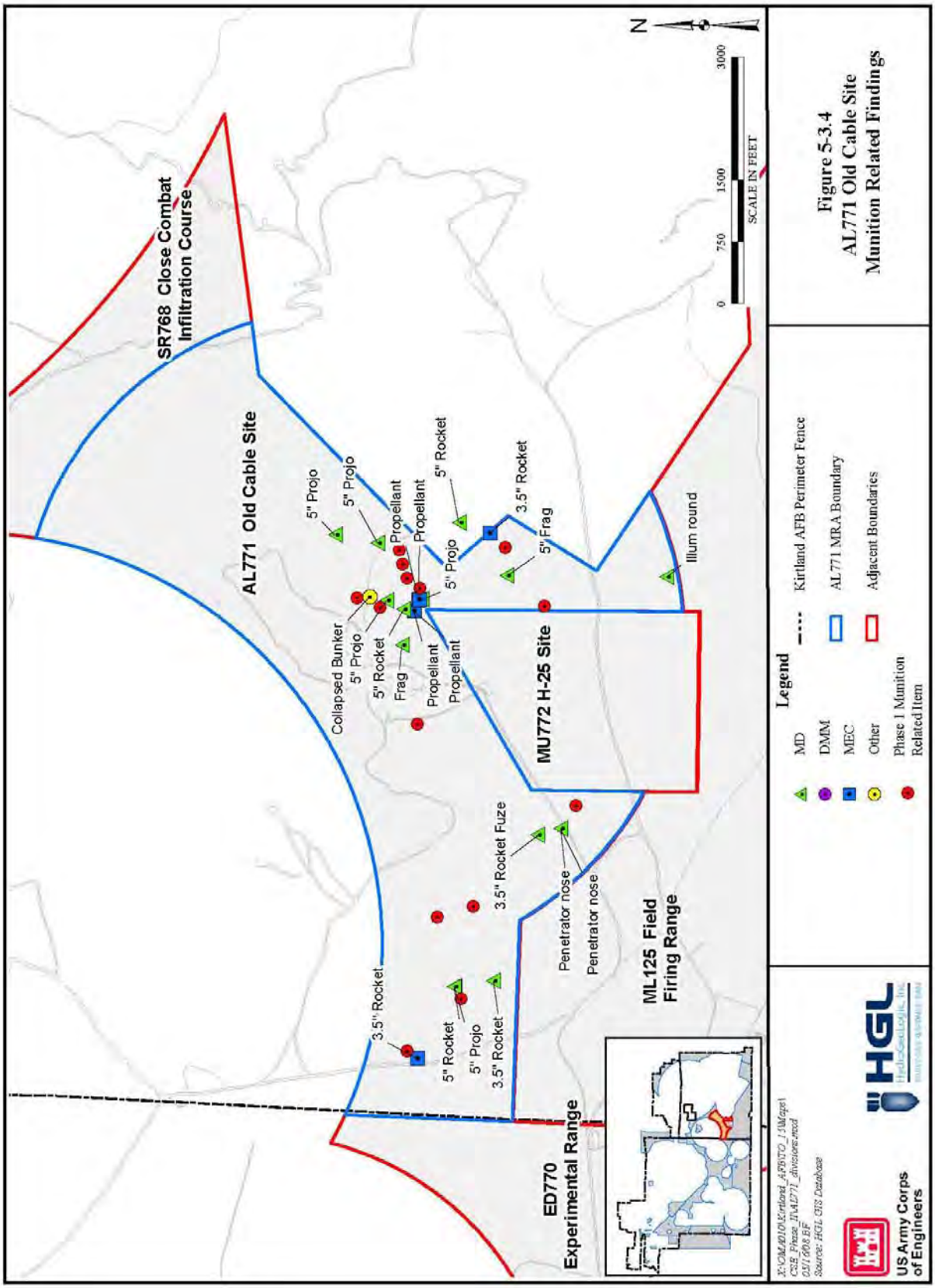


Figure 5-3.4
AL771 Old Cable Site
Munition Related Findings

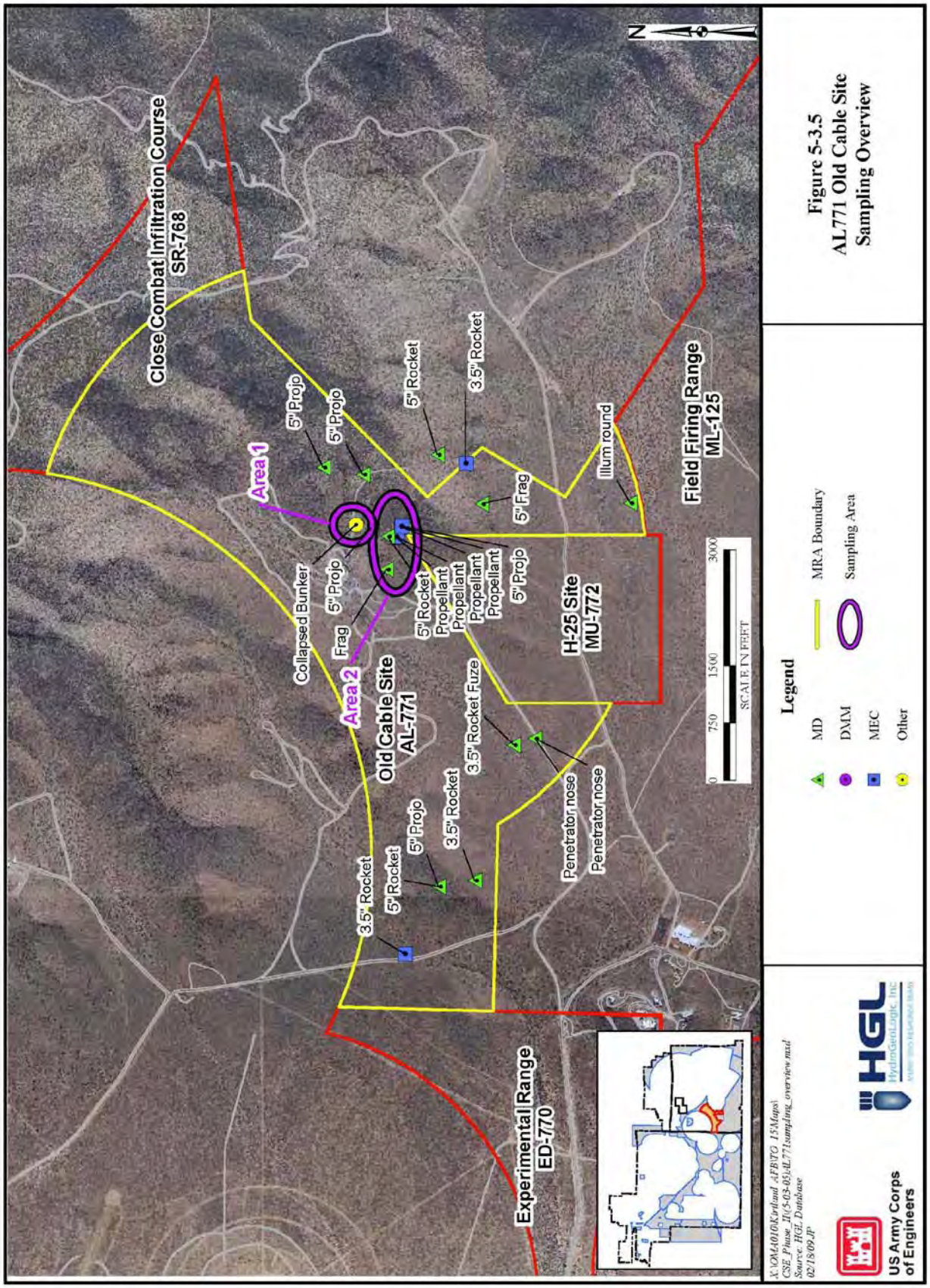
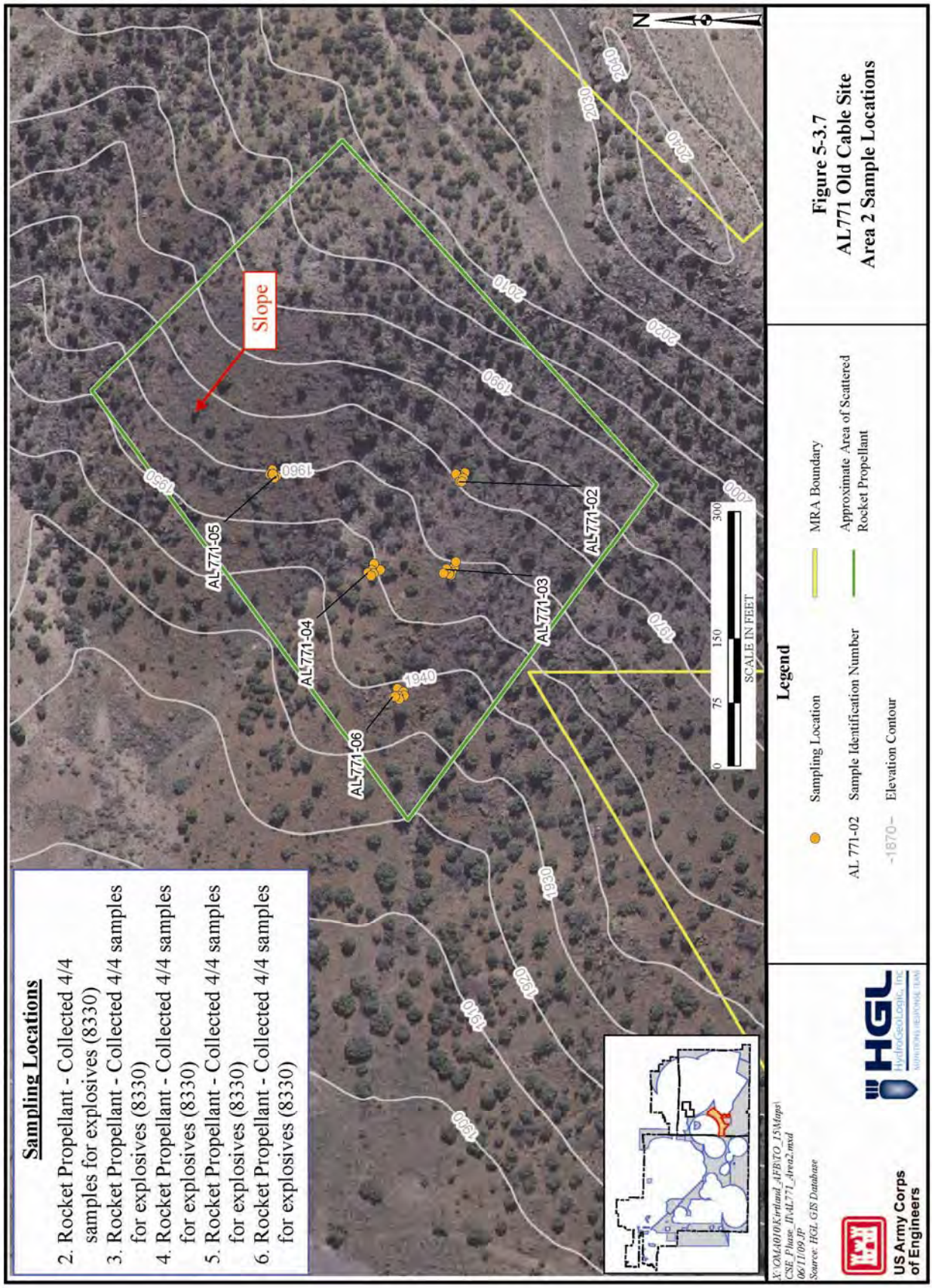


Figure 5-3.5
AL771 Old Cable Site
Sampling Overview

Figure 5-3.6
AL771 Old Cable Site
Area 1 Sample Locations


Sampling Locations
2. Rocket Propellant - Collected 4/4 samples for explosives (8330)
3. Rocket Propellant - Collected 4/4 samples for explosives (8330)
4. Rocket Propellant - Collected 4/4 samples for explosives (8330)
5. Rocket Propellant - Collected 4/4 samples for explosives (8330)
6. Rocket Propellant - Collected 4/4 samples for explosives (8330)
Slope
AL771-02
AL771-03
AL771-04
AL771-05
AL771-06
1940
1960
1990
2010
2020
2030
2040
2000
1970
1930
1920
1910
1900
Legend
Sampling Location
AL 771-02 Sample Identification Number
-1870- Elevation Contour
MRA Boundary
Approximate Area of Scattered Rocket Propellant
0 75 150 300
SCALE IN FEET
N
Figure 5-3.7
AL771 Old Cable Site
Area 2 Sample Locations
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc.
MONITORING RESTORING TEAM
Source: HGL GIS Database

5.4 DA130 Arroyo Del Coyote Demolition Area

5.4.1 Site Description

DA130 Arroyo del Coyote is classified as an OB/OD site located in the northwestern portion of Kirtland AFB (Figure 5-4.1). The topography of the 386.5-acre MRA is characterized by the large Arroyo del Coyote that transects the site and flows generally northwest. The flood plain of Arroyo del Coyote and the high-walled banks on either side are grassland.

Two Kirtland AFB ERP sites exist within the footprint of DA130. The first ERP site, OT-010, consists of four radiation training sites (TS-5, TS-6, TS-7, and TS-8). These sites were used to train military personnel in alpha radiation monitoring and decontamination of simulated nuclear weapon accidents. The second ERP site, SS-069, consists of a 50- by 50-foot fenced area within TS-6, in a drainage area adjacent to Arroyo del Coyote. Site SS-069 was used for storage of thorium oxide-contaminated soil and sludge. Both of these ERP sites, OT-010 and SS-069, were approved for NFA by NMED.

5.4.2 History of MEC Activities

DA130 contains a suspected EOD area referred to as DP-101. A 2001 investigation of DP-101 indicated no buried munitions were identified at the site; however, during restoration operations in 2003, several munitions debris items were recovered. These items included a 3.5″ rocket warhead, unknown munitions-related items (frag), residue from smoke grenades, grenade spoons, and miscellaneous expended small arms (MWH Americas, 2003).

5.4.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for DA130 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Portions of DA130 are restricted areas controlled by DOE Tech Area-3. Currently DA130 is undeveloped open space.

5.4.4 Access Controls

DA130 contains natural barriers defining the arroyo, as well as fencing surrounding OT-010 and SS-069. The remainder of DA130 is accessible.

5.4.5 Restrictions

DA130 has no physical restrictions, but exists within a security area for Kirtland AFB and requires notification for site access.

5.4.6 Field Investigation Results

CSE Phase II activities at DA130 included HeliMag, towed-array, and ground truthing.

5.4.6.1 <u>Site Reconnaissance Observations</u>

Due to its topography, DA130 was determined to be best covered by HeliMag. Additionally, three areas were supplemented with towed-array due to a number of transecting power lines. The main topographic feature of DA130 is the broad, typically dry flood plain of the southeast to northwest trending Arroyo del

Coyote. Numerous smaller, braided channels cut into the flood plain. Along the southwestern bank, numerous small tributary arroyos have carved the escarpment into low sandy hills. Vegetation consists of native grasses and shrubs. A northeast-southwest trending power line also was observed transecting the MRA.

5.4.6.2 Geophysical Survey Results

The geophysical survey included 360 acres of HeliMag and 155 acres of towed-array (Figure 5-4.2). Geophysical survey results indicated three areas of high anomaly density (Figure 5-4.1).

5.4.6.3 Visual Survery

No visual survey was conducted at DA130.

5.4.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 feet apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 33 miles of ground truthing were completed at DA130 (Figure 5-4.2). Ground truthing of the MRA confirmed the presence of a 5″ empty shell and frag, as well as numerous non-MEC items (Figure 5-4.3 and 5-4.4).

5.4.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, DA130 did not meet the criteria for soil sample collection.

5.4.6.6 Background Determination

No samples were collected for comparison to background concentrations.

5.4.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for the DA130 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.4.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. DA130 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A golf course is located up to 2 miles from the boundary of the MRA.

5.4.7.2 Buildings Near/Within MRA

Four unnumbered buildings are located within DA130. The Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.4.7.3 Utilities On/Near MRA

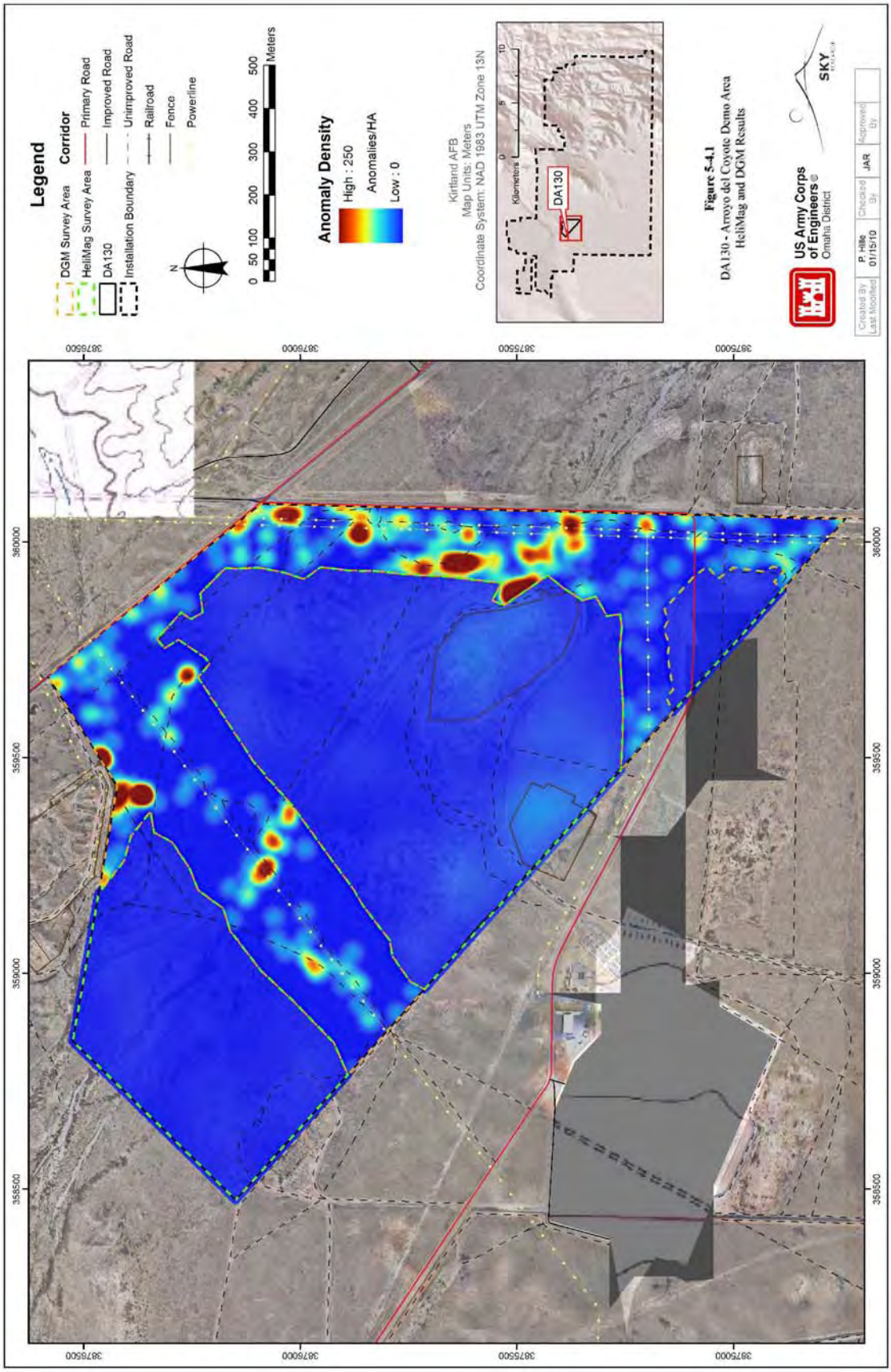
Electric, water, and sewer utilities exist within DA130.

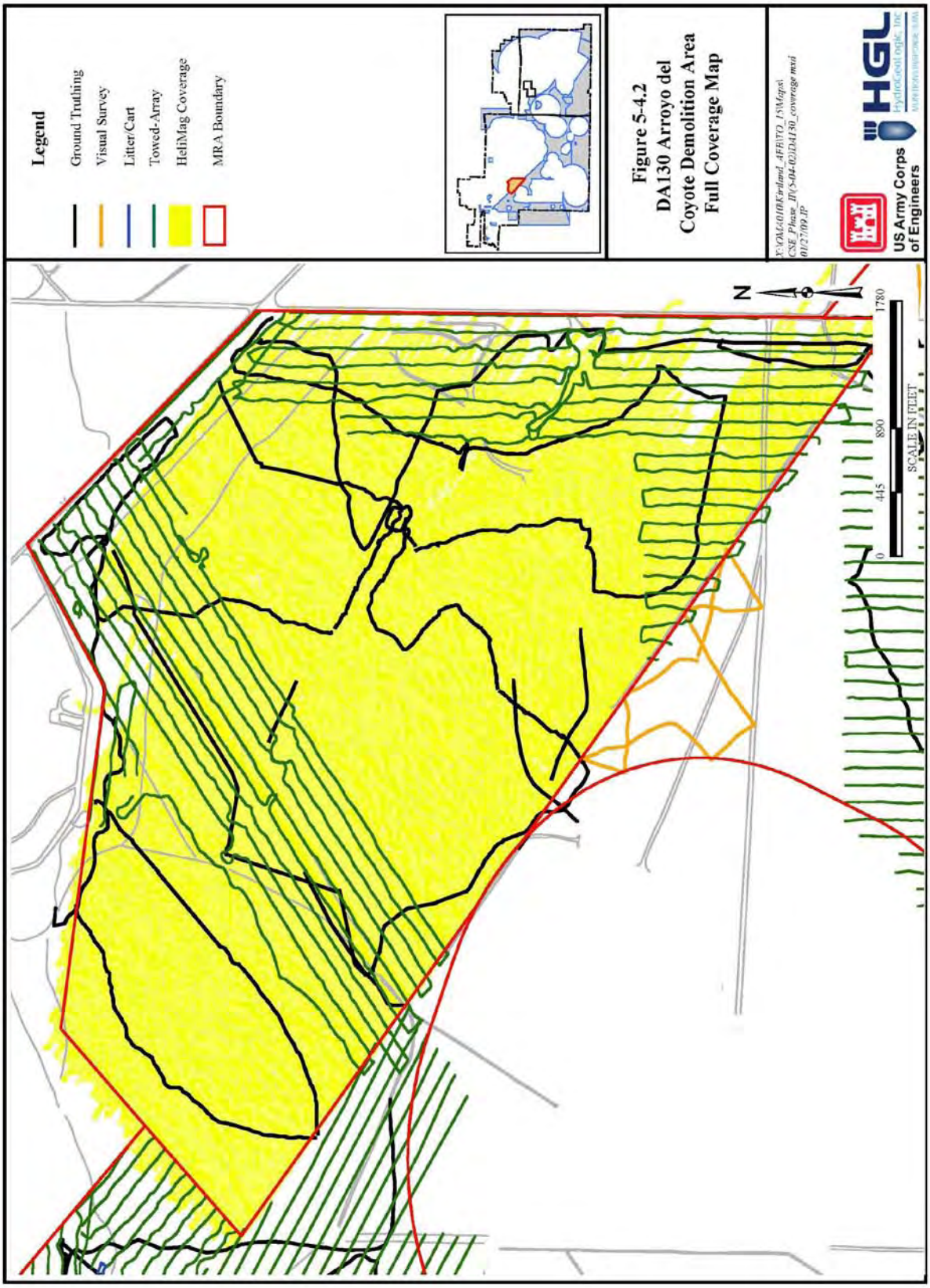
5.4.8 Natural Resources

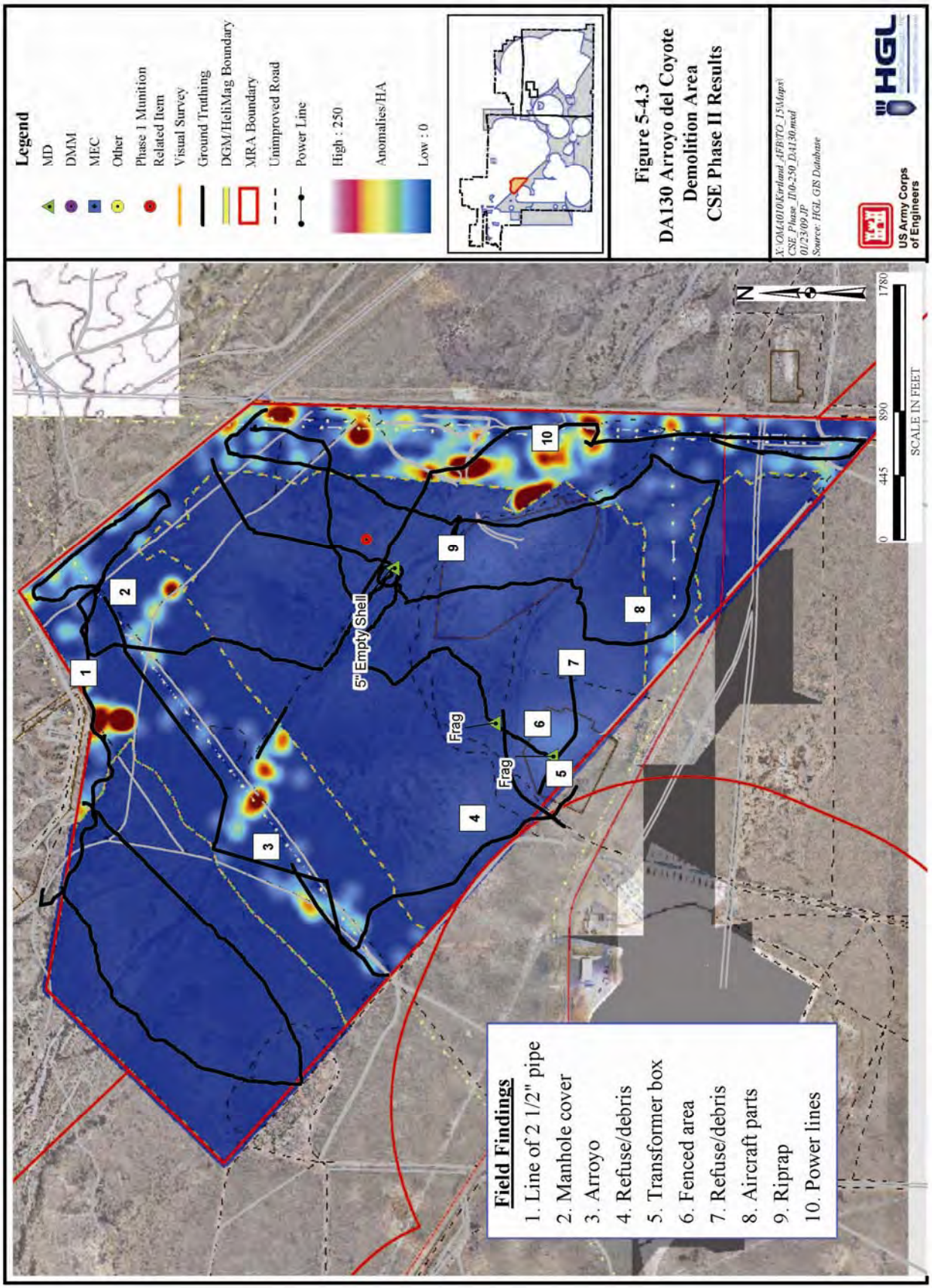
No threatened or endangered animal or plant species are known to exist in the area comprising DA130.

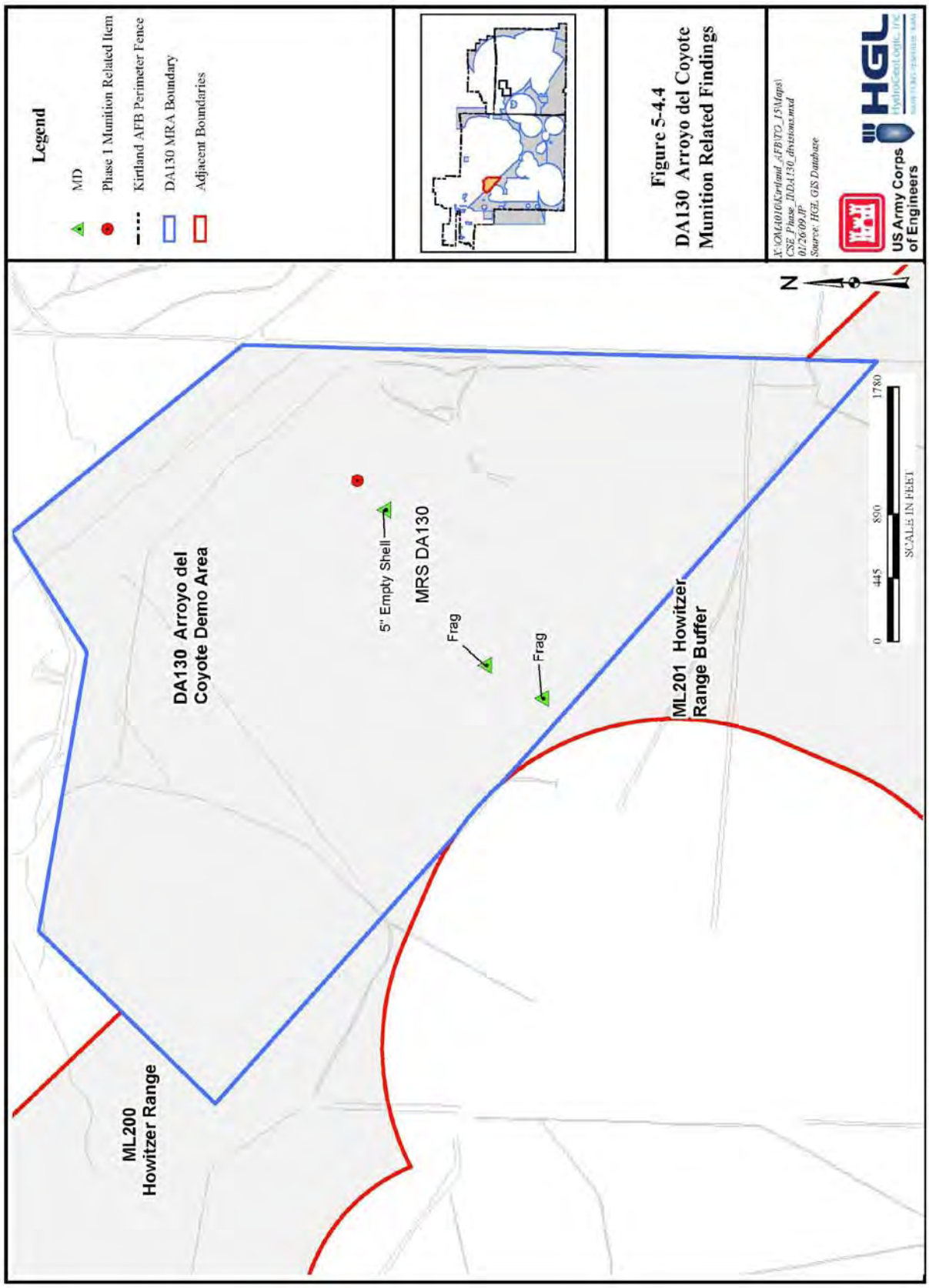
5.4.9 Sensitive Environments

DA130 is in close proximity to the primary surface water feature on Kirtland AFB, Arroyo del Coyote. Additionally, DA130 either contains or is in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
HeliMag Survey Area
DA130
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 50 100 200 300 400 500
Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
Kilometers
0 5 10
DA130
Figure 5-4.1
DA130 - Arroyo del Coyote Demo Area
HeliMag and DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By
Last Modified
P. Hiller
01/15/10
Checked By
JAR
Approved By
358500
359000
359500
360000
3875500
3876000
3876500


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-4.2
DA130 Arroyo del
Coyote Demolition Area
Full Coverage Map
US Army Corps of Engineers
HGL
N
0
445
890
1780
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/HA
Low : 0
Figure 5-4.3
DA130 Arroyo del Coyote Demolition Area
CSE Phase II Results
X:\OM4010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\0-250_DA130.mxd
01/23/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
5" Empty Shell
Frag
Frag
1
2
3
4
5
6
7
8
9
10
0
445
890
1780
SCALE IN FEET
N
Field Findings
1. Line of 2 1/2" pipe
2. Manhole cover
3. Arroyo
4. Refuse/debris
5. Transformer box
6. Fenced area
7. Refuse/debris
8. Aircraft parts
9. Riprap
10. Power lines


Legend
MD
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
DA130 MRA Boundary
Adjacent Boundaries
Figure 5-4.4
DA130 Arroyo del Coyote
Munition Related Findings
X:\OM4016\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\DA130_divisions.mxd
01/26/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
HydroGeoLogic, Inc.
N
0
445
890
1780
SCALE IN FEET
DA130 Arroyo del
Coyote Demo Area
5" Empty Shell
MRS DA130
Frag
Frag
ML201 Howitzer
Range Buffer
ML200
Howitzer Range

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5.5 DA782 Explosives Disposal Area

5.5.1 Site Description

DA782 is a small, 5.5-acre parcel of land classified as a former OB/OD site located in the northwestern portion of Kirtland AFB (Figure 5-5.1). Originally a 25.8-acre rectangular-shaped parcel, DA782 was reduced in size as a result of the explosive safety arc of the operational DOE explosives storage area to the north and east. The terrain of DA782 is flat grassland.

5.5.2 History of MEC Activities

DA782 is a suspected EOD area; however, there is no evidence of detonation (craters, scarred ground, etc.) to verify the historically-stated use of the area. The dates of operation are unknown.

5.5.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for DA782 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently DA782 is undeveloped open space.

5.5.4 Access Controls

DA782 is located in a remote area in the northwestern portion of Kirtland AFB. Kirtland AFB perimeter chain link fence exists along the south and west boundaries of the area. Barbed wire fencing borders the north and east boundaries. A dirt access road begins at the southeast corner of the area and parallels the southern fence. “Keep Out” signs are posted at intervals along the perimeter fences.

5.5.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto DA782 is restricted by fencing but not monitored.

5.5.6 Field Investigation Results

CSE Phase II activities at DA782 included litter/cart and ground truthing.

5.5.6.1 Site Reconnaissance Observations

DA782 is relatively flat but is crossed from north to south by three small drainage features. During initial site reconnaissance it was determined that litter/cart would be the most effective at this MRA due to its relative small size and surrounding fence.

5.5.6.2 Geophysical Survey Results

The geophysical survey included 5 acres of towed-array. Geophysical survey results indicated a low anomaly density (Figure 5-5.1).

5.5.6.3 Visual Survey

No visual survey was conducted at DA782.

5.5.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately one mile of ground truthing was completed at DA782 (Figure 5-5.2). Ground truthing of the MRA confirmed the presence of a piece of large bomb frag, as well as numerous non-MEC items (Figure 5-5.3).

5.5.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, DA782 did not meet the criteria for soil sample collection.

5.5.6.6 Background Determination

No samples were collected for comparison to background concentrations.

5.5.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of DA782 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.5.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. DA782 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential are is located up to 2 miles from the boundary of the MRA.

5.5.7.2 Buildings Near/Within MRA

There are no buildings within DA782. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.5.7.3 Utilities On/Near MRA

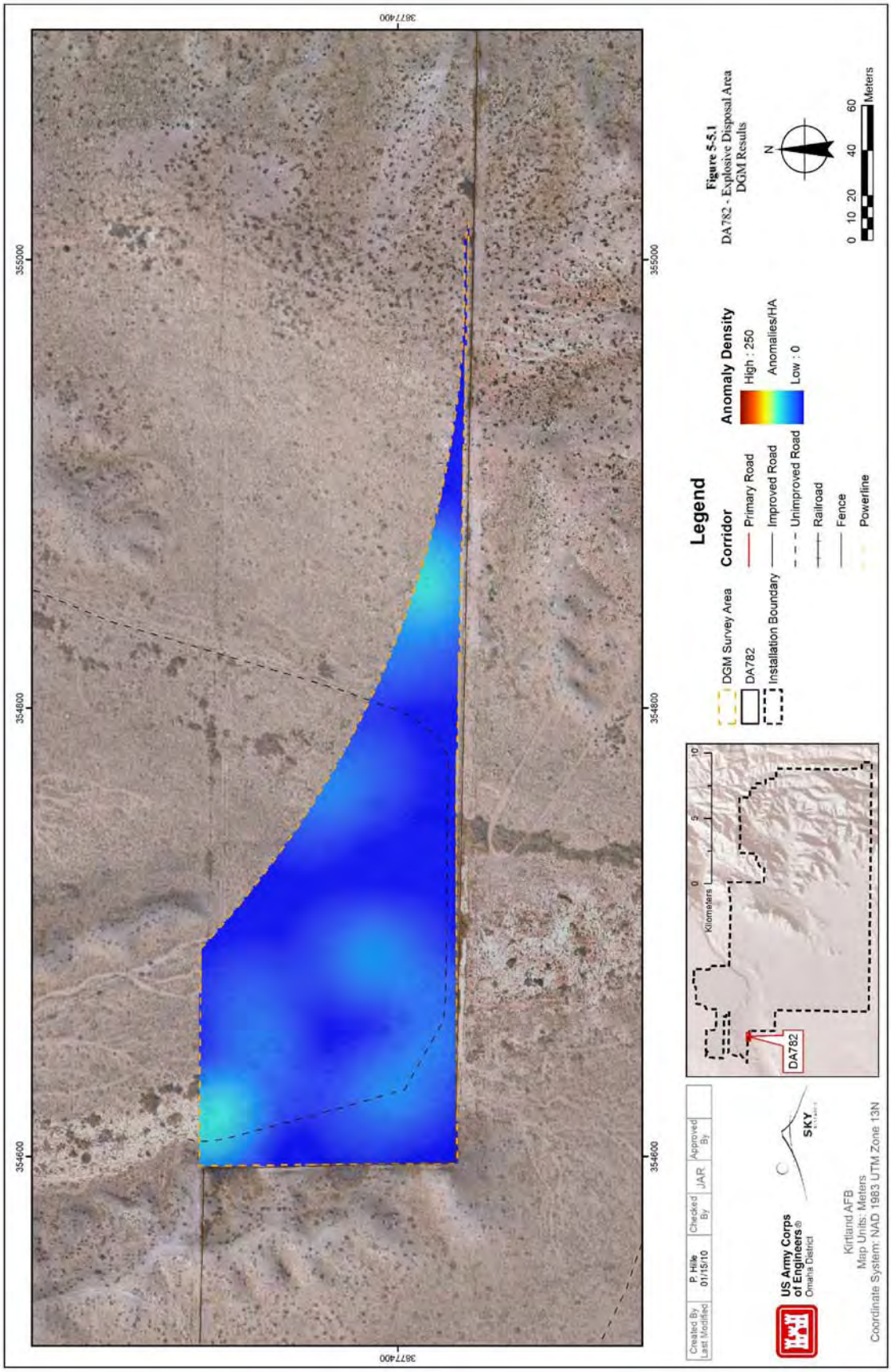
There are no known utilities on or near this MRA.

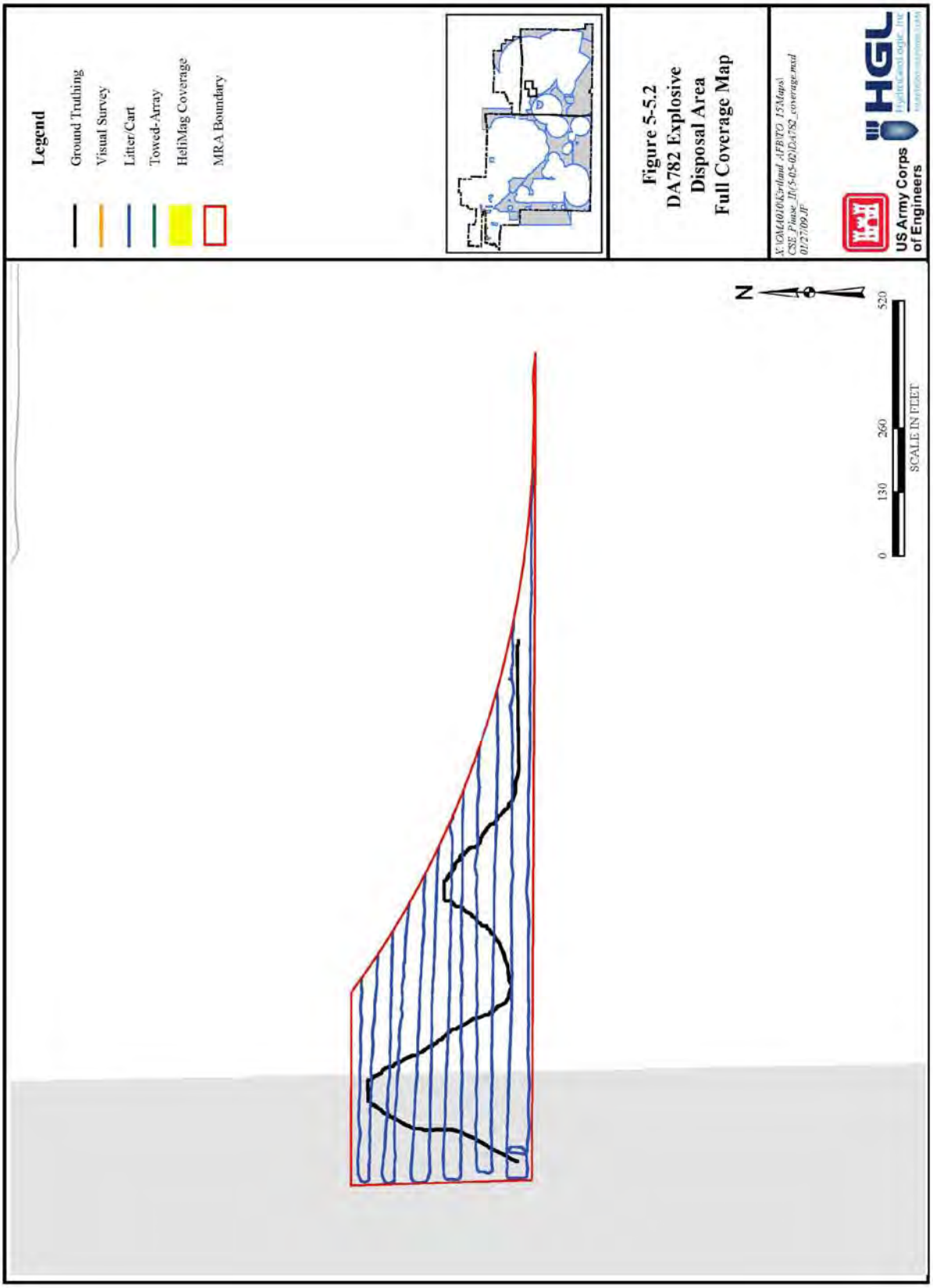
5.5.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in DA782.

5.5.9 Sensitive Environments

DA782 either contains or is in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


3877400
355000
354600
354800
Legend
DGM Survey Area
DA782
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Figure 5-5.1
DA782 - Explosive Disposal Area
DGM Results
N
0 10 20 40 60
Meters
Kilometers
0 5 10
DA782
Created By P. Hile
Last Modified 01/15/10
Checked By JAR
Approved By
US Army Corps of Engineers®
Omaha District
SKY
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-5.2
DA782 Explosive
Disposal Area
Full Coverage Map
X:\GM4010\Kirtland_AFB\TO 15\Maps\
CSE_Phase_II\5-05-02\Da782_coverage.mxd
01/27/09 JF
US Army Corps
of Engineers
HGL
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0
130
260
520
SCALE IN FEET

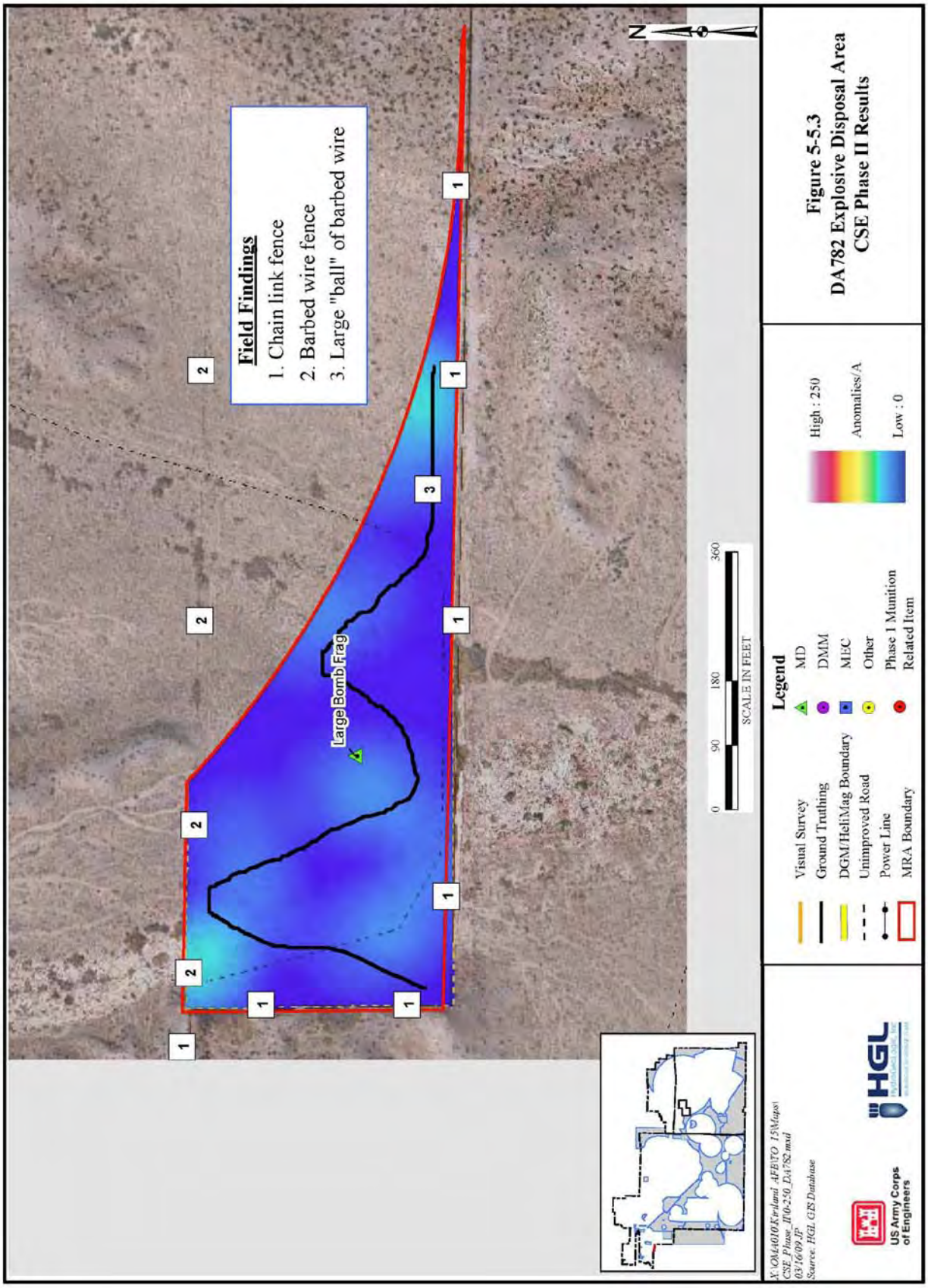
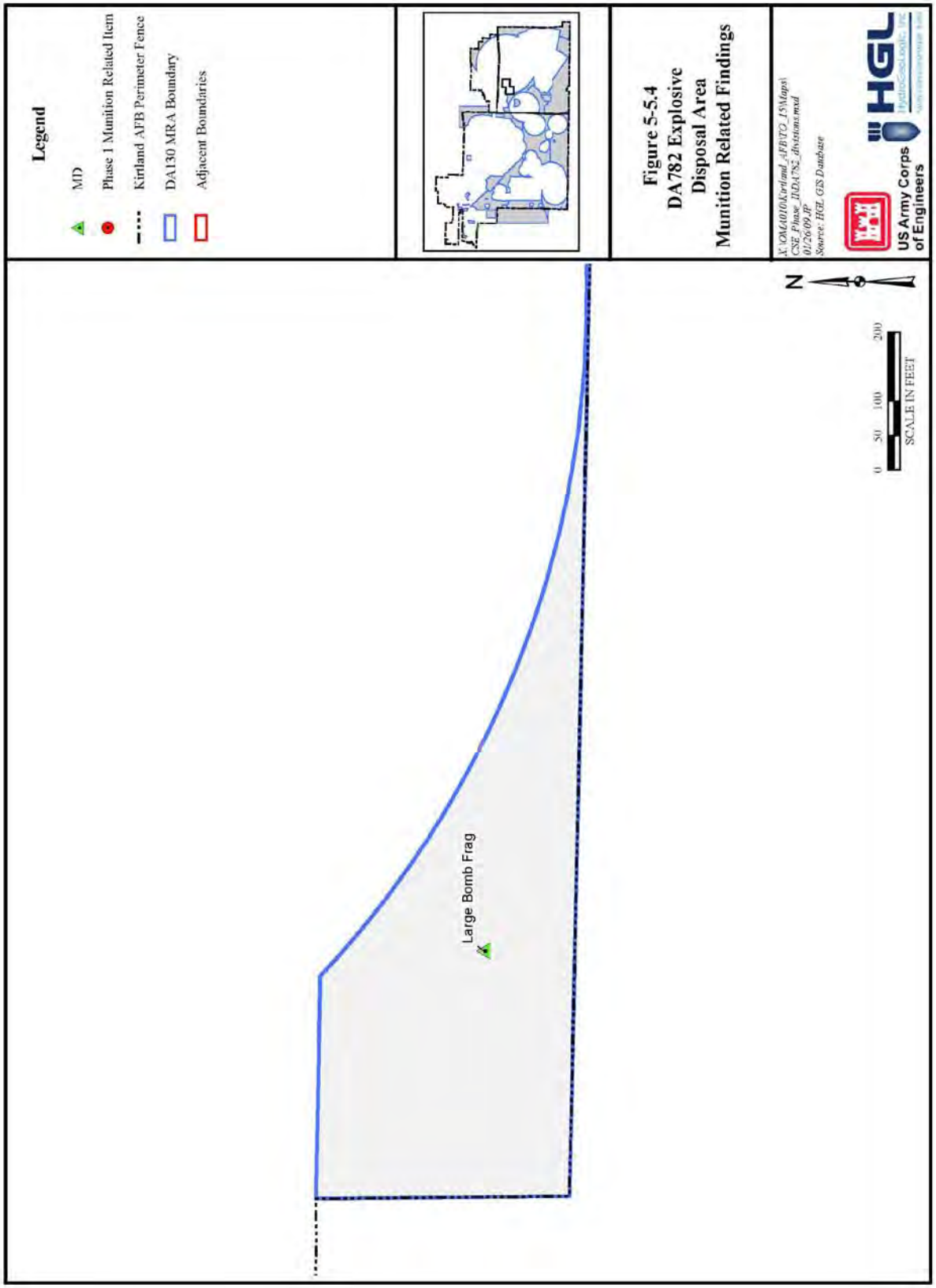


Figure 5-5.3
DA782 Explosive Disposal Area
CSE Phase II Results


Legend
MD
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
DA130 MRA Boundary
Adjacent Boundaries
Figure 5-5.4
DA782 Explosive
Disposal Area
Munition Related Findings
X:\OMA010\Jrdmd_AFB\TO_15\Maps\
CSE_Phase_II\DA782_divisions.mxd
01/26/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
HydroGeologic, Inc.
N
0 50 100 200
SCALE IN FEET
Large Bomb Frag

5.6 ED770 Experimental Range

5.6.1 Site Description

The 1,479.7-acre ED770 Experimental Range is located in the central portion of Kirtland AFB (Figure 5-6.1). ED770 is surrounded by operational explosives testing ranges and the entire operational 377th EOD Range is located completely within the boundaries of ED770. Terrain within the MRA consists of rolling grassland hills.

5.6.2 History of MEC Activities

The complete historical use and years of operation for ED770 is unknown. According to historical records from VT fuze testing, several munition items were placed in close proximity to aircraft and detonated to test effectiveness of fragments igniting aircraft fuel tanks.

5.6.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ED770 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, portions of ED770 are developed and used by multiple organizations. The undeveloped portions of ED770 are actively used for military field training.

5.6.4 Access Controls

The boundary of ED770 is surrounded by fenced compounds limiting access to the developed portions. ED770 is accessible through the undeveloped areas.

5.6.5 Restrictions

ED770 has no physical restrictions; however, it exists in security zones for various agencies. The area is monitored by roving security patrols.

5.6.6 Field Investigation Results

CSE Phase II activities at ED770 included HeliMag, towed-array, litter/cart, visual survey, and ground truthing.

5.6.6.1 Site Reconnaissance Observation

ED770 is surrounded by hills on its western, northern, and eastern boundaries. During the initial site reconnaissance, the determination was made to utilize HeliMag for the flatter southern portions of the MRA and towed-array and litter/cart for the remaining acres.

5.6.6.2 Geophysical Survey Results

The geophysical survey included 661 acres of HeliMag, 782 acres of towed-array, and 99 acres of litter/cart. Geophysical survey results indicated a low anomaly density (Figure 5-6.1).

5.6.6.3 Visual Survey

No visual survey was conducted at ED770.

5.6.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the mulitiplier.

Approximately 90 miles of ground truthing were completed at ED770 (Figure 5-6.2). Ground truthing of ED770 confirmed the presence of numerous MEC and MD items as well as non-munitions items. Items are shown on Figure 5-6.3 and 5-6.4.

5.6.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, ED770 did not meet the criteria for soil sample collection.

5.6.6.6 Background Determination

No samples were collected for comparison to background concentrations.

5.6.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of ED770 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.6.7.1 Nearby Populations

Kirtland AFB is located just outside of the City of Albuquerque. ED770 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. An industrial area is located up to 2 miles from the boundary of the MRA.

5.6.7.2 Buildings Near/Within MRA

There are 132 buildings within ED770, of which 52 are numbered and 80 are unnumbered. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA. An industrial area is located up to 2 miles from the boundary of the MRA.

5.6.7.3 Utilities On/Near MRA

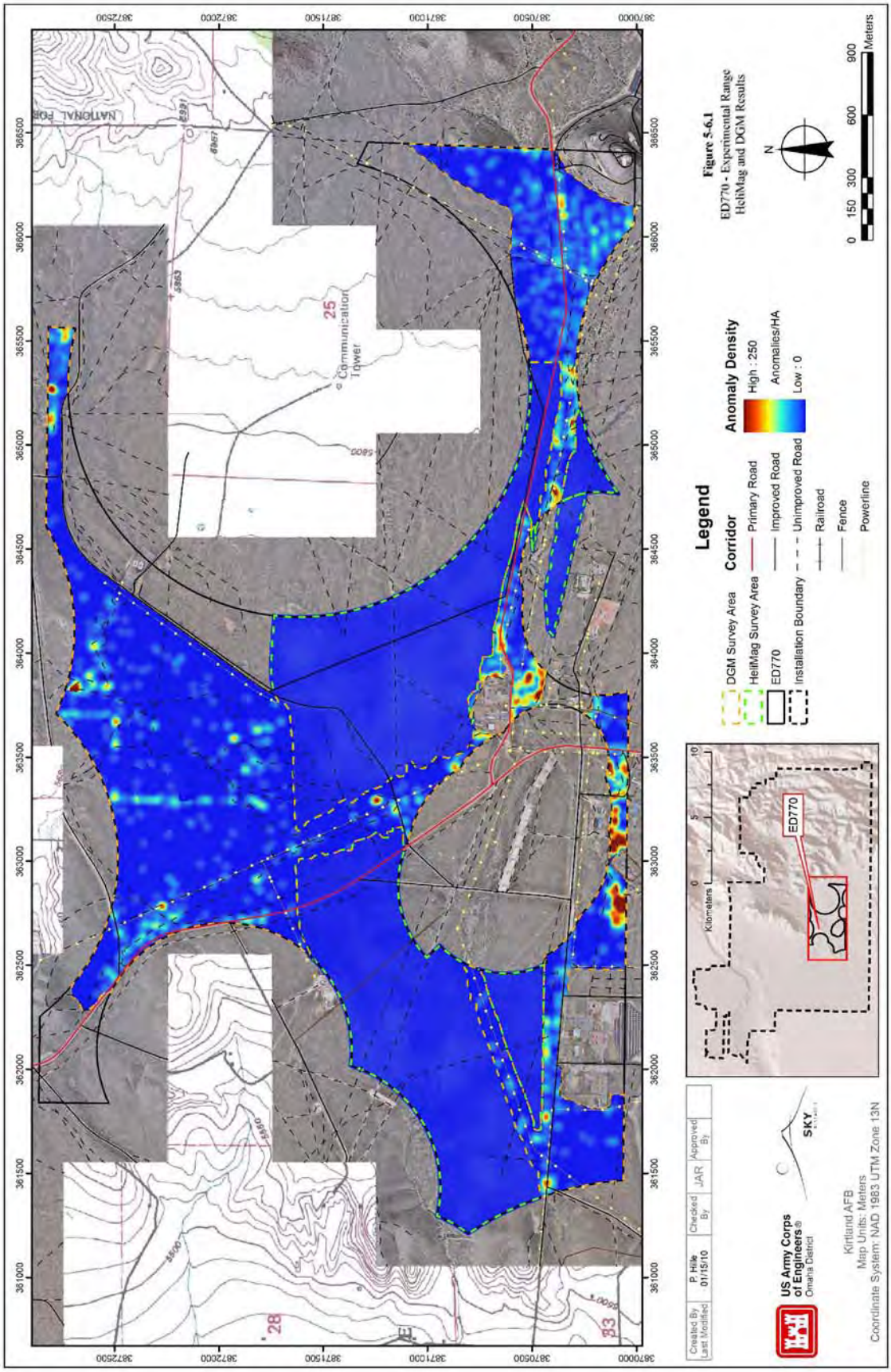
High voltage power lines, as well as an underground gas pipeline are present in the western portion of the MRA. Water and sewer lines also are present within the MRA. Several water monitoring wells also are located within the MRA.

5.6.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in ED770.

5.6.9 Sensitive Environments

Due to the location of ED770 along the foothills of the Manzanita Mountains, unnamed arroyos exist near this site. Additionally, portions of ED770 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
HeliMag Survey Area
ED770
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
Anomaly Density
High : 250
Anomalies/HA
Low : 0
N
0 150 300 600 900
Meters
Figure 5-6.1
ED770 - Experimental Range
HeliMag and DGM Results
Communication Tower
25
28
33
ED770
Kilometers
US Army Corps of Engineers®
Omaha District
SKY
Kirtland AFB
Map Units: Meters
Coordinates System: NAD 1983 UTM Zone 13N
Created By
Last Modified
P. Hile
01/15/10
Checked By
JAR
Approved By

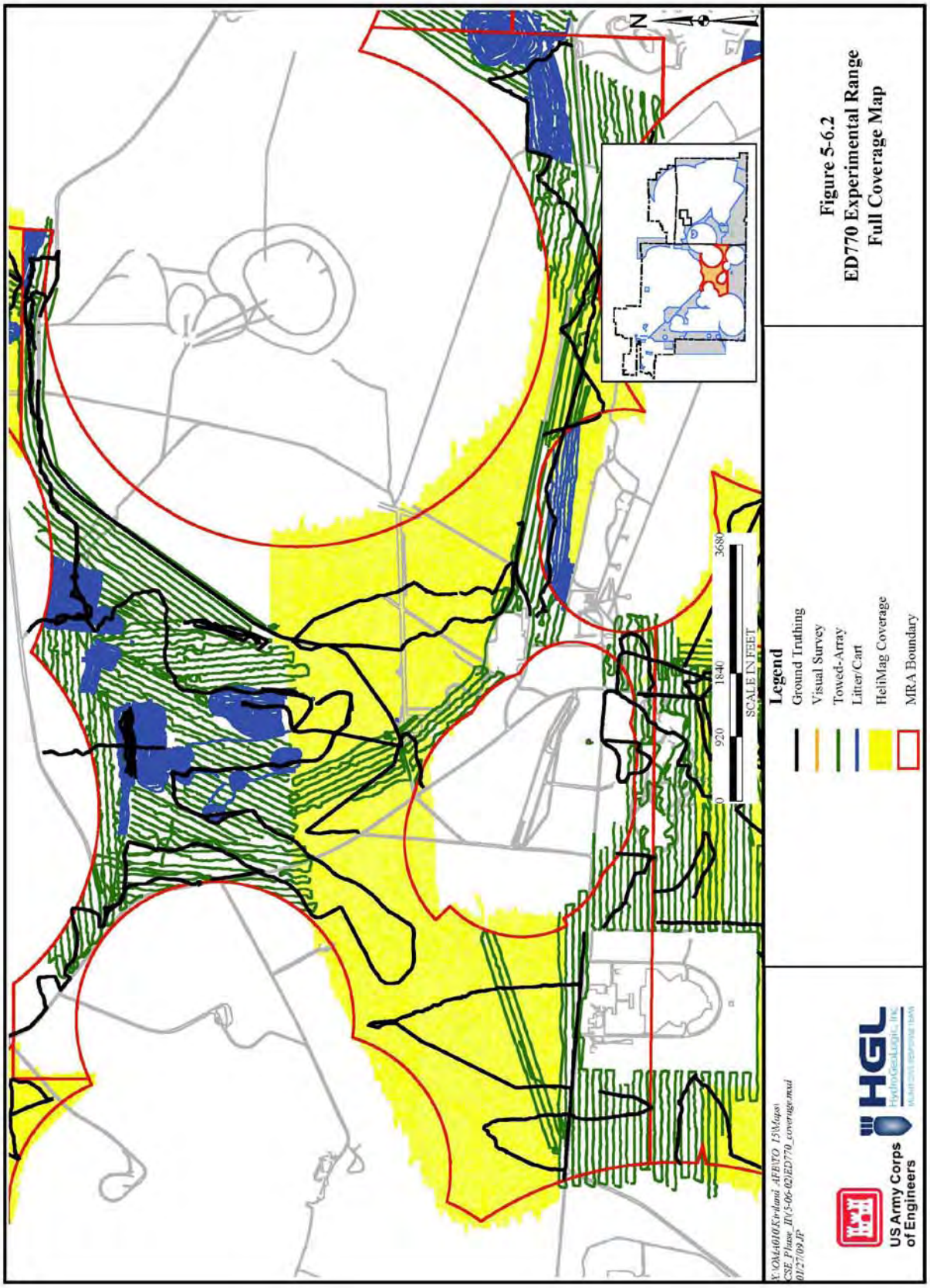


Figure 5-6.2
ED770 Experimental Range Full Coverage Map

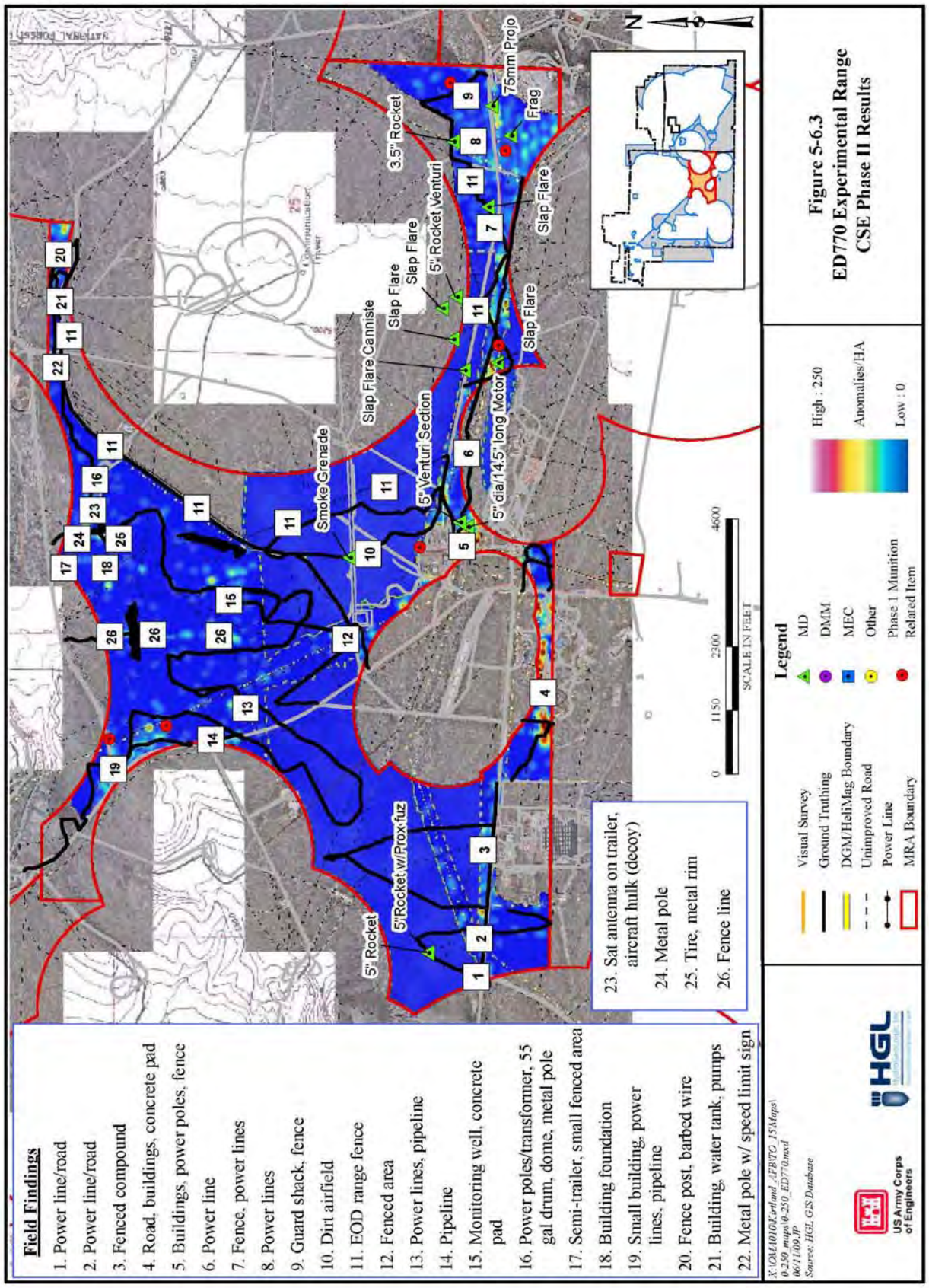


Figure 5-6.3
ED770 Experimental Range
CSE Phase II Results

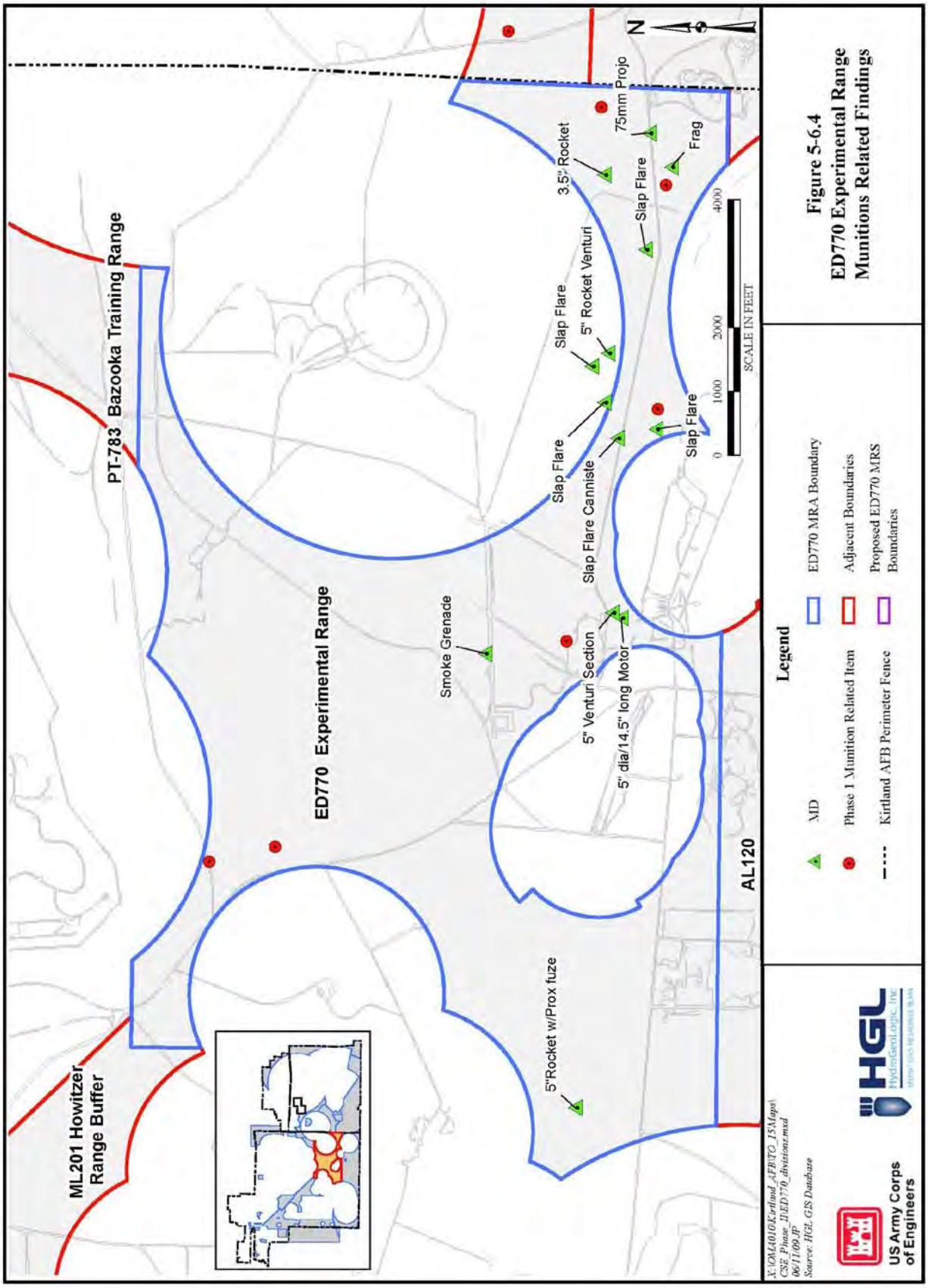


Figure 5-6.4
ED770 Experimental Range
Munitions Related Findings

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5.7 ML125 Field Firing Range

5.7.1 Site Description

ML125 is classified as a multi-use range and is located in the southern portion of Kirtland AFB (Figure 5-7.1). The terrain of this 2,231.3-acre range varies from rolling, grassy hills to steep, rocky foothills.

5.7.2 History of MEC Activities

ML125 contains the impact area for the NMPG and was used for the development of the VT fuze program from 1942 to 1952.

5.7.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML125 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, the majority of ML125 is undeveloped open space. The remaining portions of ML125 are used by Starfire Optical Range including support and target buildings.

5.7.4 Access Controls

Signs are posted throughout ML125 warning of UXO in the area. Installation boundary chain link fencing stretches the entire southern border. Steep, rocky mountains are present along the entire eastern side and are all but impassable by vehicle or on foot as they pose a great hazard to individual safety. A portion of the west side contains a barbed wire fence.

5.7.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto ML125 is not restricted.

5.7.6 Field Investigation Results

CSE Phase II activities at ML125 included towed-array, litter/cart, visual survery, ground truthing, and media sampling.

5.7.6.1 Site Reconnaissance Observations

The western portions of this MRA are gently sloping and relatively flat, although frequently cut by gullies, arroyos, and washes. Elevation and terrain quickly rise towards the eastern portions of the MRA as this is the base of Mt. Washington. Many areas in the steep mountainous areas of the eastern half exceed 40 degrees of slope and are impassable. During the initial site reconnaissance the determination was made to utilize HeliMag for the majority of the MRA and towed-array and litter/cart for the remaining acres. Ultimately HeliMag was not utilized largely due to the hilly terrain.

5.7.6.2 Geophysical Survey Results

The geophysical survey included 768 acres of towed-array and 357 acres of litter/cart. Geophysical survey results indicated two large areas of high anomaly density (Figure 5-7.1).

5.7.6.3 Visual Survey

Approximately 201 acres of visual survey was completed at ML125 (Figure 5-7.2). Visual survey confirmed the presence of several MEC and MD items (Figure 5-7.3).

5.7.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 51 miles of ground truthing was completed at ML125 (Figure 5-7.2). Ground truthing confirmed the presence of high concentrations of MEC and MD items and numerous non-MEC items (Figure 5-7.3). In addition, slag was observed in five locations within an approximate 2-acre area. The five areas where slag was observed correlate with the sample locations found in Figure 5-7.6.

5.7.6.5 Media Sampling Results

Soil samples were collected from ML125 as part of the CSE Phase II investigation. Due to the size of ML125, sample locations are presented in Figures 5-7.4 through 5-7.11.

Samples were analyzed for the explosives 2,4,6-TNT, RDX, and HMX. Samples also were analyzed for the following metals at all areas except Area 2: antimony, cadmium, copper, lead, mercury and zinc. The analytical results are reported with screening levels in Table 5-7.1 located in Appendix H. TNT was detected in sample ML125A1-01-3 at 0.15 mg/kg and RDX was detected in samples ML125A3-09-3 at 0.17 J mg/kg and ML125A5-01-3 at 0.088 J mg/kg. The remaining explosives results were non detections.

All metals were detected at concentrations above background values with the exception of antimony and mercury. Specifically, cadmium was detected in 15 samples above background; copper was detected in 21 samples above background; lead was detected in 21 samples above background; and, zinc was detected in 8 samples above background. Those results are italicized in Table 5-7.1. In Area 5, two samples, ML125A5-01-3 and ML125A5-03-4, contained cadmium concentrations exceeding the NMED and EPA Region 6 screening levels. Sample ML125A5-01-4 also exceeded screening levels for copper.

It should be noted that after completion of field activities in this MRA, the boundary on a portion of what had previously been AL120 was transferred to ML125. As a result, sample numbers AL120A1-1 through AL120A1-4 were taken from an area that is now located in ML125. The AL120 sample identification numbers were not changed and are reported with the ML125 sample results.

5.7.6.6 Background Determination

In addition to the NMED and EPA Region 6 SSLs, metals results also were compared to background levels developed for specific areas of Kirtland AFB. ML125 falls within the Canyons Study Group background values.

5.7.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of ML125 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.7.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML125 is located in Bernalillo County, which has a population density of approximately 500 persons per square mile. An industrial area is located up to 2 miles from the boundary of the MRA.

5.7.7.2 Buildings Near/Within MRA

There are 20 buildings within ML125. Of those buildings, nine are numbered and the remaining 11 are unnumbered. The Population Near Hazard data indicates there are approximately 25 inhabited structures located up to 2 miles from the boundary of the MRA.

5.7.7.3 Utilities On/Near MRA

Electric, water, and sewer utilities are located in ML125 to provide service to buildings located within the MRA.

5.7.8 Natural Resources

ML125 includes areas considered to be potential gray vireo habitat. The gray vireo, a state threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

5.7.9 Sensitive Environments

ML125 is close to the primary surface water feature on Kirtland AFB, Arroyo del Coyote. Additionally, portions of ML125 either contain or are close to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

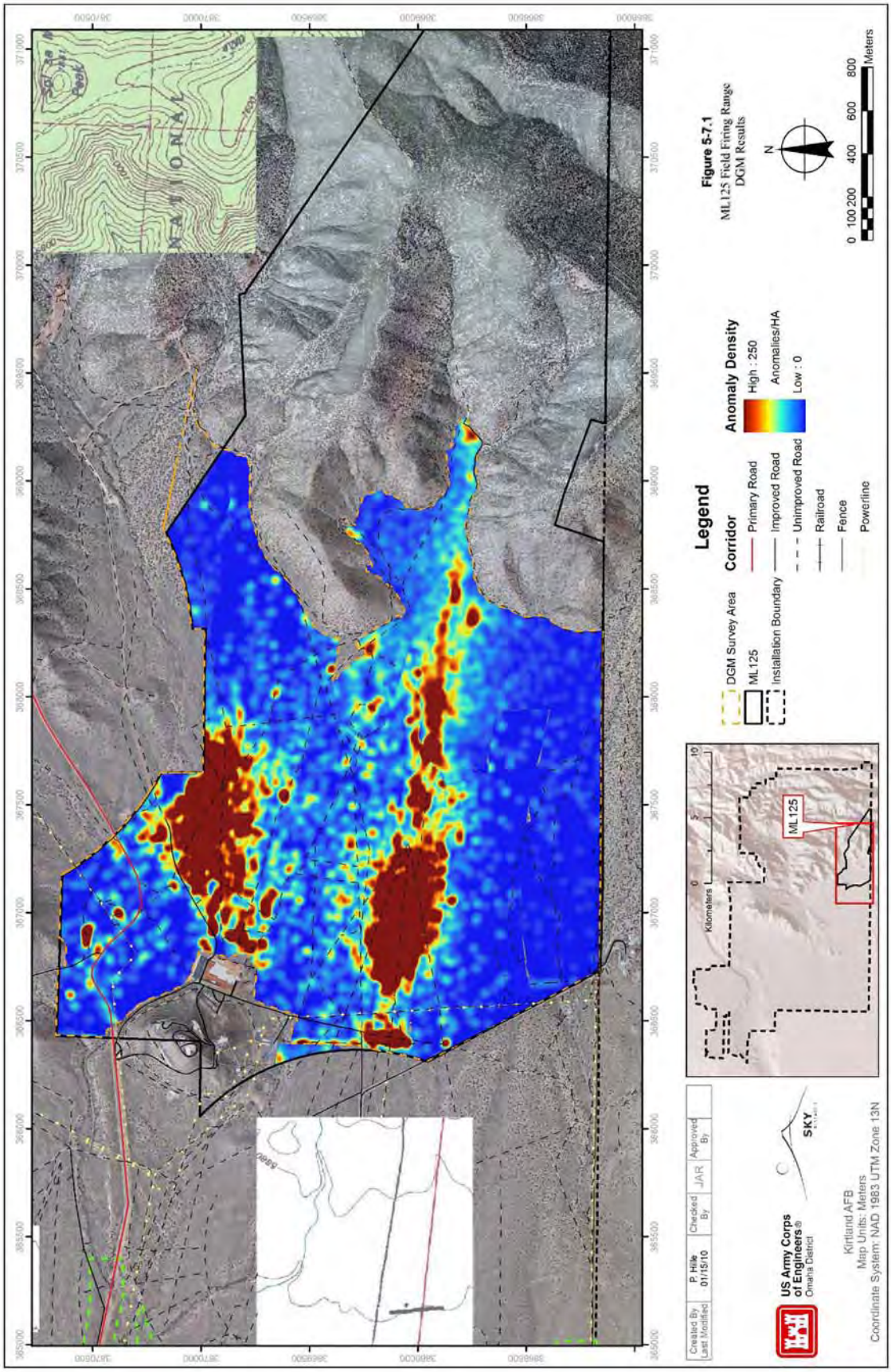
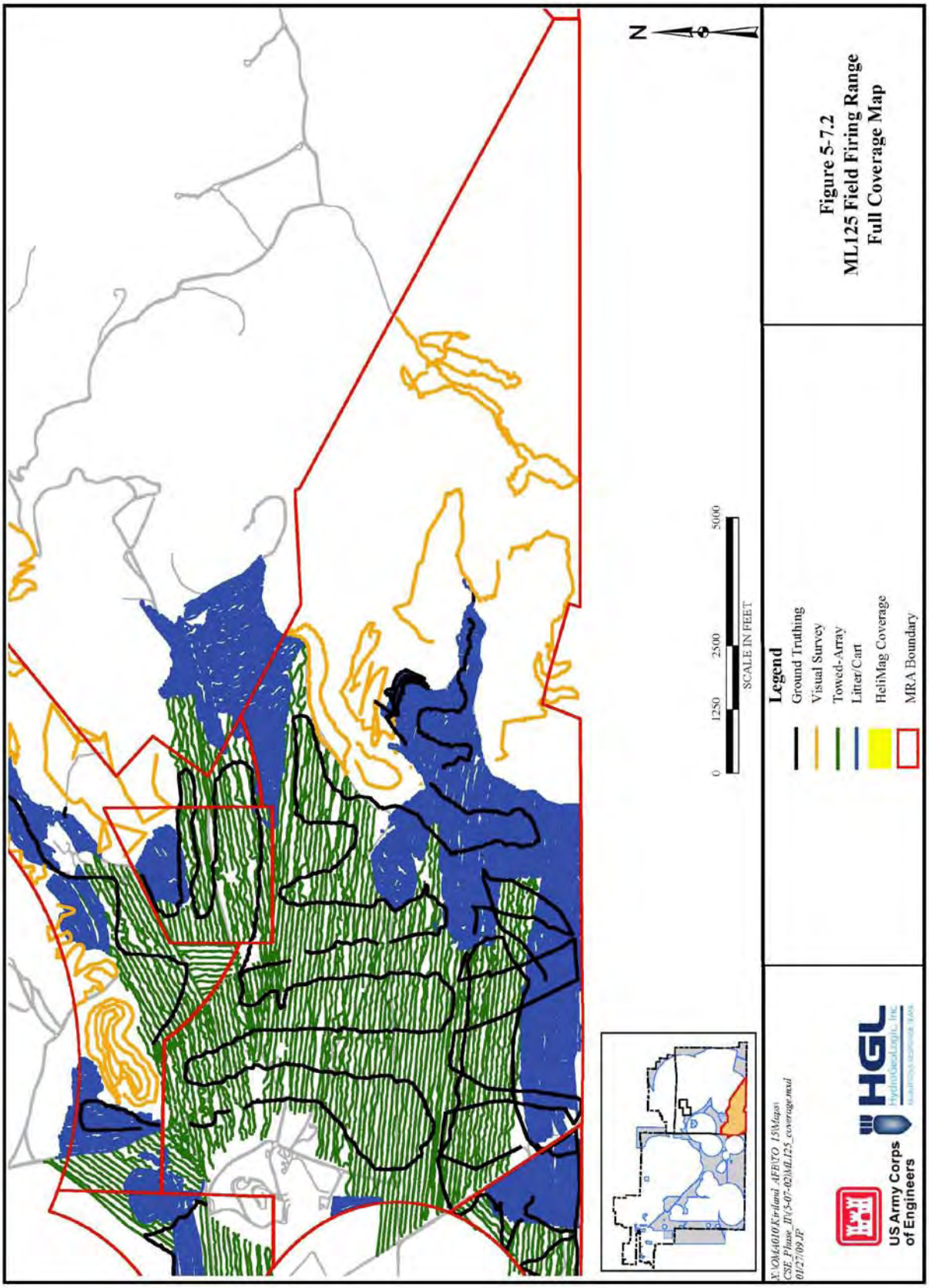


Figure 5-7.1
ML125 Field Firing Range
DGM Results


N
0
1250
2500
5000
SCALE IN FEET
Legend
Ground Truthing
Visual Survey
Towed-Array
Litter/Cart
HeliMag Coverage
MRA Boundary
Figure 5-7.2
ML125 Field Firing Range
Full Coverage Map
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
environmental data
X:\MA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-07-02\ML125_coverage.mxd
01/27/09 JP

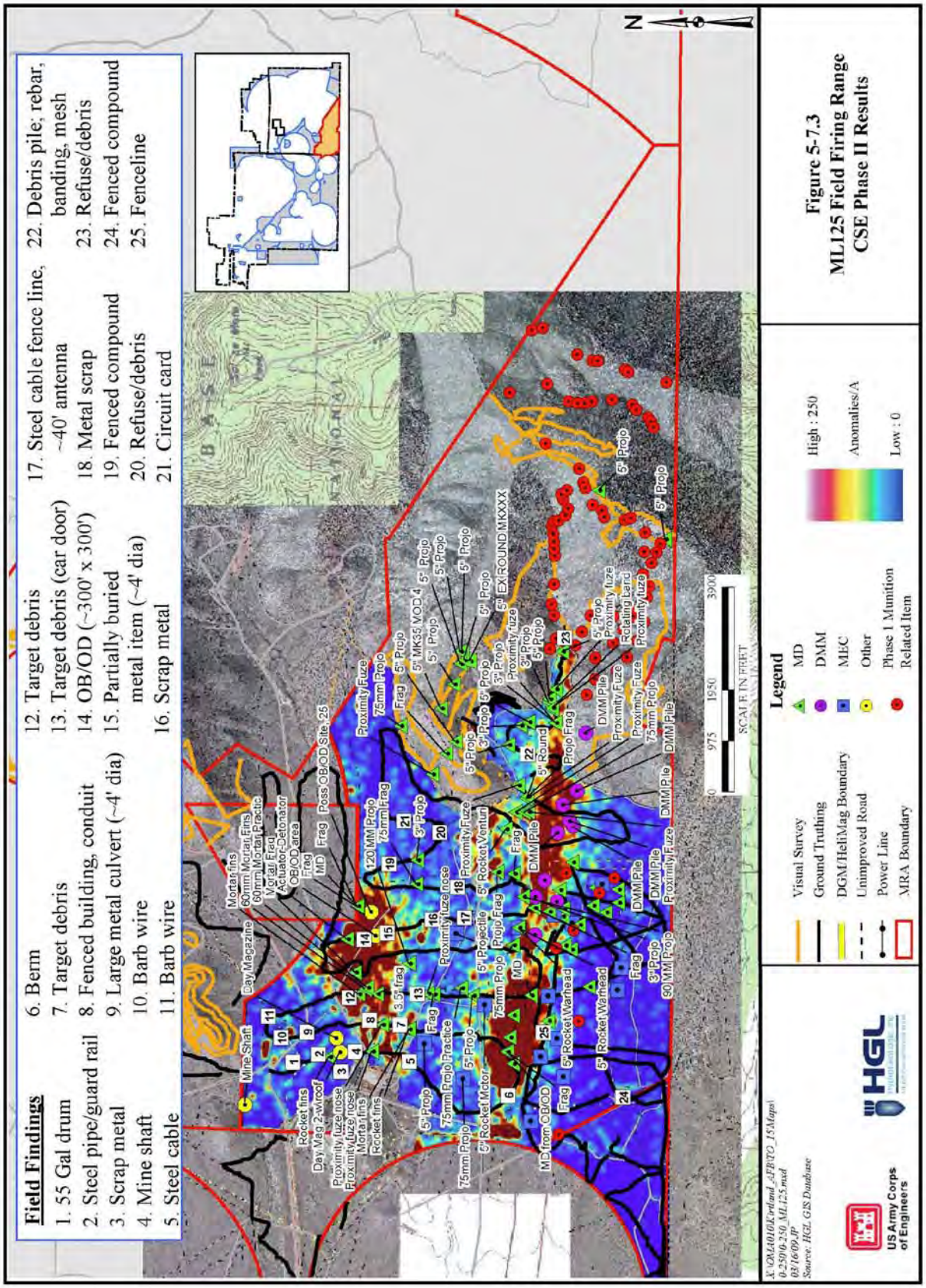


Figure 5-7.3
ML125 Field Firing Range
CSE Phase II Results

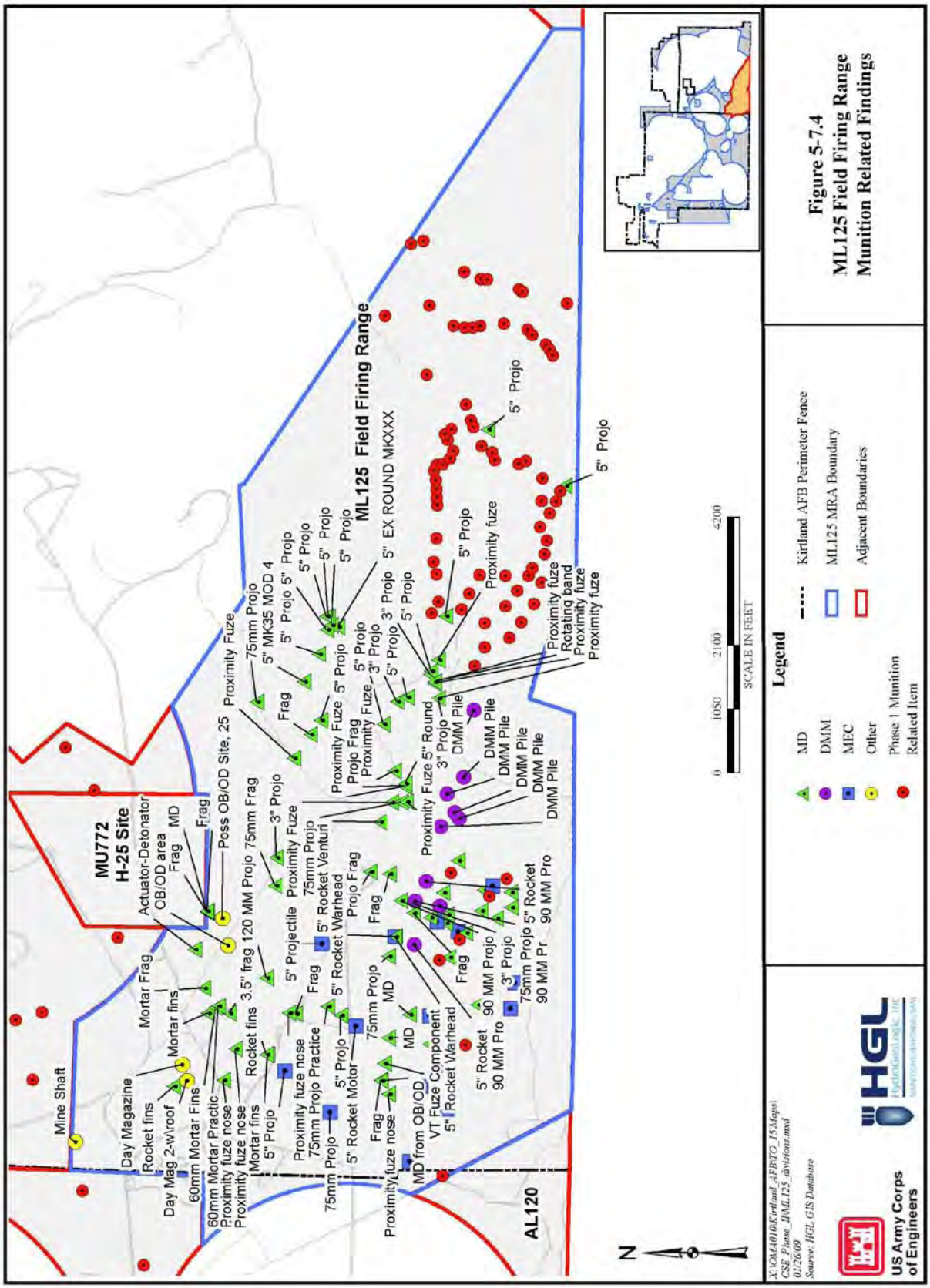


Figure 5-7.4
ML125 Field Firing Range
Munition Related Findings

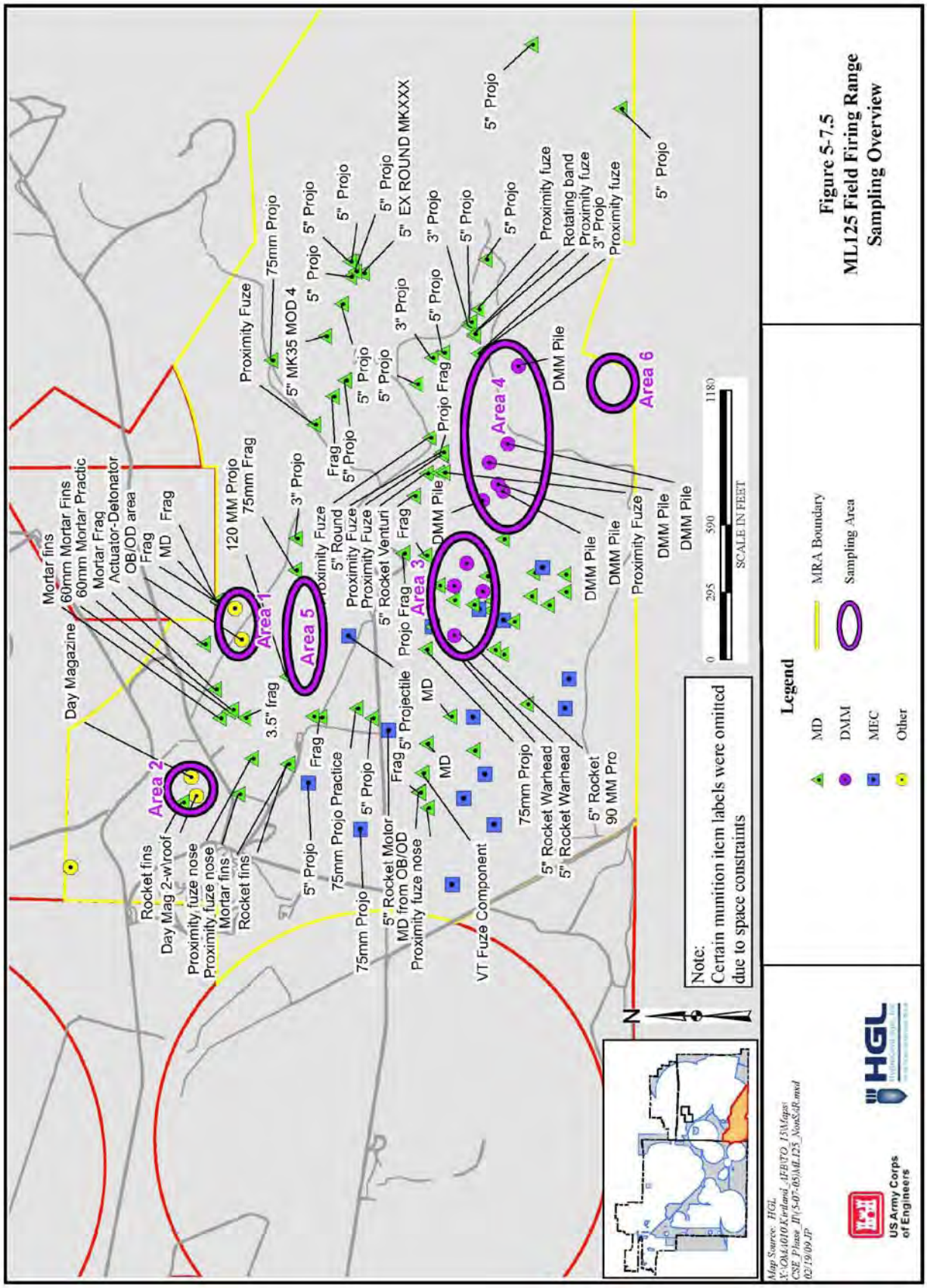


Figure 5-7.5
ML125 Field Firing Range Sampling Overview

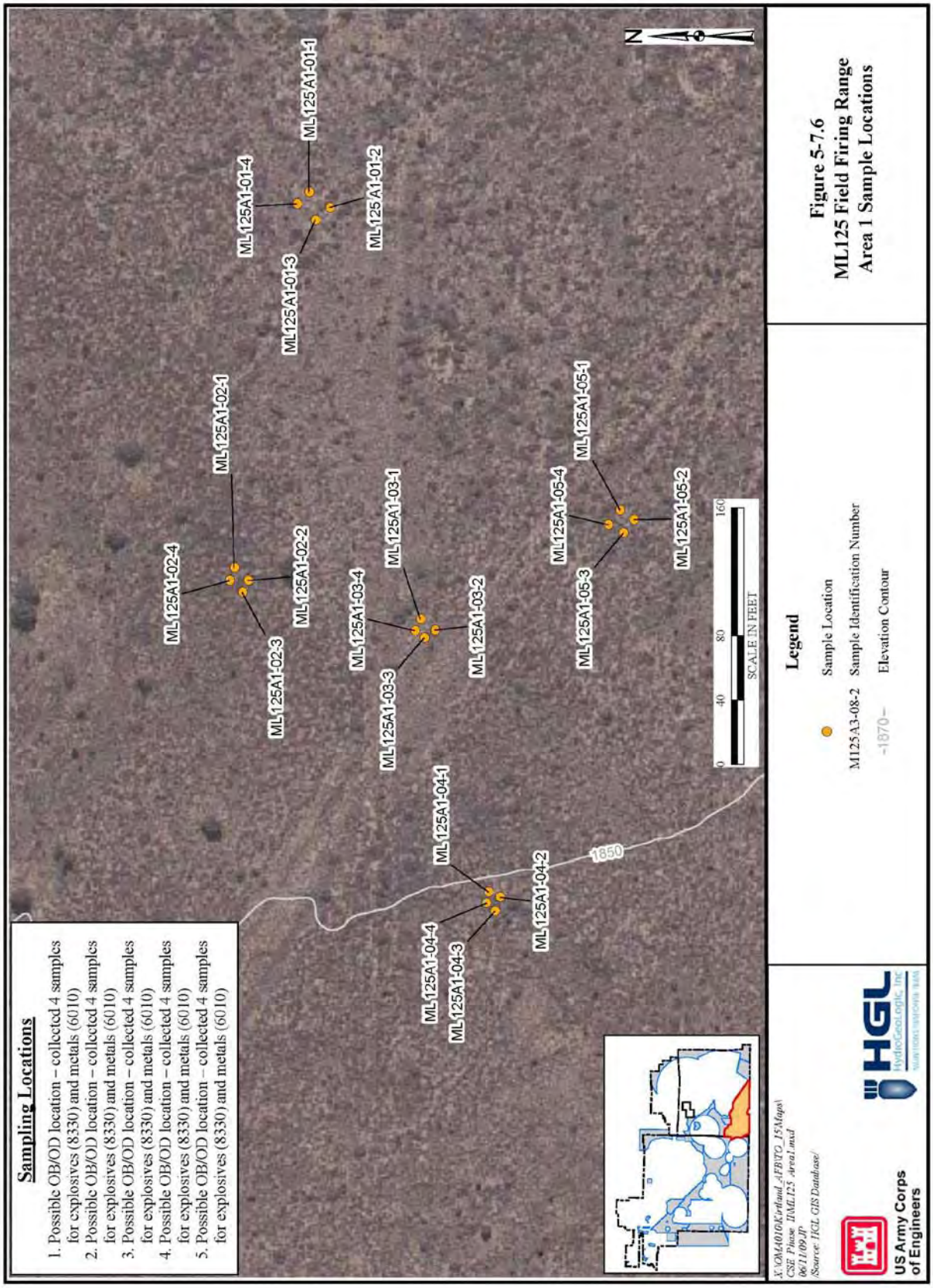


Figure 5-7.6
ML125 Field Firing Range
Area 1 Sample Locations

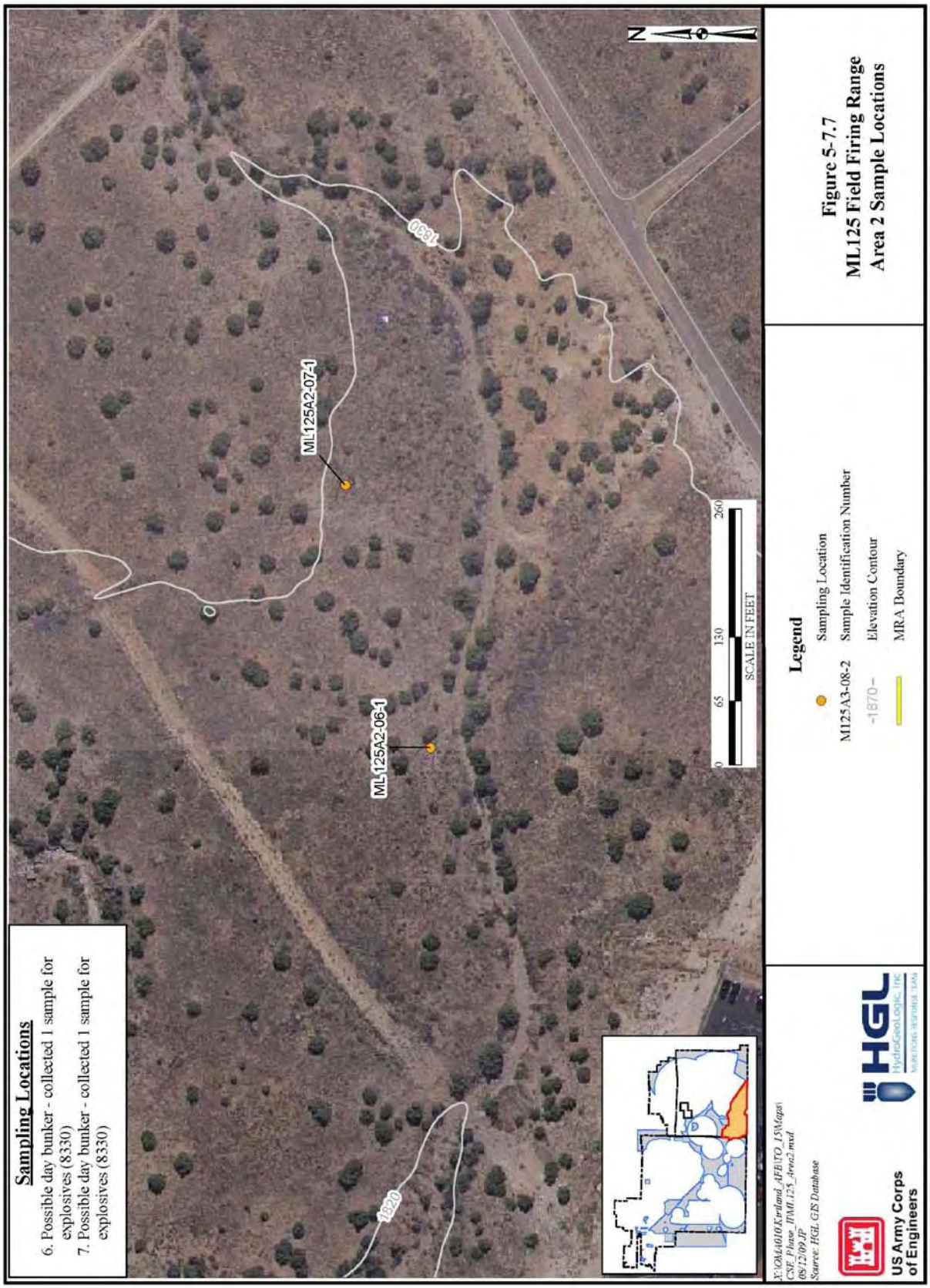
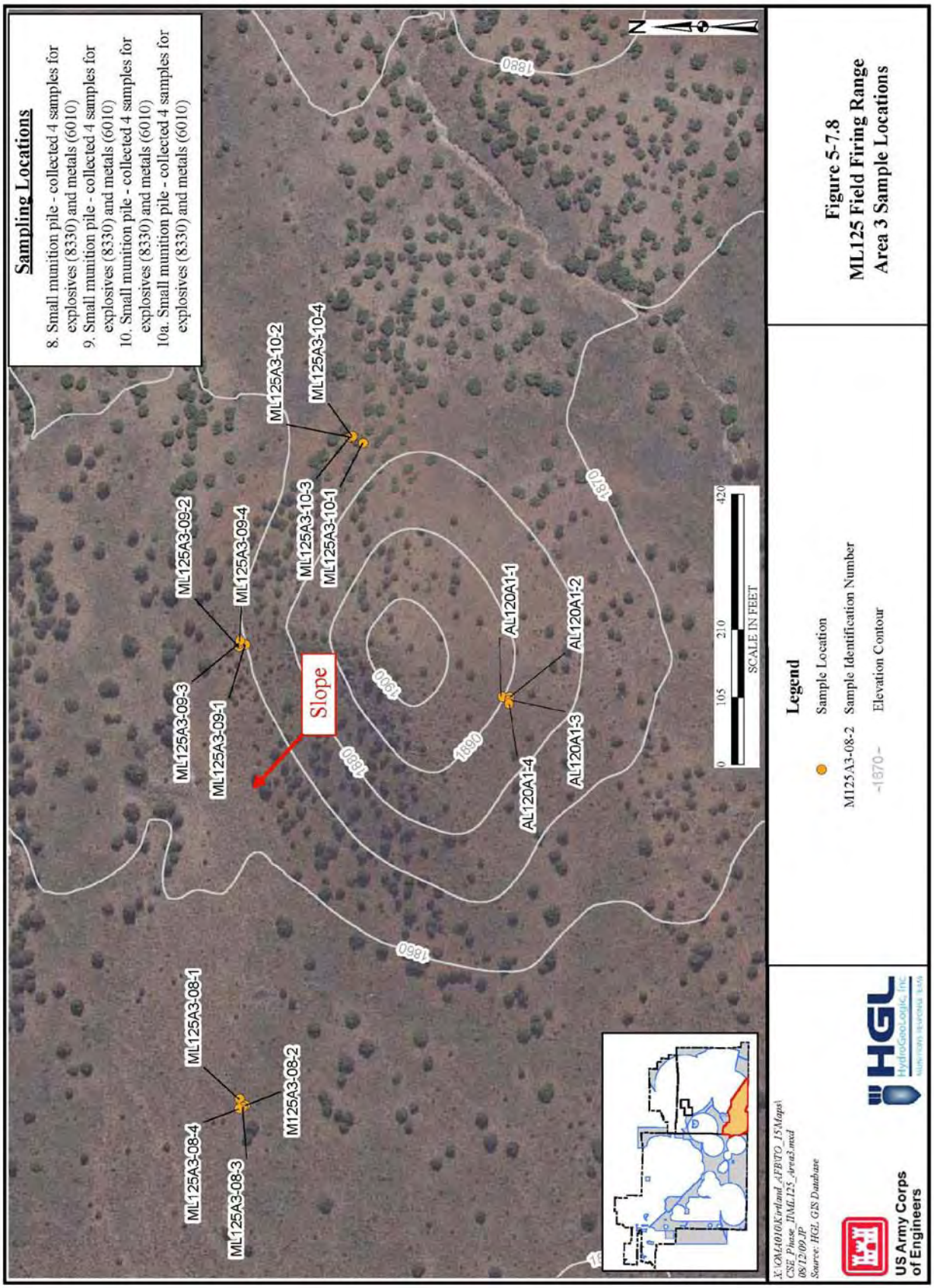


Figure 5-7.7
ML125 Field Firing Range
Area 2 Sample Locations


Sampling Locations
8. Small munition pile - collected 4 samples for explosives (8330) and metals (6010)
9. Small munition pile - collected 4 samples for explosives (8330) and metals (6010)
10. Small munition pile - collected 4 samples for explosives (8330) and metals (6010)
10a. Small munition pile - collected 4 samples for explosives (8330) and metals (6010)
ML125A3-10-2
ML125A3-10-4
ML125A3-10-3
ML125A3-10-1
ML125A3-09-2
ML125A3-09-4
ML125A3-09-3
ML125A3-09-1
Slope
AL120A1-1
AL120A1-2
AL120A1-4
AL120A1-3
ML125A3-08-1
ML125A3-08-4
ML125A3-08-3
M125A3-08-2
1880
1870
1890
0
105
210
420
SCALE IN FEET
Legend
Sample Location
M125A3-08-2 Sample Identification Number
~1870~ Elevation Contour
Figure 5-7.8
ML125 Field Firing Range
Area 3 Sample Locations
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE Phase_II\ML125_area3.mxd
08/12/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
HydroGeologic, Inc.

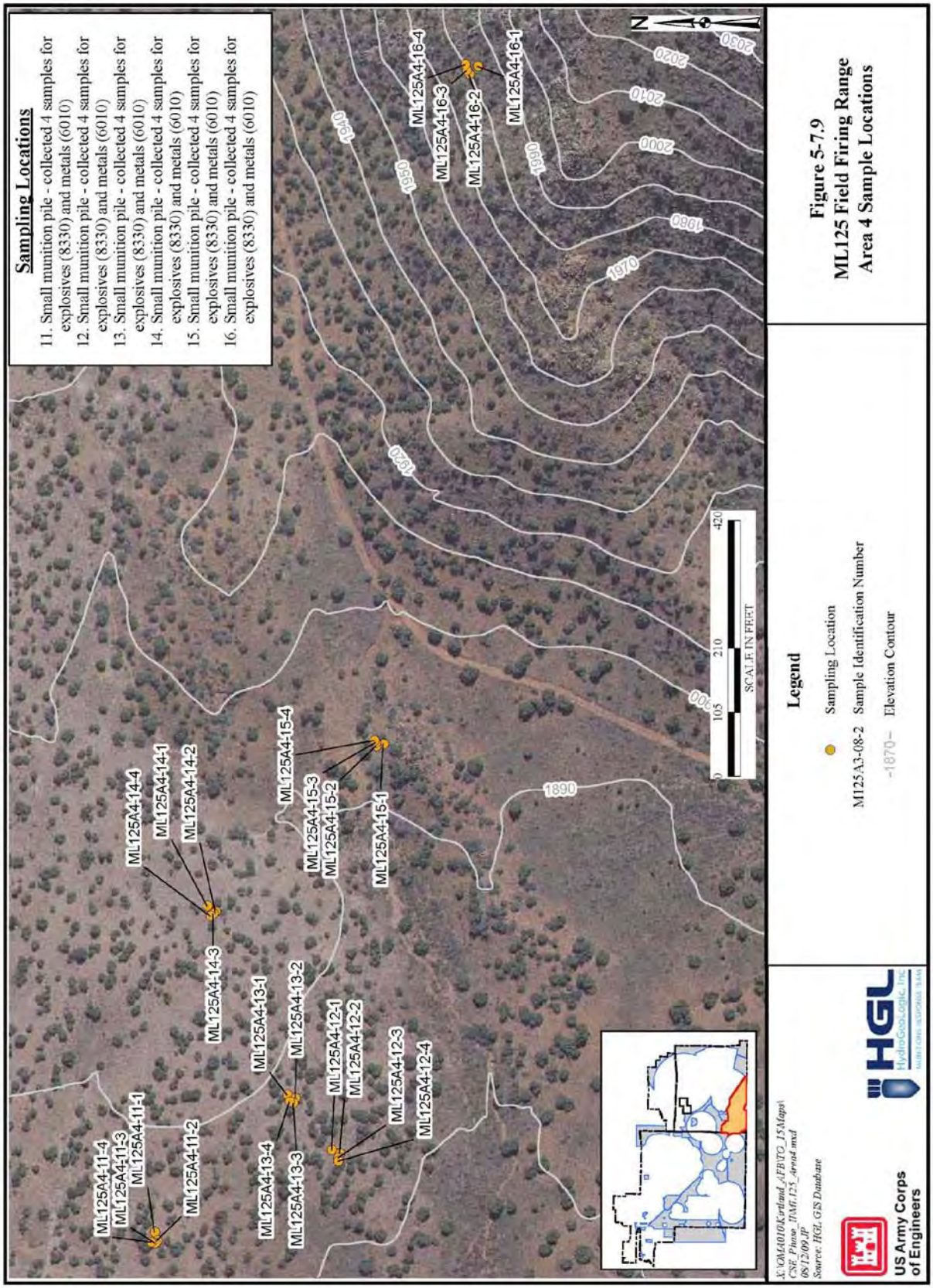


Figure 5-7.9
ML125 Field Firing Range
Area 4 Sample Locations

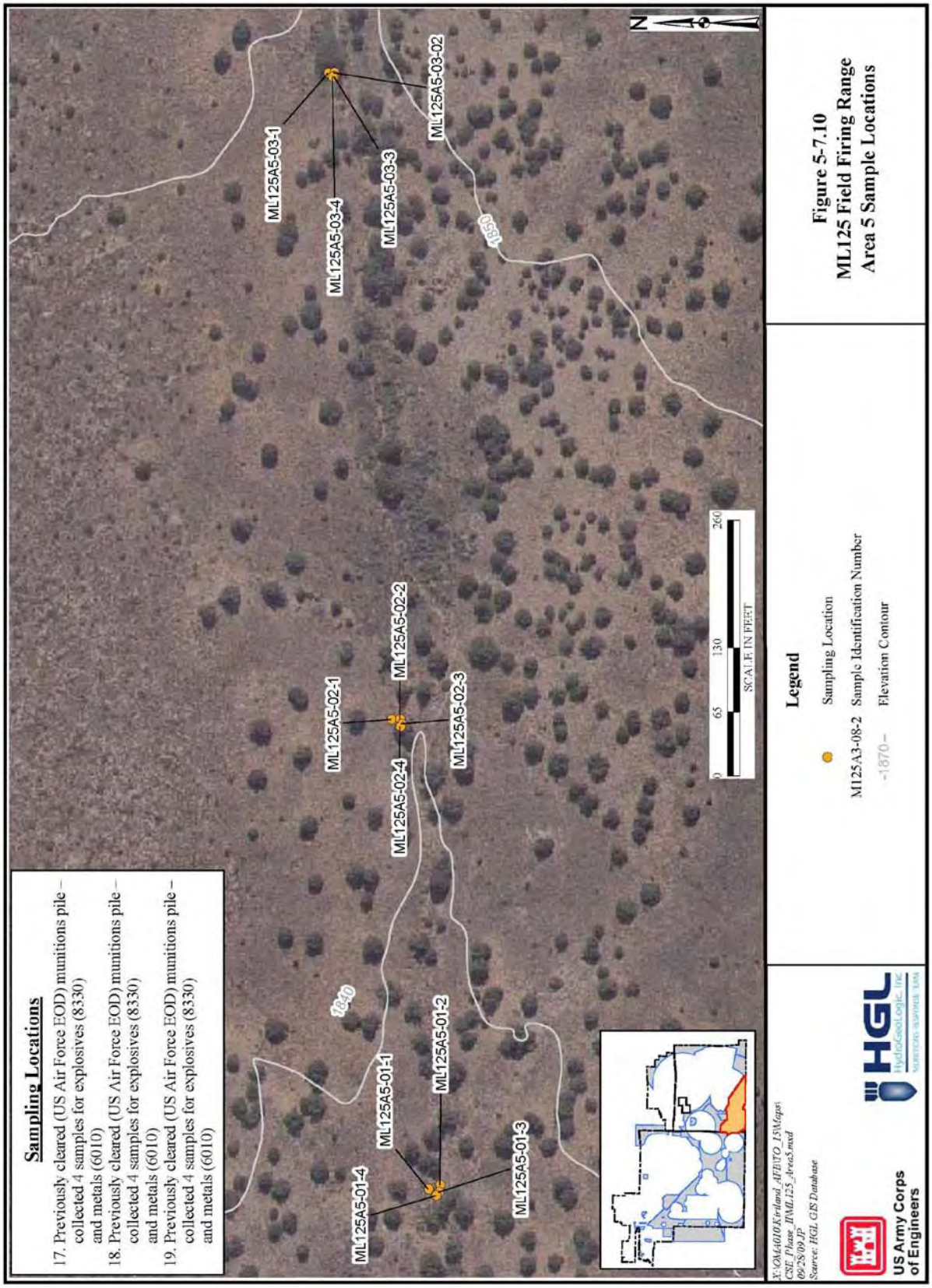


Figure 5-7.10
ML125 Field Firing Range
Area 5 Sample Locations

Sampling Locations
20. Previously cleared (US Air Force EOD) munitions pile – collected 4 samples for explosives (8330) and metals (6010)
ML125A6-01-4
ML125A6-01-1
ML125A6-01-2
ML125A6-01-3
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
2110
2120
0 100 200 400
SCALE IN FEET
Legend
Sampling Location
M125A3-08-2 Sample Identification Number
1870 Elevation Contour
MRA Boundary
Figure 5-7.11
ML125 Field Firing Range
Area 6 Sample Locations
US Army Corps of Engineers
HydroGeoLogic, Inc.
X:\OA\1010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\ML125_Area6.mxd
09/28/09 JP
Source: HGL GIS Database

5.8 ML200 Sandia Base Howitzer Range

5.8.1 Site Description

ML200 is classified as a medium/large-caliber range in the western portion of Kirtland AFB (Figure 5-8.1). The terrain of this 960.2-acre range is flat grassland.

5.8.2 History of MEC Activities

ML200 was part of the Defense Training Areas used by Sandia Base for flat trajectory line of sight firing of 75mm projectiles as identified in the Sandia Base Range Regulations from the 1950s. (TLI, 2006). In addition, an apparent .50 Caliber Target was found as evidenced by several 55-gallon drums, used as targets, and numerous fired .50-caliber projectiles.

5.8.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML200 Sandia Base Howitzer Range is industrial and constrained land use. Industrial uses include sites for storage of supplies, base maintenance, and utility facilities. Munitions facilities also are included. Because industrial land uses are often associated with the aircraft operations/maintenance facilities at Kirtland AFB, they are often adjacent to each other. Areas designated as constrained land use have been designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, ML200 is undeveloped open space.

5.8.4 Access Controls

Once access onto Kirtland AFB is obtained, entry onto ML200 is not restricted, but monitored.

5.8.5 Restrictions

ML200 has no physical restriction, but exists within a security zone for Kirtland AFB and requires notification for site access.

5.8.6 Field Investigation Results

CSE Phase II activities at ML200 included HeliMag, towed-array, litter/cart, visual survey, ground truthing, and media sampling.

5.8.6.1 Site Reconnaissance Observations

The MRA is located at the confluence of the Arroyo del Coyote and Tijeras Arroyo. The northern boundary slopes steeply downwards towards the arroyos and is characterized by multiple small scale tributary erosion channels. The central portion of the MRA is the bottom of the Tijeras Arroyo, and is generally a flat flood plain cut by braided stream channels. The southern portion of the MRA is generally flat grassland. The decision was made to use towed-array for the central portions and litter/cart and visual survey for the remaining areas.

5.8.6.2 Geophysical Survey Results

The geophysical survey included 238 acres of HeliMag, 328 acres of towed-array, and 87 acres of litter/cart. Geophysical survey results indicated a low anomaly density (Figure 5-8.1).

5.8.6.3 Visual Survey

Approximately 324 acres of visual survey was completed at ML200 (Figure 5-8.2). Visual survey confirmed the presence of a 75mm projectile.

5.8.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 48 miles of ground truthing were completed at ML200 (Figure 5-8.2). Ground truthing confirmed the presence of numerous 75mm practice projectiles, a proximity fuze nose and a missile nose cone, as well as numerous non-MEC items (Figure 5-8.3).

5.8.6.5 Media Sampling Results

Soil samples were collected from the .50 Caliber Target, located within ML200. XRF sample locations are presented in Figure 5-8.5. The XRF results are listed in Table 5-8.1. None of the sample results exceeded the NMED, USEPA Region 6, or Kirtland AFB background levels.

5.8.6.6 Background Determination

In addition to the NMED and USEPA Region 6 screening levels, XRF lead results were also compared to background levels developed for specific areas of Kirtland AFB. The .50 Caliber Target falls within the Southwest Super Group background values.

5.8.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of the ML200 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.8.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML200 is located in Bernalillo County, which has a population density of approximately 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.8.7.2 Buildings Near/Within MRA

There are three buildings on ML200. Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.8.7.3 Utilities On/Near MRA

Electric, gas, water, and sewer utilities are located in or near this MRA for service to surrounding buildings.

5.8.8 Natural Resources

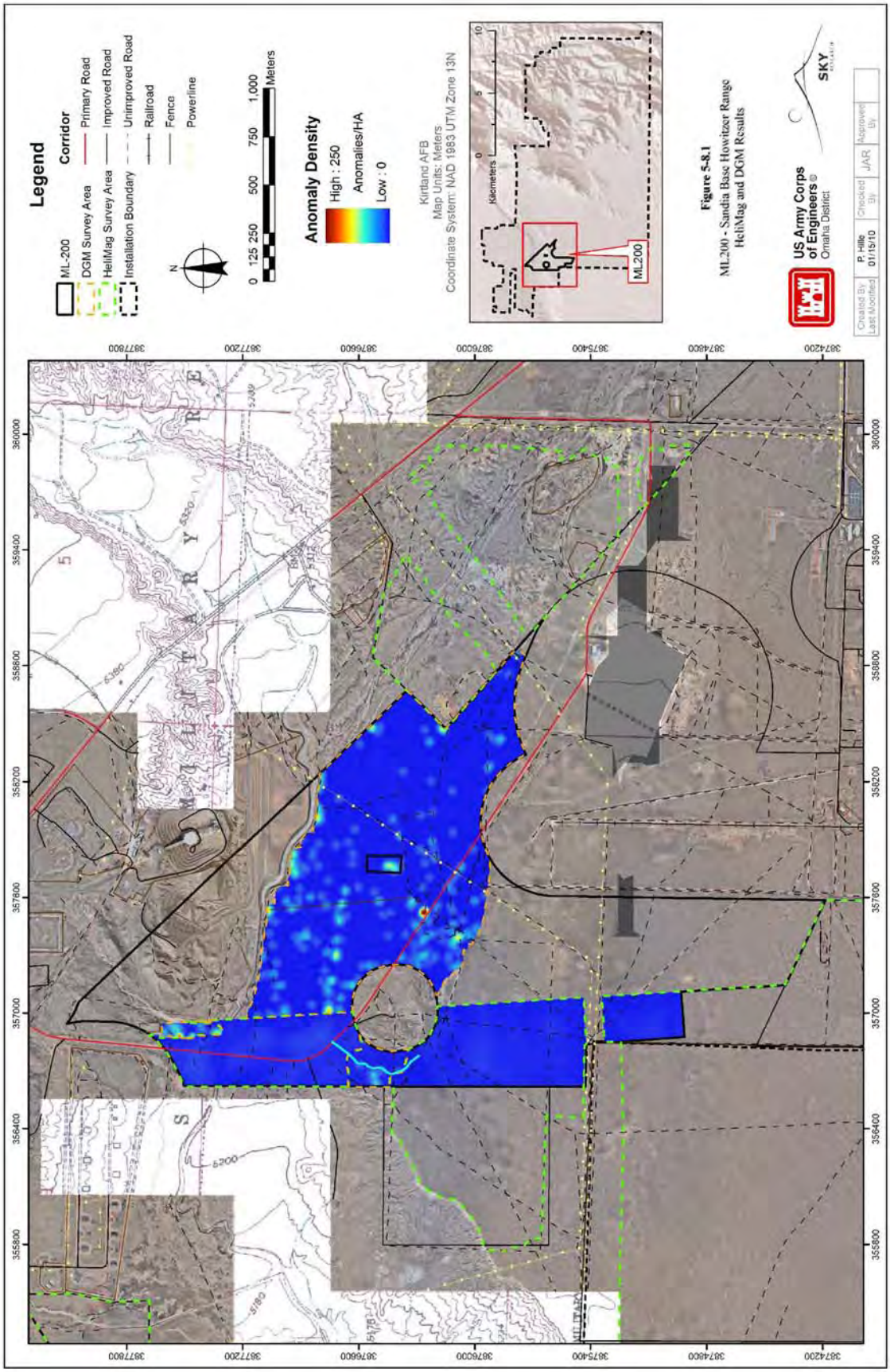
No threatened or endangered animal or plant species are known to exist in the areas comprising ML200.

5.8.9 Sensitive Environments

Portions of ML200 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

Table 5-8.1. .50 Caliber Target (Within ML200) XRF Results

Point	In Situ XRF Result	Sample Number	Ex Situ XRF Result	Ex Situ XRF Result	Ex Situ XRF Result	Avg	%RSD
1	<36.2						
2	55	50CAL-001	<20.1	<25.8	<27.2	<24.4	15.4
3	<35.5						
4	<37.8						
5	<34.9						
6	<40.1						
7	<36.8		<40.5	<27.7	<42	<36.7	21.4
8	<36						
9	<38.1						
10	<33.8	50CAL-005	<50.4	<30.1	<44.6	<41.7	25.0
11	53.5	50CAL-002	<19.9	<19.0	<23.6	<20.8	11.1
12	<38.6						
13	<36						
14	44.8	50CAL-003	<23.6	<22.2	29.1	25	14.6
15	<34.6		<40	<45.4	<30.7	<40.7	19.21
16	<34.5						
17	43.4	50CAL-004	<20.3	<22.7	<22.2	<21.7	5.83
18	<34.2						
19	<33.7						
20	<34.5						
21	<30.3						
22	<31.9						
23	<34						
24	<32.3						
25	<34.3						
26	<33.8						
27	<29.7						
28	<34.3						
29	<30						
30	<35.7						
31	<32.4						
32	<38.9						
33	<38.1						
34	<38.9		<42.1	<26.8	<40.4	<36.4	23.0
35	<32.9						
36	<33.8		<36.7	<47.4	<32.6	<38.9	19.6
37	<30.5						
38	<43.4						
39	<33.3						
40	<31.8						
41	<33.7						
42	<28.5						
43	<28.5						
44	<28.7						
45	<30.6						
46	<24.8						
47	<37.5		<35.8	<48.6	<26.7	<37	29.7
48	<33.4						
49	<31.5		<45.7	<13	<41.9	<33.5	53.3
50	<25.9						
51	NA		<19.7	<36.3	<23	<26.3	33.4


Legend
ML-200
DGM Survey Area
HeliMag Survey Area
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 125 250 500 750 1,000
Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
Kilometers
0 5 10
ML200
Figure 5-8.1
ML200 - Sandia Base Howitzer Range
HeliMag and DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By
Last Modified
P. Hills
01/15/10
Checked By
JAR
Approved By
367800
367200
366600
367600
367000
366400
367400
366800
367400
366200
358800
357800
357000
356400
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359400
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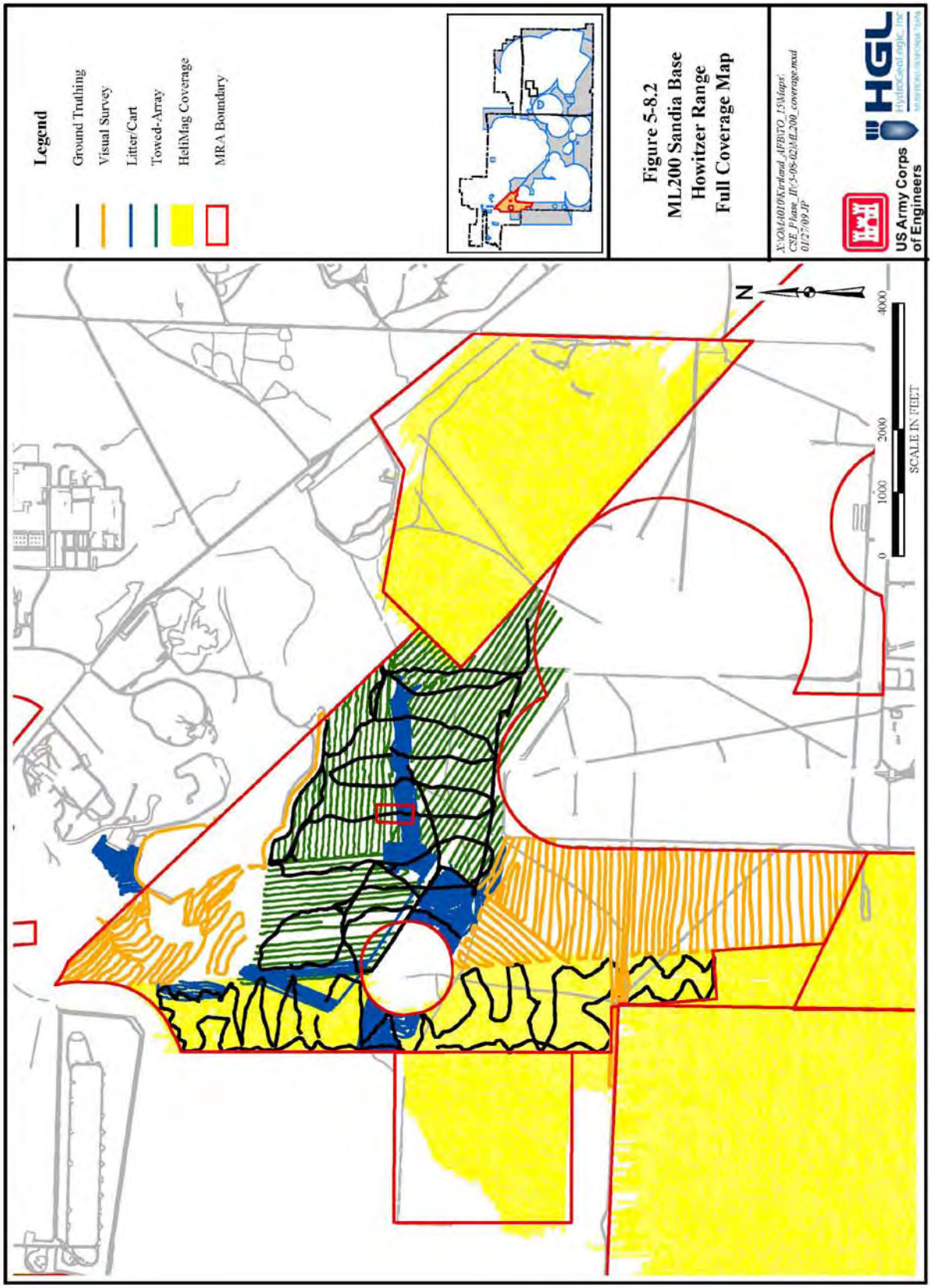
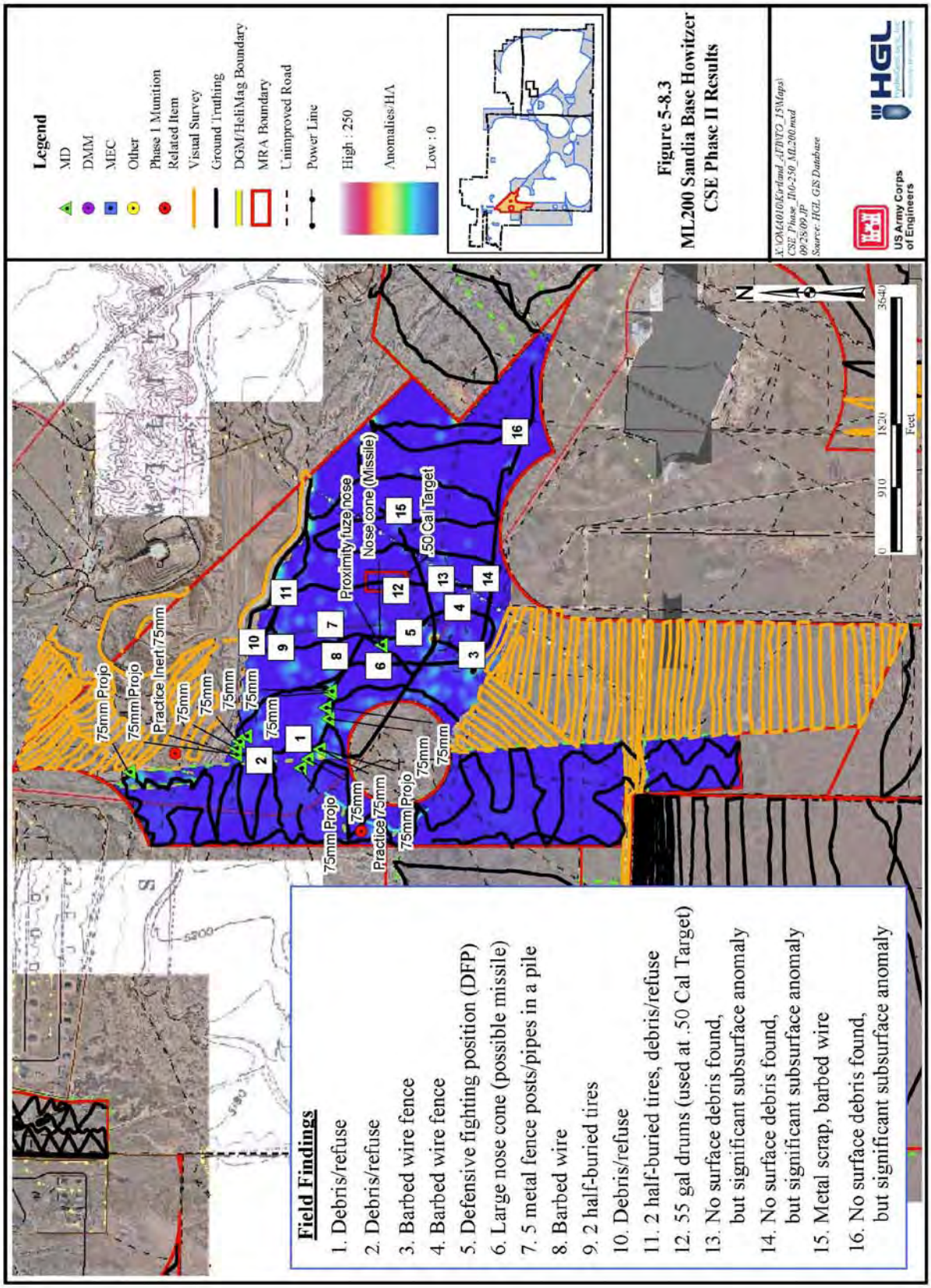
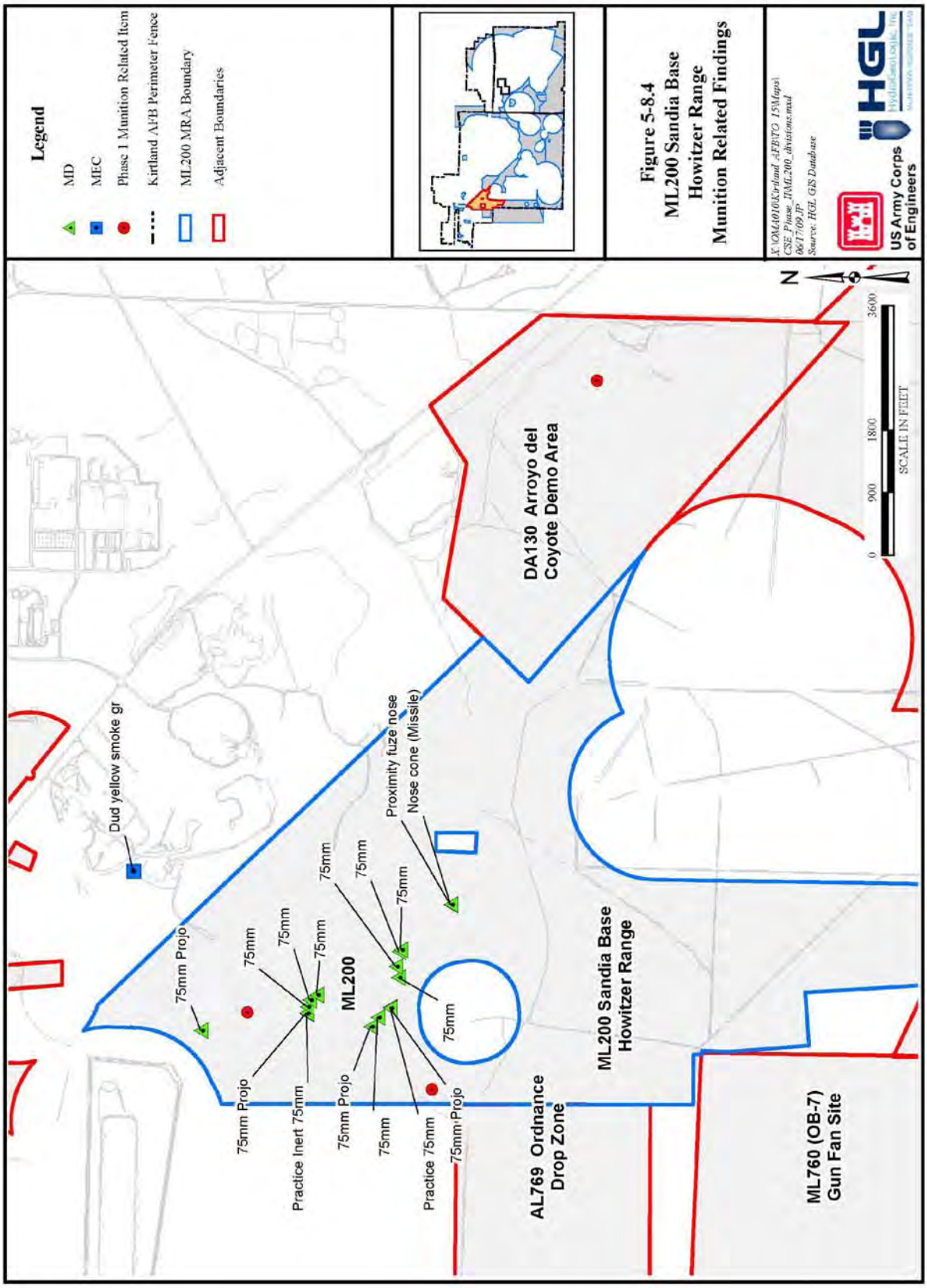
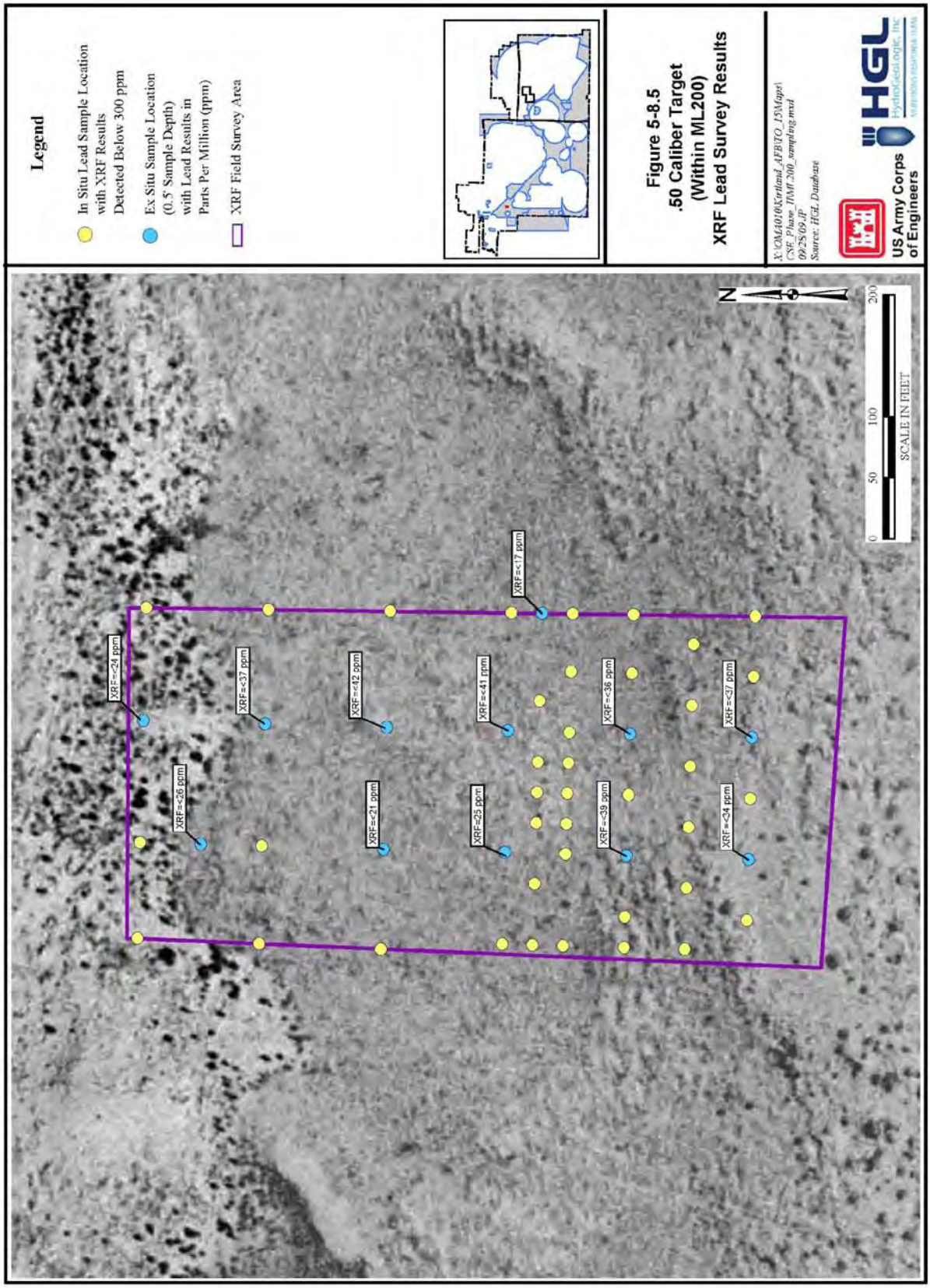
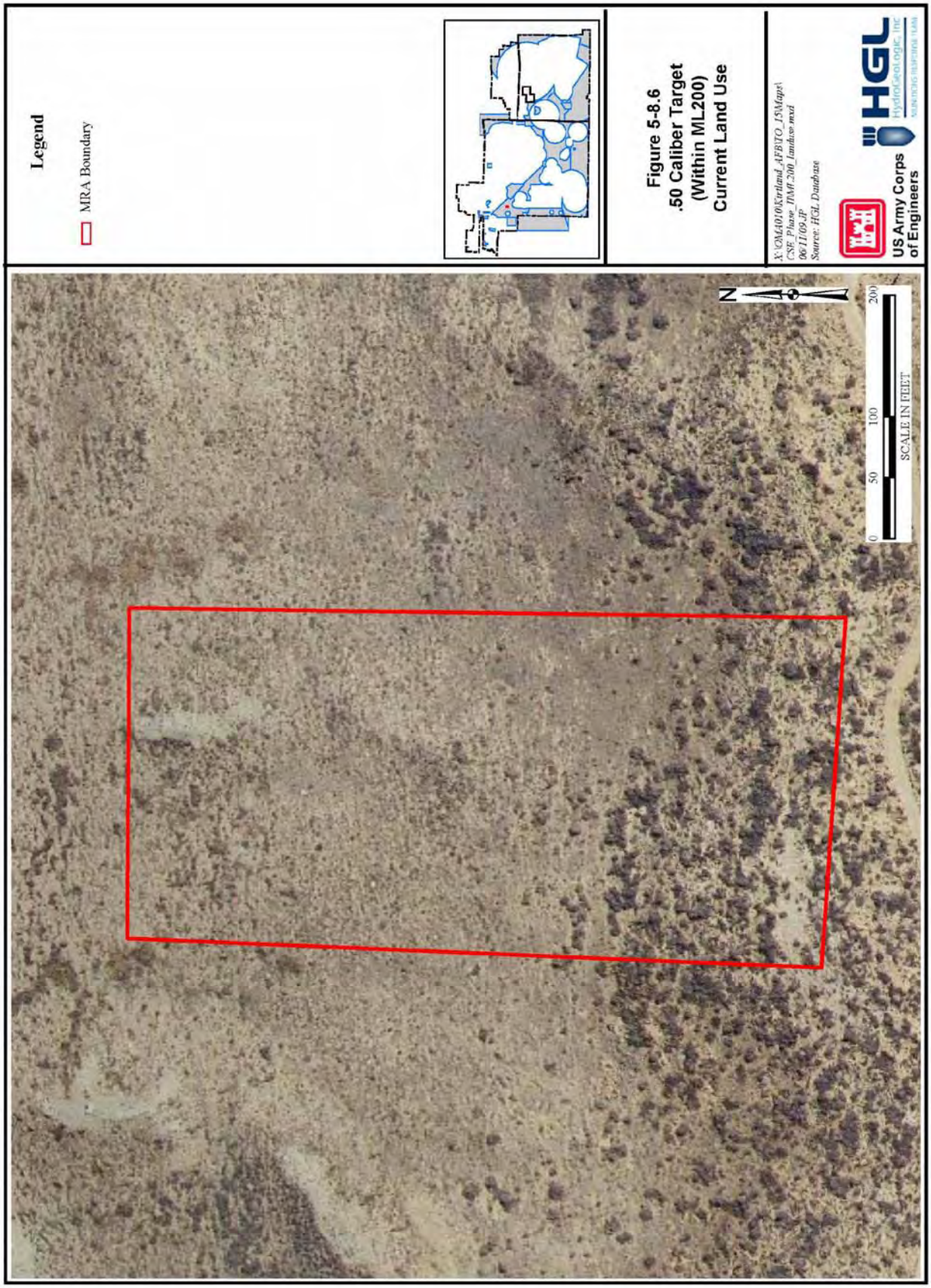
358000
357600
357000
356400
355800


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-8.2
ML200 Sandia Base
Howitzer Range
Full Coverage Map
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-09-02\ML200_coverage.mxd
01/27/09 JP
US Army Corps
of Engineers
HGL
N
0
1000
2000
4000
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/HA
Low : 0
Figure 5-8.3
ML200 Sandia Base Howitzer
CSE Phase II Results
US Army Corps of Engineers
HGL
Field Findings
1. Debris/refuse
2. Debris/refuse
3. Barbed wire fence
4. Barbed wire fence
5. Defensive fighting position (DFP)
6. Large nose cone (possible missile)
7. 5 metal fence posts/pipes in a pile
8. Barbed wire
9. 2 half-buried tires
10. Debris/refuse
11. 2 half-buried tires, debris/refuse
12. 55 gal drums (used at .50 Cal Target)
13. No surface debris found, but significant subsurface anomaly
14. No surface debris found, but significant subsurface anomaly
15. Metal scrap, barbed wire
16. No surface debris found, but significant subsurface anomaly
75mm Projo
Practice Inert 75mm
75mm
Practice 75mm
Proximity fuze nose
Nose cone (Missile)
.50 Cal Target
0
910
1820
3640
Feet


Legend
MD
MEC
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
ML200 MRA Boundary
Adjacent Boundaries
Figure 5-8.4
ML200 Sandia Base
Howitzer Range
Munition Related Findings
X:\OM4010\Kirtland_AFB\TO 15\Maps\
CSE_Phase_II\ML200_divisions.mxd
06/17/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
N
0
900
1800
3600
SCALE IN FEET
DA130 Arroyo del Coyote Demo Area
Dud yellow smoke gr
Proximity fuze nose
Nose cone (Missile)
75mm Projo
75mm
ML200
Practice Inert 75mm
Practice 75mm
AL769 Ordnance Drop Zone
ML200 Sandia Base Howitzer Range
ML760 (OB-7) Gun Fan Site


Legend
In Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-8.5
.50 Caliber Target
(Within ML200)
XRF Lead Survey Results
X:\OMA010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\ML200_sampling.mxd
09/25/09 JP
Source: HGL Database
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
XRF=<24 ppm
XRF=<26 ppm
XRF=<37 ppm
XRF=<42 ppm
XRF=<21 ppm
XRF=<41 ppm
XRF=<25 ppm
XRF=<17 ppm
XRF=<36 ppm
XRF=<39 ppm
XRF=<37 ppm
XRF=<34 ppm
0
50
100
200
SCALE IN FEET
N


Legend
MRA Boundary
Figure 5-8.6
.50 Caliber Target
(Within ML200)
Current Land Use
X:\OM4010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\MF-200_Landuse.mxd
06/11/09_JP
Source: HGL Database
US Army Corps
of Engineers
HGL
HydroGeologic, Inc
0
50
100
200
SCALE IN FEET
N

5.9 ML201 Sandia Base Howitzer Range Buffer

5.9.1 Site Description

ML201 Sandia Base Howitzer Range Buffer is a 710-acre MRA derived from the 75mm Howitzer Range identified in Sandia Base Range Regulations from the 1950s. The MRA is classified as a medium/large-caliber range and is located in the west-central portion of Kirtland AFB (Figure 5-9.1). The MRAs are part of the Defense Training Areas used by Sandia Base (TLI, 2006). The terrain is flat grassland.

5.9.2 History of MEC Activities

No historical MEC activity information could be located for ML201. Because this MRA exists within a buffer to the 75mm Howitzer range for ML200, it likely would share the same MEC history as ML200 described in Section 5.8.2.

5.9.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML201 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently ML201 is undeveloped open space.

5.9.4 Access Controls

Once access onto Kirtland AFB is obtained, entry onto ML201 is not restricted, but monitored.

5.9.5 Restrictions

ML201 has no physical restriction, but exists within a security zone for Kirtland AFB and requires security notification for site access.

5.9.6 Field Investigation Results

CSE Phase II activities at ML201 included HeliMag, towed-array, visual survey, and ground truthing.

5.9.6.1 Site Reconnaissance Observations

Site reconnaissance was not performed at ML201 prior to the geophysical surveys.

5.9.6.2 Geophysical Survey Results

The geophysical survey included 195 acres of HeliMag and 152 acres of towed-array. Geophysical survey results indicated three areas of medium anomaly density (Figure 5-9.1).

5.9.6.3 Visual Survey

Approximately 318 acres of visual survey was completed at ML201 (Figure 5-9.2). No munitions-related items were observed during the visual survey (Figure 5-9.3).

5.9.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 19 miles of ground truthing were completed at ML201 (Figure 5-9.2). Ground truthing revealed only cultural features. No munitions-related items were observed during the ground truthing (Figure 5-9.3).

5.9.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, ML201 did not meet the criteria for sample collection.

5.9.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.9.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of ML201 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.9.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML201 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.9.7.2 Buildings Near/Within MRA

There are eight buildings within ML201. Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.9.7.3 Utilities On/Near MRA

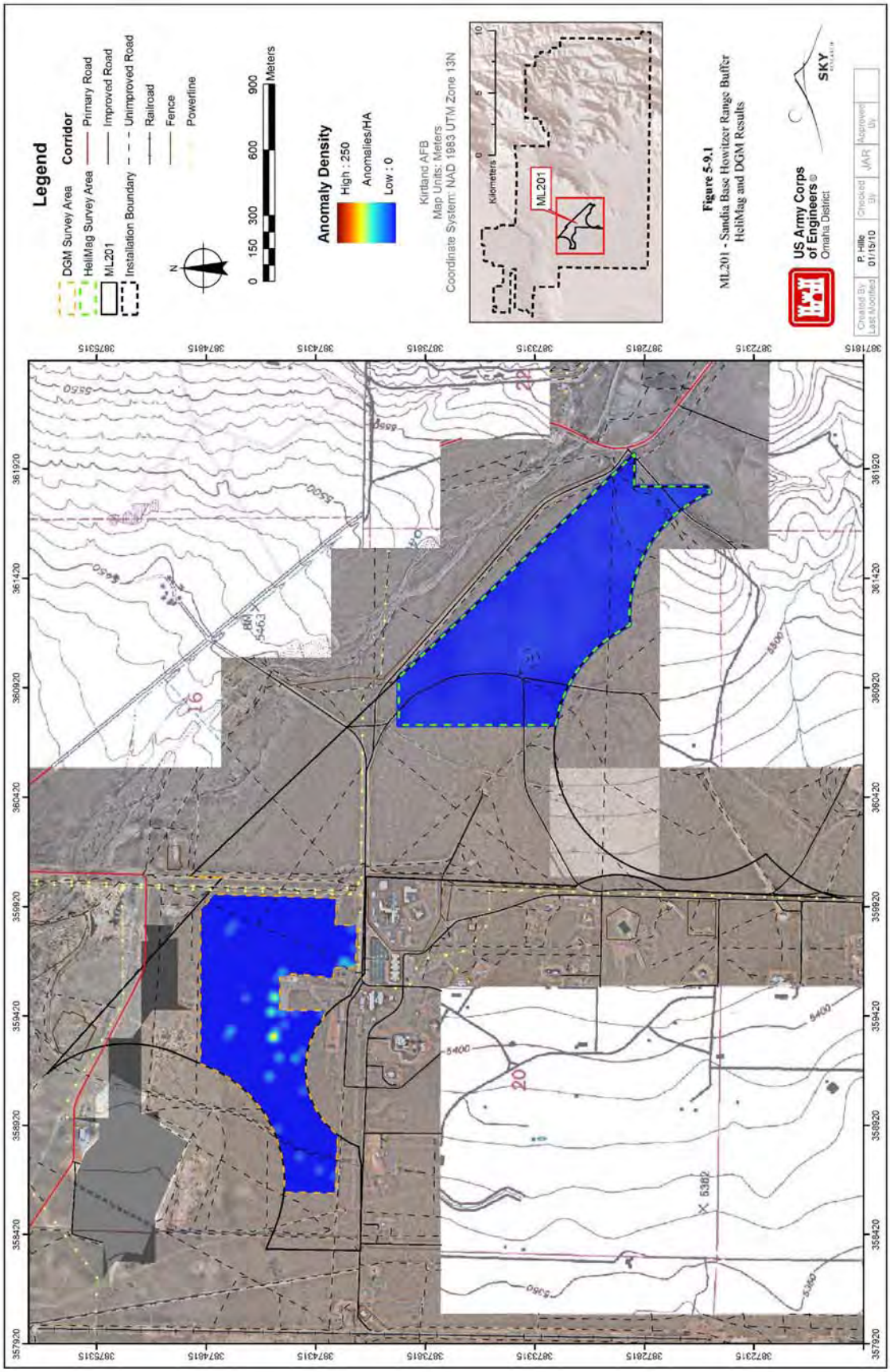
Electric, gas, water, and sewer utilities are located in or near this MRA for service to surrounding buildings.

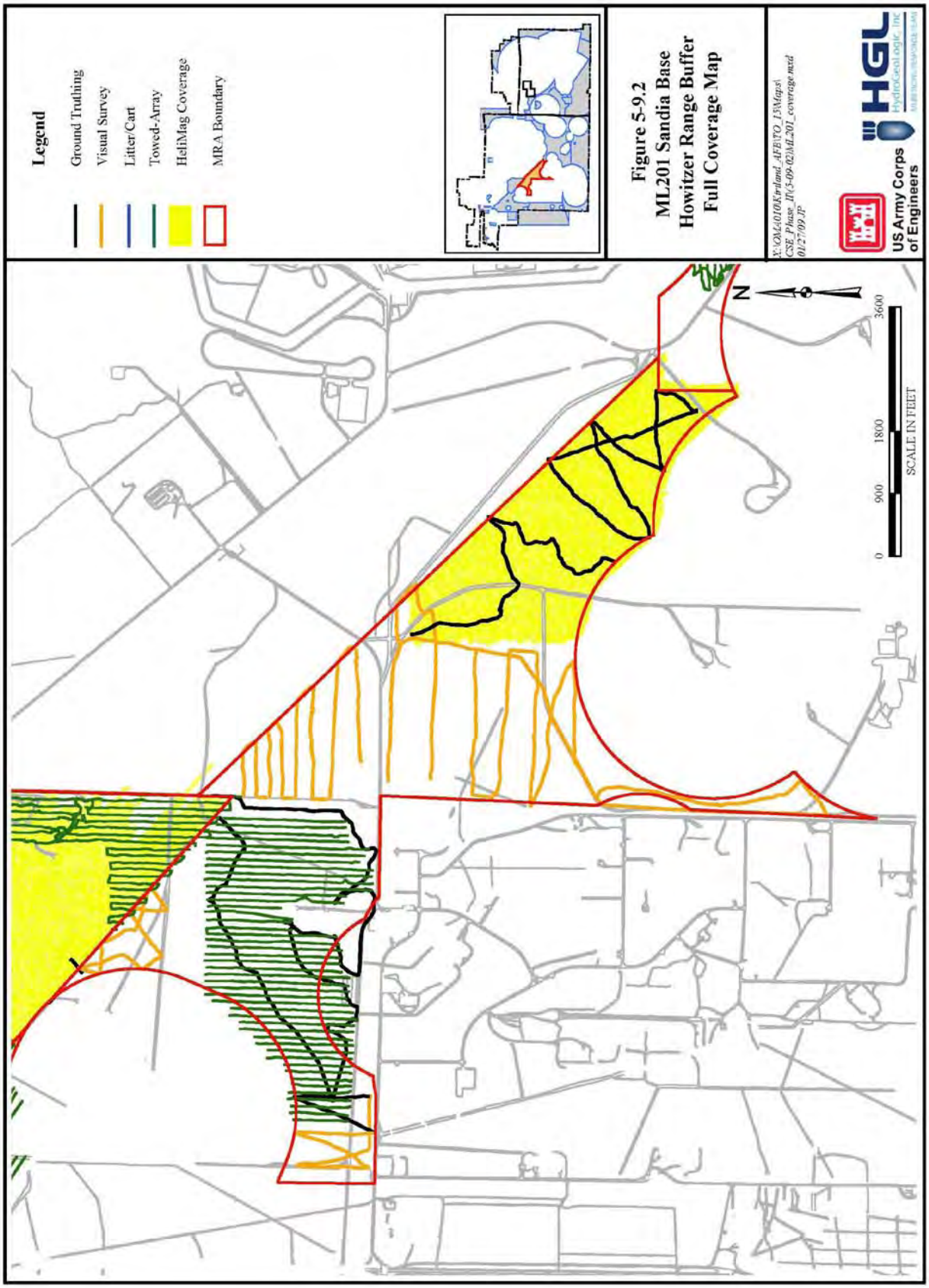
5.9.8 Natural Resources

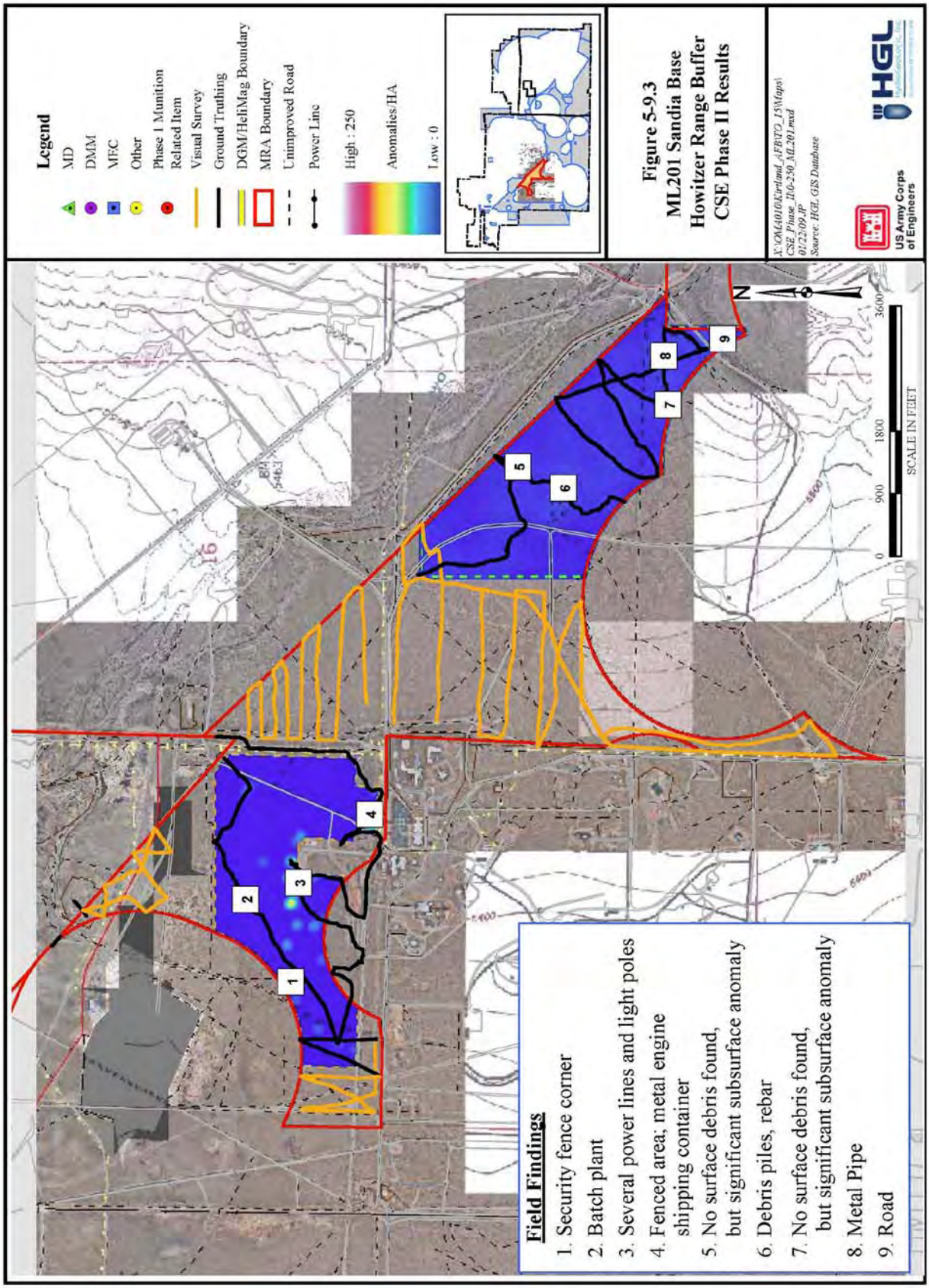
No threatened or endangered animal or plant species are known to exist in ML201.

5.9.9 Sensitive Environments

Portions of ML201 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
HeliMag Survey Area
ML201
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 150 300 600 900 Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
Kilometers
0 5 10
ML201
Figure 5-9.1
ML201 - Sandia Base Howitzer Range Buffer
HeliMag and DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By: P. Hille
Last Modified: 01/15/10
Checked By: MAR
Approved By:


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-9.2
ML201 Sandia Base
Howitzer Range Buffer
Full Coverage Map
X:\QAL010\Kirland_AFB\TO_13\Maps\
CSE Phase_II\5-09-02\ML201_coverage.mxd
01/27/09 JP
US Army Corps
of Engineers
HGL
HydroGeoLogic, Inc.
N
0
900
1800
3600
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/HA
Low : 0
Figure 5-9.3
ML201 Sandia Base
Howitzer Range Buffer
CSE Phase II Results
X:\OM4016\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\0-250_ML201.mxd
01/22/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
N
0
900
1800
3600
SCALE IN FEET
1
2
3
4
5
6
7
8
9
Field Findings
1. Security fence corner
2. Batch plant
3. Several power lines and light poles
4. Fenced area; metal engine shipping container
5. No surface debris found, but significant subsurface anomaly
6. Debris piles, rebar
7. No surface debris found, but significant subsurface anomaly
8. Metal Pipe
9. Road

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5.10 ML760 (OB-7) Gun Fan Site

5.10.1 Site Description

ML760 (OB-7) is a medium/large-caliber range located just outside the Kirtland AFB western boundary (Figure 5-10.1). ML760 (OB-7) was investigated under the MMRP at the request of Carl Lanz, former Chief of the Restoration Section, Environmental Branch at Kirtland AFB. This request was based on the eastern portion of the site's location near the broken arrow site and also a buffer between Kirtland AFB and the private property owners. It was later learned from the *Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS No. K06NM0639*, report that ML760 (OB-7) is a FUDS property, making it ineligible for the MMRP program. Terrain within the MRA consists of flat grassland.

5.10.2 History of MEC Activities

The complete historical use of ML760 (OB-7) is unknown. Identification of ML760 (OB-7) was based on the analysis of two maps and an interview with a former Kirtland AFB employee. The maps depict a possible firing point designated as "Gun Site" to the east of the MRA, and the former Kirtland AFB employee indicated that the MRA may have been part of the NMPG/NMER. USACE Albuquerque released a final PA Report, *Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639*, which discusses the ML760 (OB-7) area. The report concluded ML760 (OB-7) was never used.

5.10.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML760 (OB-7) is that of open space. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity (Kirtland AFB, 2005a). Currently, ML760 (OB-7) is undeveloped open space.

5.10.4 Access Controls

ML760 (OB-7) is an off-site MRA and access to this area by road from Kirtland AFB is via locked gate located in the extreme southwest corner of Kirtland AFB. There are no access controls to this area from the west.

5.10.5 Restrictions

ML760 (OB-7) has no physical restrictions. Access from Kirtland AFB was granted by permission of the Kirtland AFB Environmental Office once a Right of Entry Certificate was issued by the State of New Mexico.

5.10.6 Field Investigation Results

CSE Phase II activities at ML760 (OB-7) included HeliMag, visual survey, and ground truthing.

5.10.6.1 Site Reconnaissance Observations

During the initial site reconnaissance it was observed that ML760 (OB-7) was essentially flat, grassy terrain with occasional shallow depressions and that that the entire MRA could be surveyed with the HeliMag.

5.10.6.2 Geophysical Survey Results

The geophysical survey included 1,893 acres of HeliMag. Geophysical survey results indicated a low anomaly density (Figure 5-10.1).

5.10.6.3 Visual Survey

No visual survey was conducted at ML760 (OB-7).

5.10.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 219 miles of ground truthing were completed at ML760 (OB-7) (Figure 5-10.2). Ground truthing confirmed the presence of non-munitions items (Figure 5-10.3).

5.10.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, ML760 (OB-7) did not meet the criteria for sample collection.

5.10.6.6 Background Determination

No samples were collected for comparison to background concentrations.

5.10.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of ML760 (OB-7) include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.10.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML760 (OB-7) is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.10.7.2 Buildings Near/Within MRA

There are at least three private residences with outbuildings within ML760 (OB-7). The Population Near Hazard data indicate there are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRA.

5.10.7.3 Utilities On/Near MRA

Electric, gas, water and sewer utilities are located in or near this MRA for service to surrounding buildings.

5.10.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising ML760 (OB-7).

5.10.9 Sensitive Environments

Portions of ML760 (OB-7) either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

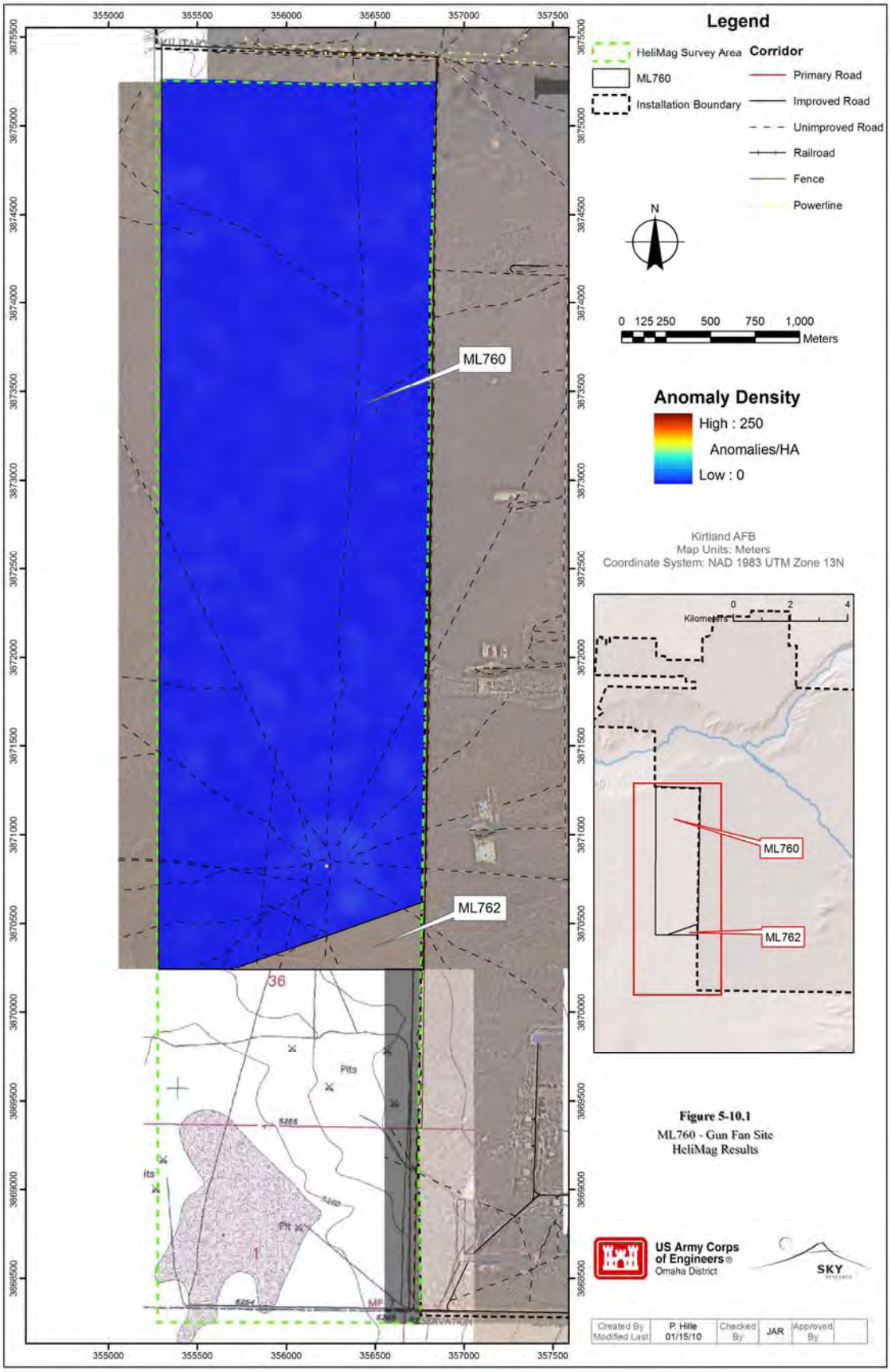

Figure 5-10.1
ML760 - Gun Fan Site
HeliMag Results

Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-10.2
ML760 (OB-7) Gun Fan Site
Full Coverage Map
X:\OMi010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-10-02\ML760_coverage.mxd
06/12/09 JP
US Army Corps
of Engineers
HGL
N
0
1440
2880
5760
SCALE IN FEET

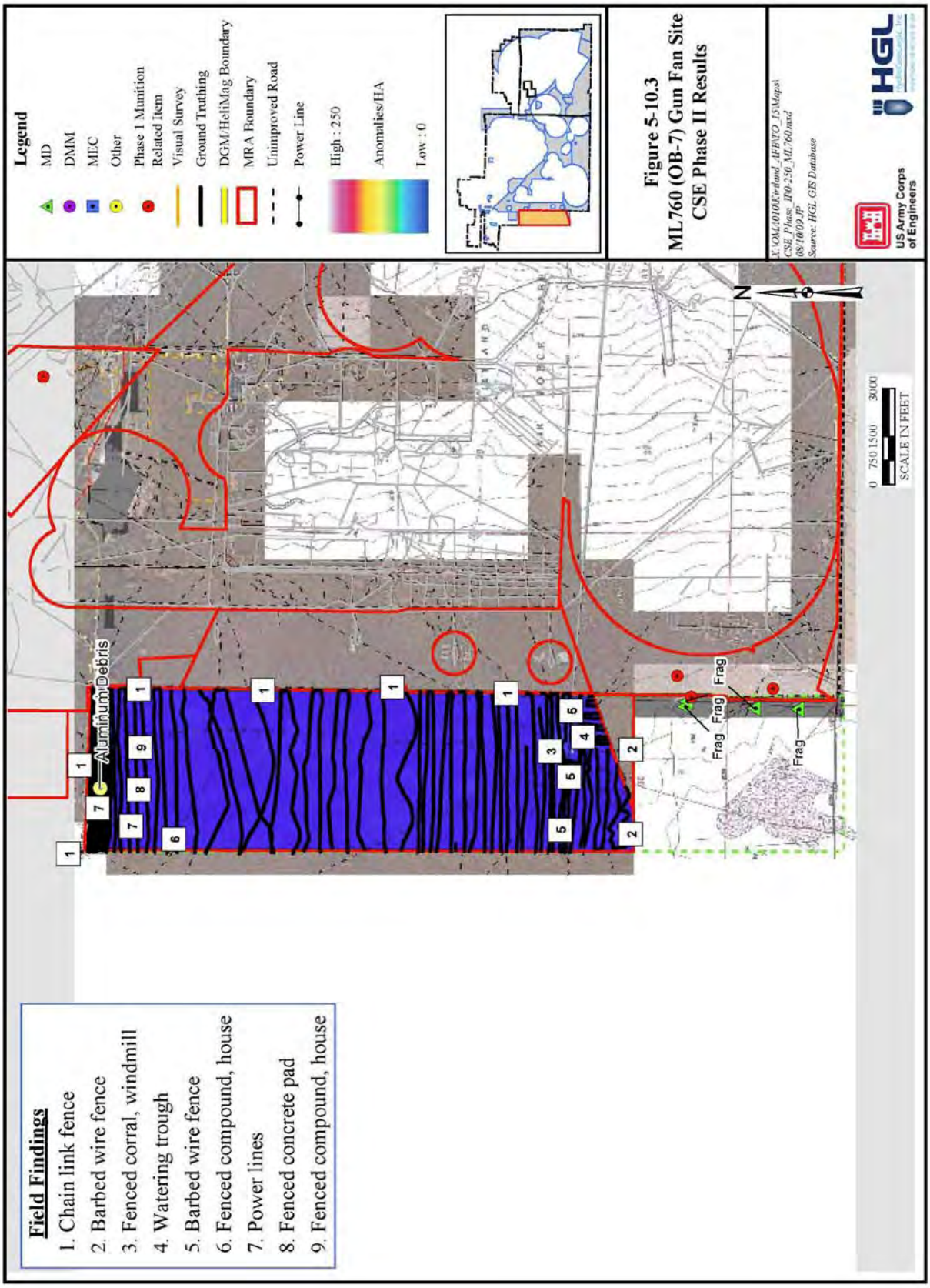

Figure 5-10.3
ML760 (OB-7) Gun Fan Site
CSE Phase II Results

5.11 ML762 McCormick Ranch Buffer

5.11.1 Site Description

The ML762 McCormick Ranch Buffer is a 14.4-acre parcel outside the perimeter of the southwest corner of Kirtland AFB. It is directly south of ML760 (OB-7). ML762 resulted from the confluence of the ML760 (OB-7) firing fan (its on-base portion is the ML760 MRA) and the off-base ML126, which was investigated previously and has been granted closure by NMED (Figure 5-11.1). The terrain is predominantly flat grassland.

5.11.2 History of MEC Activities

The complete historical use of ML762 is unknown. Based on the formation of ML762, discussed above as the confluence of ML760 (OB-7) and the off-base ML126, the history and time of use for ML762 are most likely associated with these ranges. USACE, Albuquerque released a final PA report, *Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639*, which covered ML760 (OB-7) (USACE, 2007). The report concluded OB-7 was never used so it is unlikely that ML762 was either.

5.11.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML762 is that of open space. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity (Kirtland AFB, 2005a). Currently, ML762 is undeveloped open space.

5.11.4 Access Controls

Access controls include a three-strand barbed wire fence with warning signs and a locked gate on the southern boundary of the MRA. There are no access controls to this area from the west.

5.11.5 Restrictions

ML762 has no physical restrictions.

5.11.6 Field Investigation Results

CSE Phase II activities at ML762 included HeliMag and ground truthing.

5.11.6.1 Site Reconnaissance Observations

Site reconnaissance was not performed at this MRA prior to commencement of the geophysical surveys.

5.11.6.2 Geophysical Survey Results

The geophysical survey included 14.4 acres of HeliMag. Geophysical survey results indicated a low anomaly density (Figure 5-11.1).

5.11.6.3 Visual Survey

No visual survey was conducted at ML762.

5.11.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 14 miles of ground truthing were completed in ML762 (Figure 5-11.2). No MD or non-munitions items were indentified in ML762 during ground truthing (Figure 5-11.3).

5.11.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, ML762 did not meet the criteria for sample collection.

5.11.6.6 Background Determination

No samples were collected for comparison to background concentrations.

5.11.7 Identification of Potential Receptors

Current potential receptors for portions of ML762 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors. An industrial area is located up to 2 miles from the boundary of the MRA.

5.11.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML762 is located in Bernalillo County, which has a population density of more than 500 persons per square mile.

5.11.7.2 Buildings Near/Within MRA

There are no buildings within ML762. The Population Near Hazard data indicates there are approximately 25 inhabited structures located up to 2 miles from the boundary of the MRA.

5.11.7.3 Utilities On/Near MRA

There are no utilities located on or near ML762.

5.11.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising ML762.

5.11.9 Sensitive Environments

Portions of ML762 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

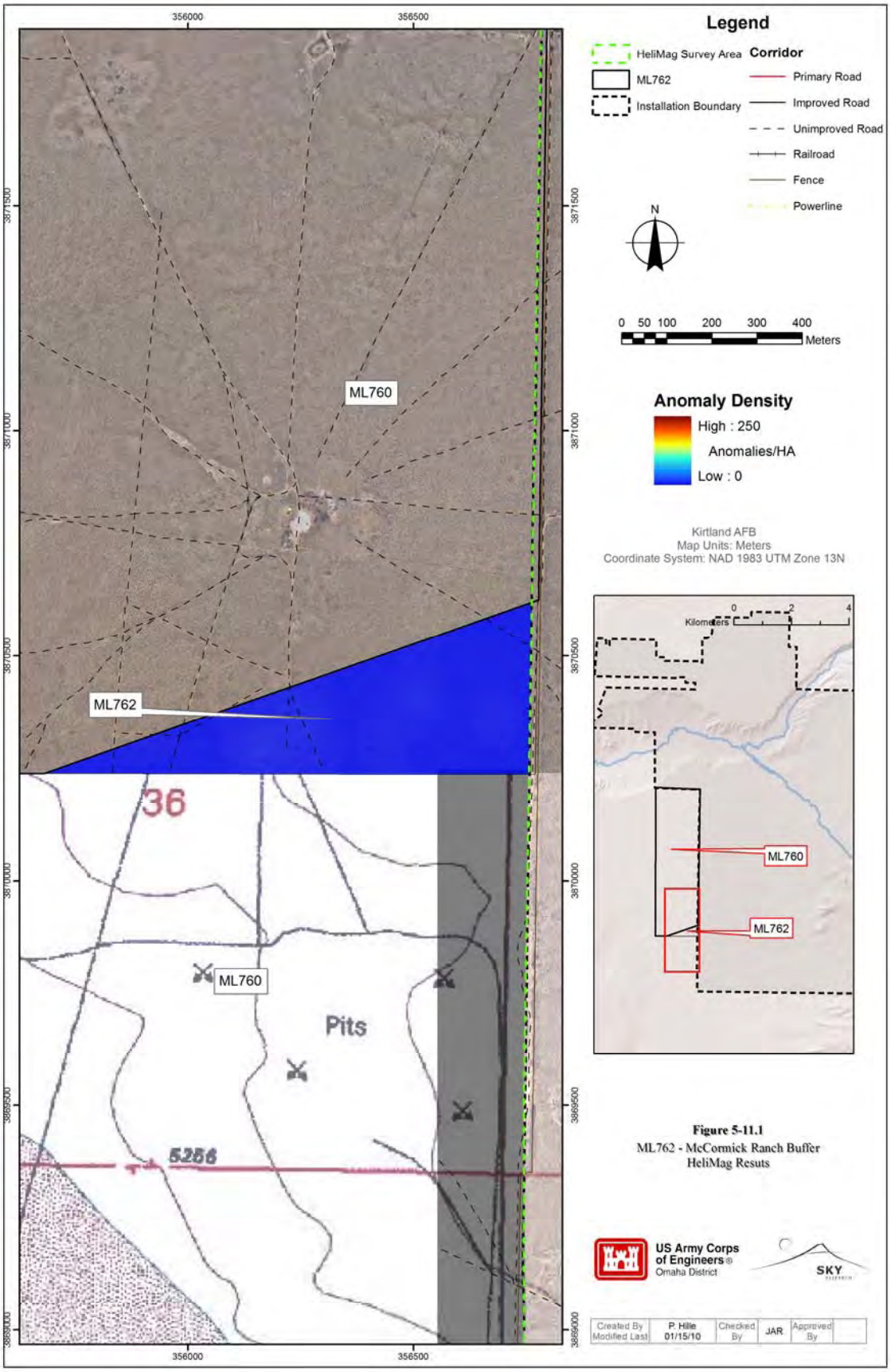

Figure 5-11.1
ML762 - McCormick Ranch Buffer
HeliMag Resuts

Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-11.2
ML762 McCormick
Ranch Buffer
Full Coverage Map
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\(5-11-02)ML762_coverage.mxd
05/14/09 JP
US Army Corps
of Engineers
HGL
HydroGeologic, Inc
MUNITIONS RESPONSE TEAM
0
190
380
760
SCALE IN FEET
N

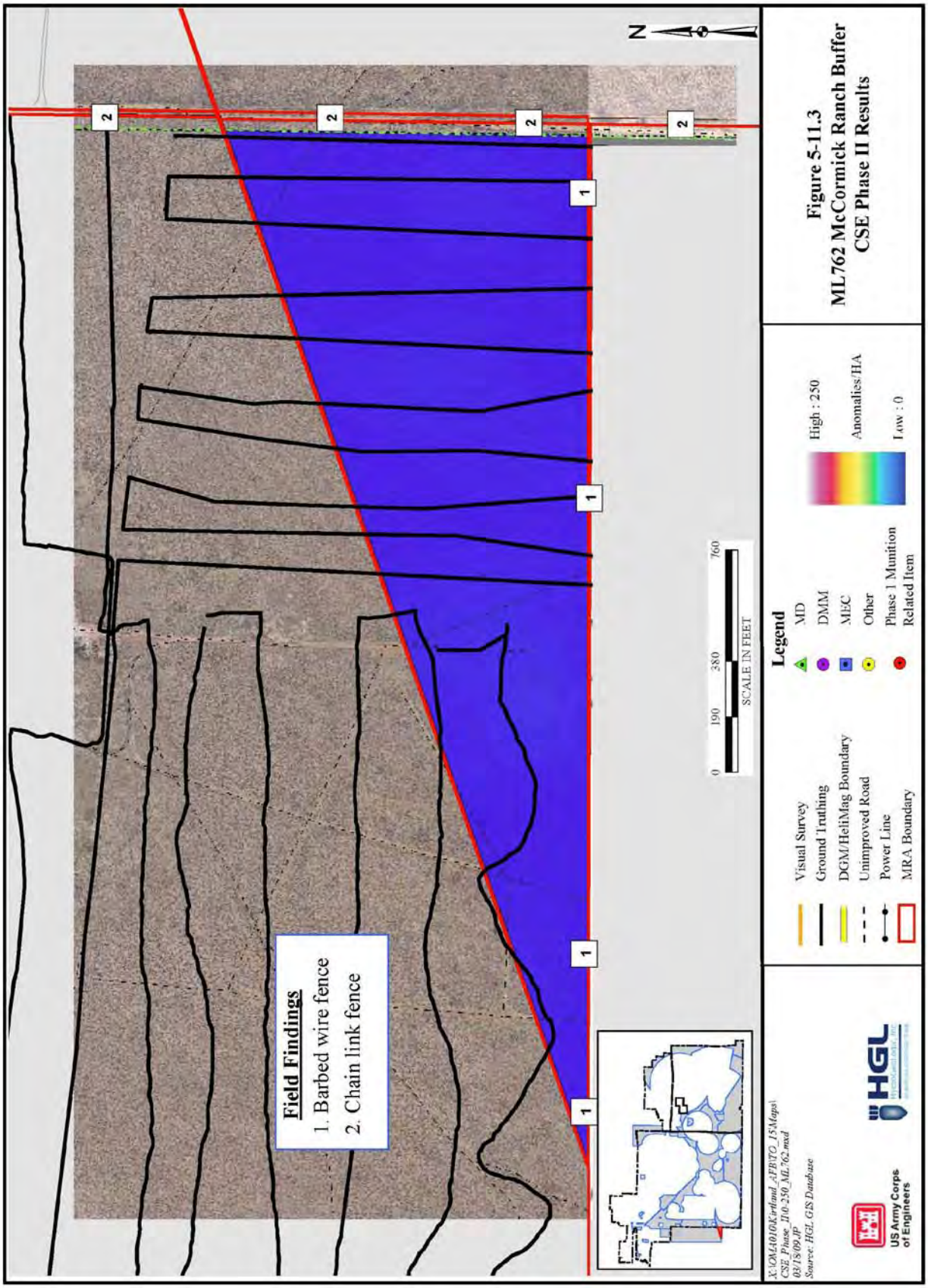

Figure 5-11.3
ML762 McCormick Ranch Buffer
CSE Phase II Results

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5.12 ML774 Gun Site Fan

5.12.1 Site Description

ML774 is a 622.6-acre MRA located in the western portion of Kirtland AFB and classified as a medium/large-caliber range (Figure 5-12.1). The generally flat, grassy terrain is noted for the four large earthen mounds that were used to hang large targets.

5.12.2 History of MEC Activities

The history of ML774 is unknown. Although rumored to exist within the firing fan of OB-7, the final PA report, *Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639*, concluded that OB-7 was never used so it is likely that ML774 was not used either (USACE, 2007).

5.12.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML774 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, ML774 is undeveloped open space.

5.12.4 Access Controls

Barbed wire fencing with warning signs and a cattle crossing guard at the road entrance limit access to this area.

5.12.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto ML774 is restricted, but accessible after notification of DOE/SNL security.

5.12.6 Field Investigation Results

CSE Phase II activities at ML774 included HeliMag, visual survey, and ground truthing.

5.12.6.1 Site Reconnaissance Observations

ML774 is relatively flat, except for four large earthen target mounds, located on the alluvial fan/mesa eminating from the Manzano highlands to the east. During the initial site reconnaissance it was determined that the entire area would be covered using HeliMag.

5.12.6.2 Geophysical Survey Results

The geophysical survey included 622 acres of HeliMag (Figure 5-12.1). The geophysical survey revealed a low anomaly density.

5.12.6.3 Visual Survey

No visual survey was conducted at ML774.

5.12.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 17 miles of ground truthing were completed (Figure 5-12.2). Only cultural features consisting of target mounds, construction debris (electrical conduit, rebar, metal pipe), and aircraft parts were observed. No MEC or MD was found during ground truthing.

5.12.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, ML774 did not meet the established criteria for soil sample collection.

5.12.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.12.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for portions of ML774 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.12.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML774 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.12.7.2 Buildings Near/Within MRA

There are no buildings on ML774. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.12.7.3 Utilities On/Near MRA

Electric, gas, water, and sewer utilities are located in or near this MRA for service to surrounding buildings.

5.12.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising ML774.

5.12.9 Sensitive Environments

Portions of ML774 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

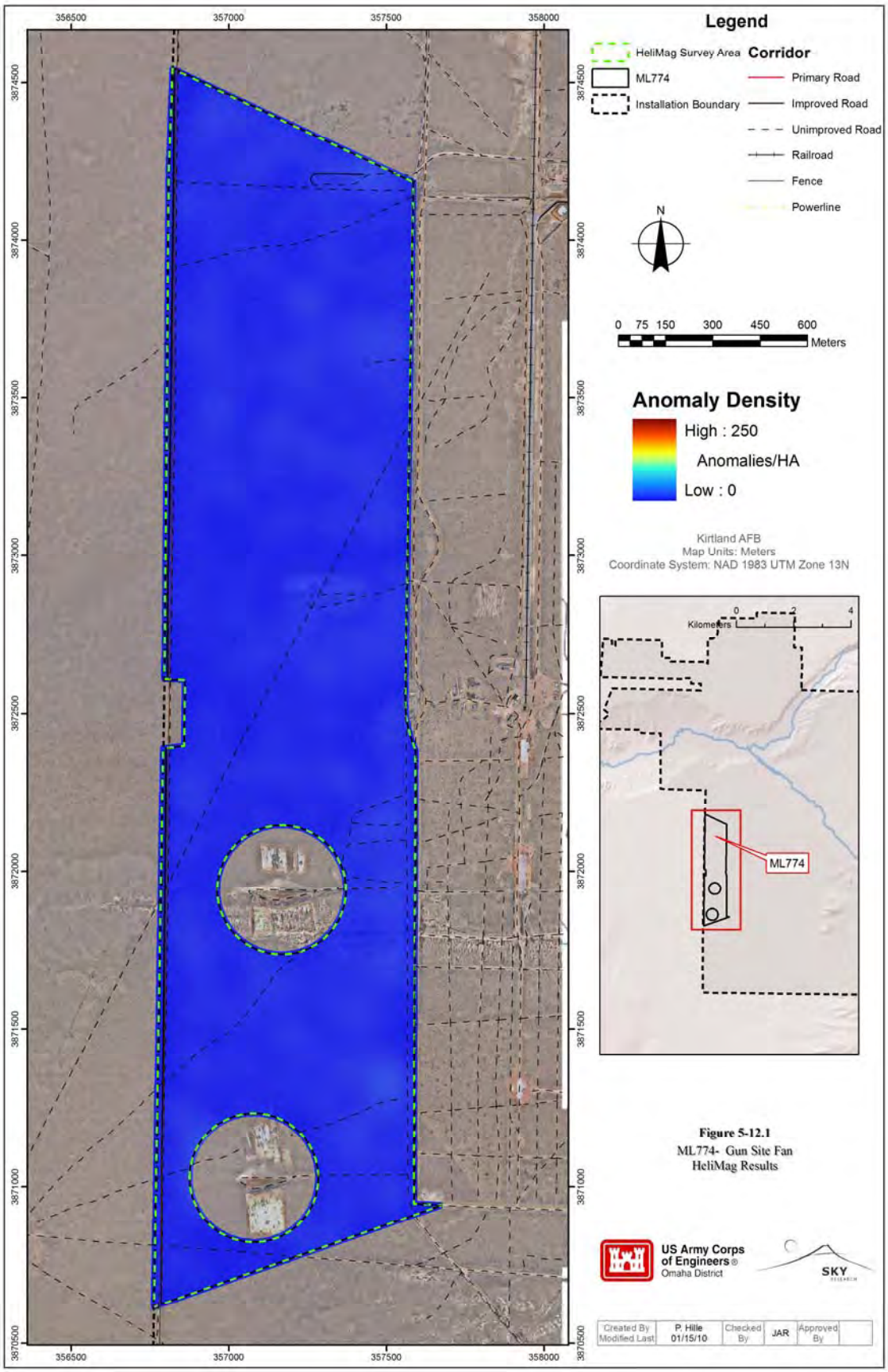


Figure 5-12.1
ML774- Gun Site Fan
HeliMag Results

Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-12.2
ML774 Gun Site Fan
Full Coverage Map
X:\QA\2010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\(5-12-02)ML774_coverage.mxd
01/30/09 JP
HGL
HydroGeoLogic, Inc
SUPPORTING SUPERIOR TEAM
US Army Corps
of Engineers
N
0
1000
2000
4000
SCALE IN FEET

5.13 ML781 Firing-In Abutment

5.13.1 Site Description

ML781 Firing-In Abutment was a multi-use range located south of the airport runway (Figure 5-13.1). The one-acre MRA is in an area of relatively flat grassland.

5.13.2 History of MEC Activities

ML781 was used to unload aircraft weapons misfires; however, this area also has been used for aircraft machine gun maintenance. The years of operation are unknown.

5.13.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML781 is that of aircraft operations/maintenance (i.e., constrained land use) (US Air Force, 2002). Currently, ML781 is undeveloped open space.

5.13.4 Access Controls

ML781 is surrounded by a 10-foot high chain link fence topped with razor wire. "Warning/Do Not Enter" signage is posted along the fence at 300-foot intervals.

5.13.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto ML774 must be gained through the airfield operations office.

5.13.6 Field Investigation Results

CSE Phase II activities at ML781 included litter/cart, and ground truthing.

5.13.6.1 Site Reconnaissance Observations

The site is relatively flat, located on the alluvial fan/mesa top on the edge of the Tijeras Arroyo escarpment. During the initial site reconnaissance it was determined that litter/cart would be used.

5.13.6.2 Geophysical Survey Results

The geophysical survey included one acre of litter/cart and revealed that the majority of the site is an area of high anomaly density (Figure 5-13.1).

5.13.6.3 Visual Survey

No visual survey was conducted at ML781.

5.13.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking

approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 0.2 miles of ground truthing was completed in ML781 (Figure 5-13.2). The flight line security fence and chain link fence surrounding the site is suspected of causing the anomaly density; however, it is between 25 and 75 ft from the site boundary (Figure 5-13.3). No MD or MEC were found with the exception of one 20mm casing that was observed at the site.

5.13.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, ML781 did not meet the established criteria for sample collection.

5.13.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.13.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for ML781 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.13.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML781 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.13.7.2 Buildings Near/Within MRA

There are no buildings within ML781. The Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.13.7.3 Utilities On/Near MRA

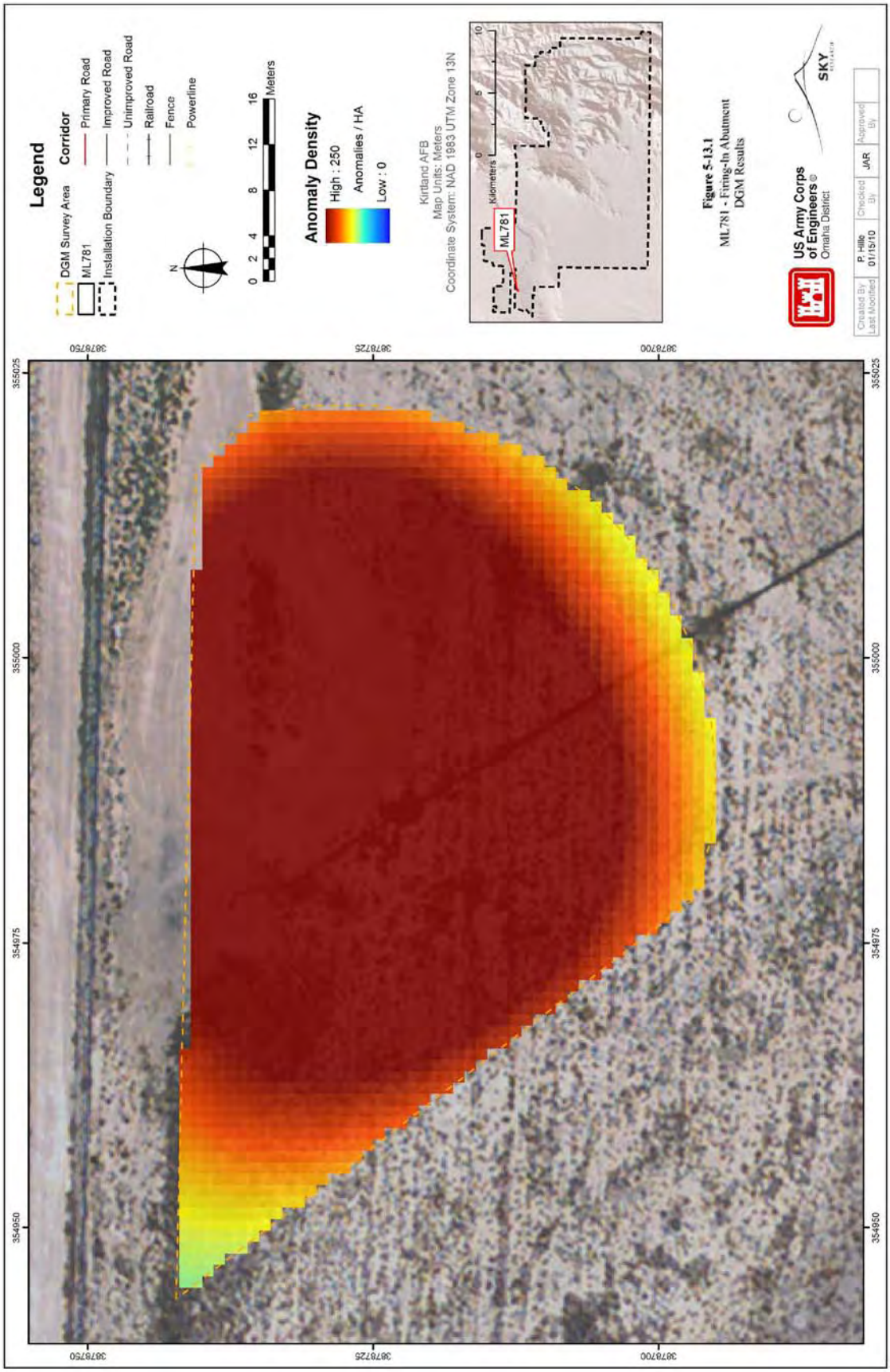
ML781 lies near multiple buildings; therefore, electric, water, and sewer utilities are likely located near this MRA.

5.13.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising ML781.

5.13.9 Sensitive Environments

Portions of ML781 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
ML781
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 2 4 8 12 16 Meters
Anomaly Density
High : 250
Anomalies / HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
0 5 10
Kilometers
ML781
Figure 5-13.1
ML781 - Firing-In Abutment
DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By: P. Hille
Last Modified: 01/15/10
Checked By: JAR
Approved By:
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3878750
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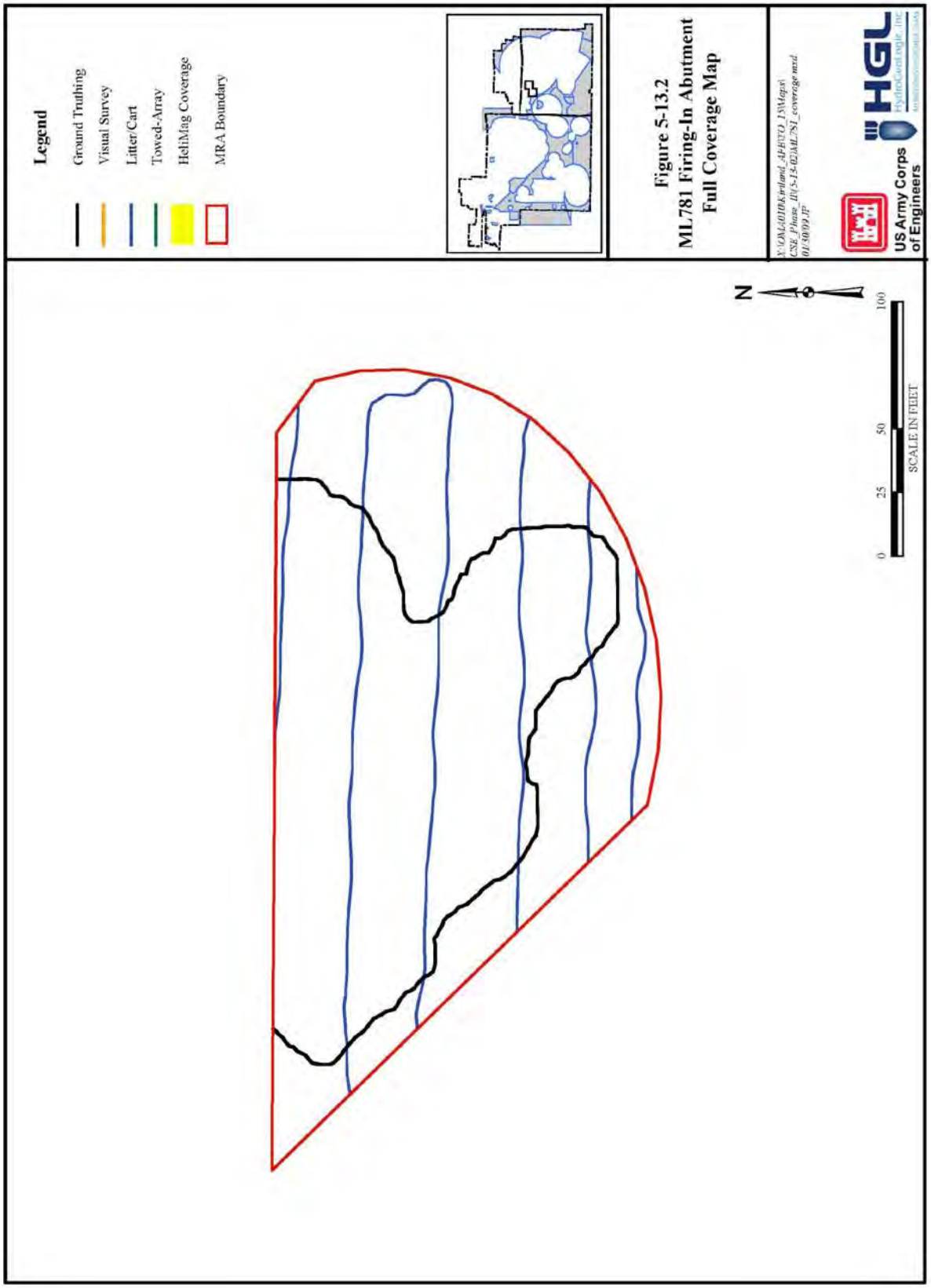
Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-13.2
ML781 Firing-In Abutment
Full Coverage Map
US Army Corps of Engineers
HGL
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100
SCALE IN FEET

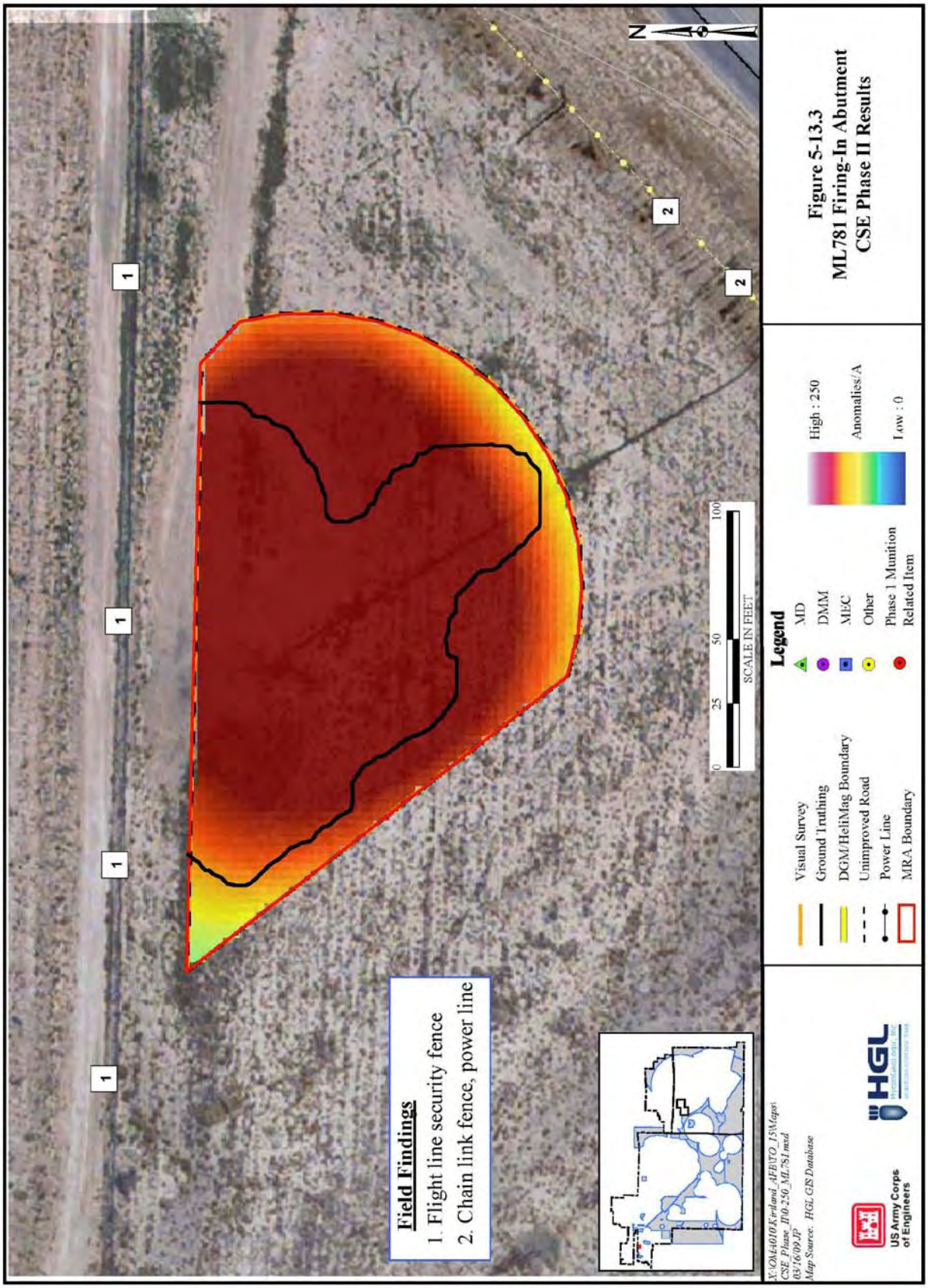

Figure 5-13.3
ML781 Firing-In Abutment
CSE Phase II Results

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5.14 ML784 40mm Test and Training Range

5.14.1 Site Description

ML784 40mm Test and Training Range is classified as a rifle grenade range and is located in the central portion of Kirtland AFB (Figure 5-14.1). The 150-acre MRA is located entirely within the Electro-Explosive Facility's Operational Boundary and Exclusion Area, therefore, it is ineligible for inclusion in the MMRP.

5.14.2 History of MEC Activities

ML784 was used from 1984 to 1994 for the "Peacekeeper Challenge" competition, which was held annually for security police units worldwide to enhance weapons proficiency, tactics, individual skills, and training programs. One of the marksmanship events was firing orange powder 40mm practice grenades (M781) from 12 different firing points at 12 different targets.

5.14.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for ML784 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, ML784 is undeveloped open space.

5.14.4 Access Controls

ML784 is located entirely within the Electro-Explosive Facility's Operational Boundary and Exclusion Area and access is limited by terrain and the Electro-Explosive Facility's security fencing.

5.14.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto ML784 is restricted by its location within the Electro-Explosive Facility boundary.

5.14.6 Field Investigation Results

ML784 was not investigated as part of the CSE Phase II.

5.14.6.1 Site Reconnaissance Observations

There are no site reconnaissance observations for ML784.

5.14.6.2 Geophysical Survey Results

The ML784 MRA was not surveyed during the CSE Phase II because it is exists within the operational range area (explosive safety limit) of the Electro-Explosive Facility (Figure 5-14.1).

5.14.6.3 Visual Survey

No visual survey was conducted at ML784.

5.14.6.4 Ground Truthing

No ground truthing was conducted at ML784.

5.14.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, ML784 did not meet the established criteria for sample collection.

5.14.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.14.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for the ML784 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.14.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. ML784 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. An industrial area is located up to 2 miles from the boundary of the MRA.

5.14.7.2 Buildings Near/Within MRA

There are no buildings within ML784. The Population Near Hazard data indicates there are approximately five inhabited structures located up to 2 miles from the boundary of the MRA.

5.14.7.3 Utilities On/Near MRA

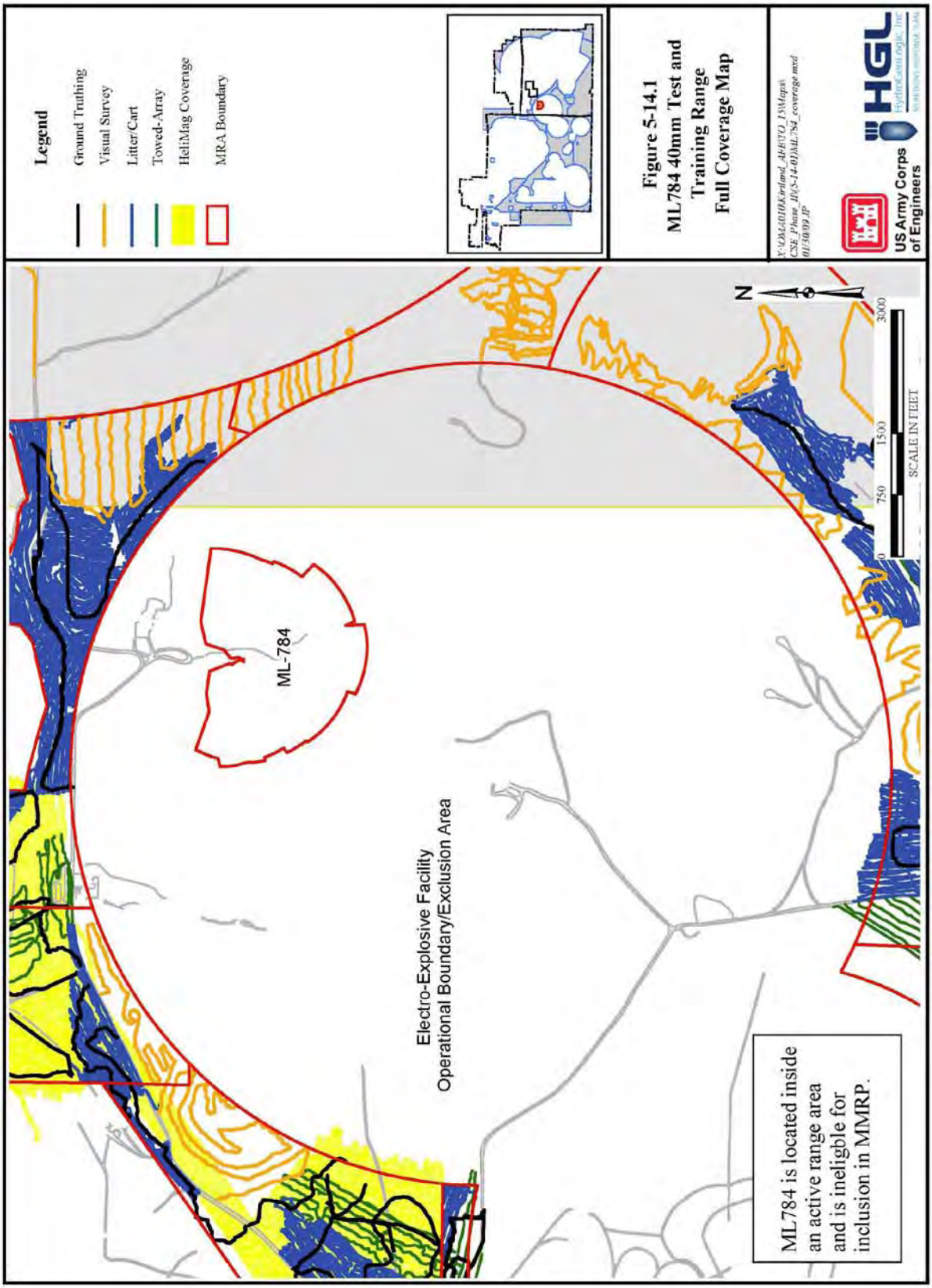
There are no utilities within ML784.

5.14.8 Natural Resources

ML784 includes areas considered to be potential gray vireo habitat. The gray vireo, a state-threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

5.14.9 Sensitive Environments

Portions of MRA ML784 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-14.1
ML784 40mm Test and
Training Range
Full Coverage Map
US Army Corps
of Engineers
HGL
ML-784
Electro-Explosive Facility
Operational Boundary/Exclusion Area
N
0
750
1500
3000
SCALE IN FEET
ML784 is located inside
an active range area
and is ineligible for
inclusion in MMRP.

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5.15 MU772 H-25 Site

5.15.1 Site Description

MU772 is classified as a multi-use range located in the east-central portion of Kirtland AFB (Figure 5-15.1). The 132.8-acre MRA is located in the piñon-juniper covered foothills.

5.15.2 History of MEC Activities

The history and use of MU772 is currently unknown.

5.15.3 Current Land Use

MU772 is located on land that is under DoD control and in use by Kirtland AFB and DOE/SNL. All historical range activities within the MRA ceased prior to FY 2002. According to the Kirtland AFB General Plan, the current land-use scenario for MU772 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002).

5.15.4 Access Controls

When tests are done in the vicinity of this area, vehicles are used to physically block the gravel road to prevent anyone from unauthorized entry.

5.15.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto MU772 is restricted and frequently patrolled by DOE/SNL Security.

5.15.6 Field Investigation Results

CSE Phase II activities at MU772 included towed-array, litter/cart, visual survey, and ground truthing.

5.15.6.1 Site Reconnaissance Observations

MU772 consists of moderately steep, piñon-juniper foothills on the northern portion becoming more gradual towards the southern end. During the initial site reconnaissance it was determined that the entire 132.8 acres of the MRA would be geophysically surveyed utilizing a mix of towed-array and litter/cart.

5.15.6.2 Geophysical Survey Results

The geophysical survey included 96 acres of towed-array and 21 acres of litter/cart (Figure 5-15.2). The geophysical surveys revealed seven areas of high anomaly density (Figure 5-15.1).

5.15.6.3 Visual Survey

Approximately 3 acres of visual survey was completed at MU772 (Figure 5-15.2). No MEC or non-MEC related items were found during the visual survey.

5.15.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 6 miles of ground truthing were completed in this MRA (Figure 5-15.2). Non-MEC items observed included fencing, frequent metal scrap, aluminum debris and electrical cable (Figure 5-15.3). Ground truthing also documented a number of munitions debris items including metal fragments, a discarded 40mm smoke grenade, a ground burst simulator and material initially described as possible bulk HE (Figure 5-15.4). After further inspection of the possible bulk HE item, it was determined to be plastic rather than MEC based on its weathering characteristics.

5.15.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, MU772 did not meet the established criteria for sample collection.

5.15.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.15.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for MU772 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.15.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. MU772 is located in Bernalillo County, which has a population density of more than 500 persons per square mile.

5.15.7.2 Buildings Near/Within MRA

There are three unnumbered buildings within MU772. The Population Near Hazard data indicates there are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRA. An industrial area is located up to 2 miles from the boundary of the MRA.

5.15.7.3 Utilities On/Near MRA

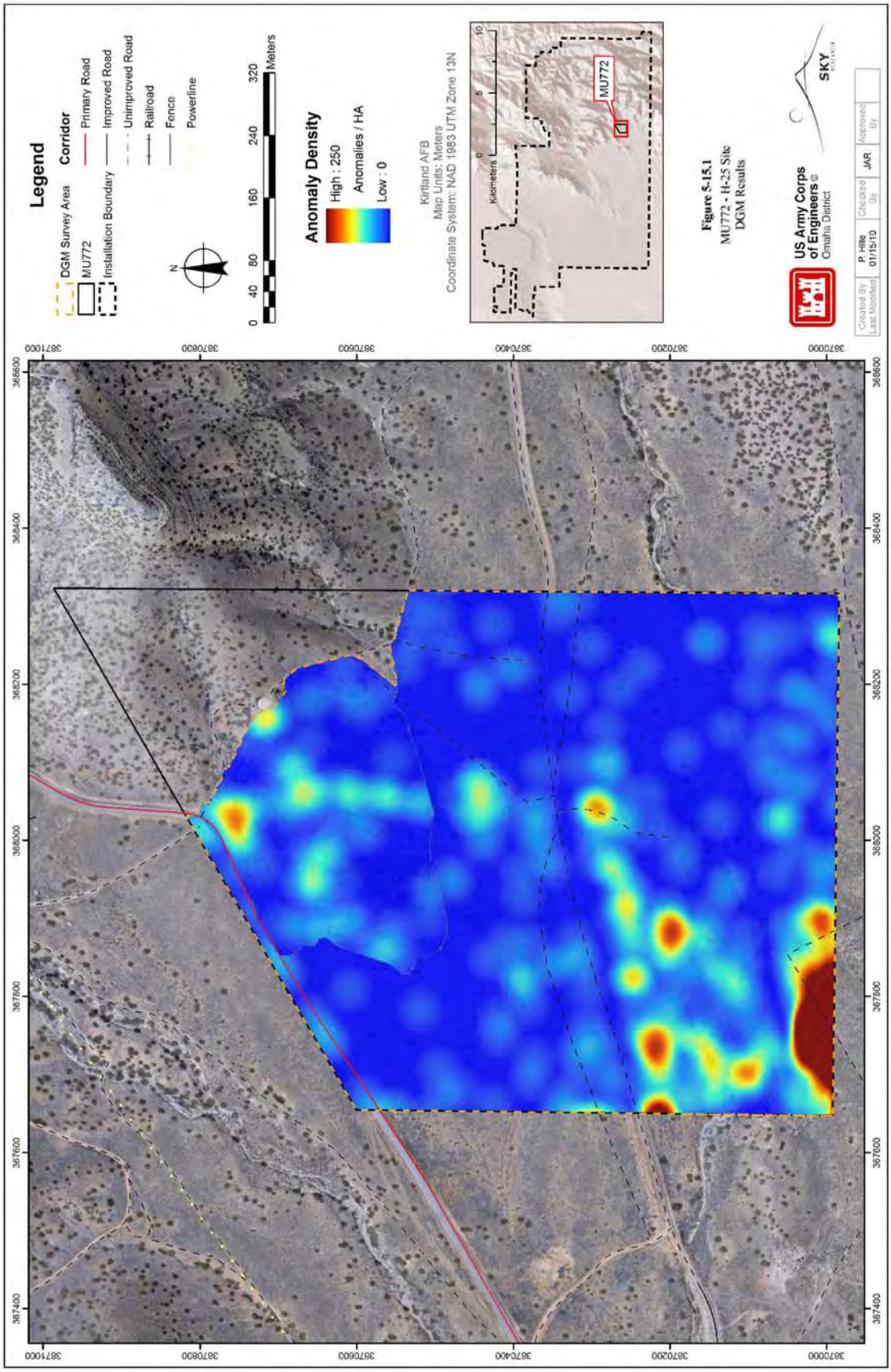
An above-ground high voltage electrical cable and a mass-capacity water storage tank were observed within MU772.

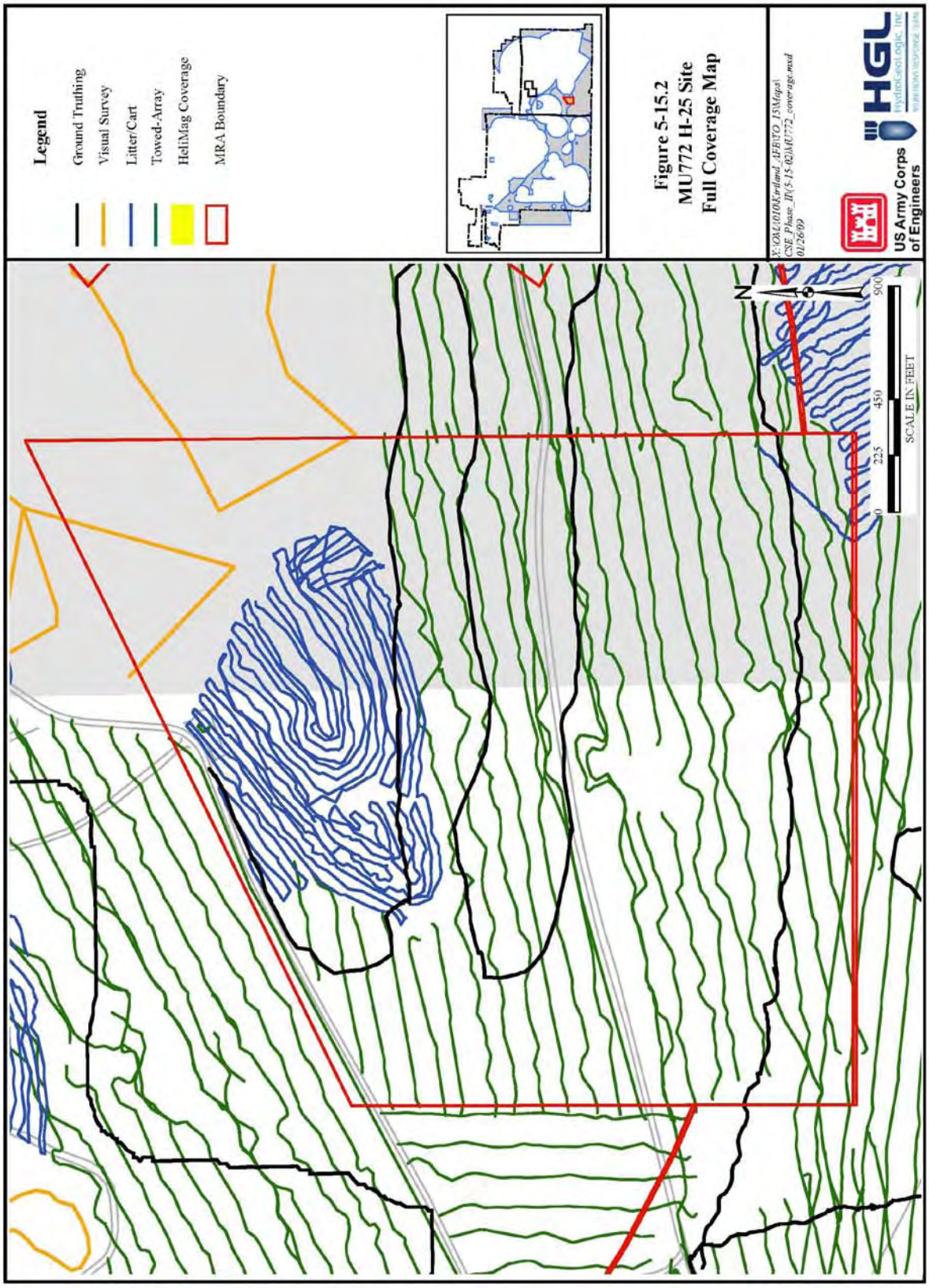
5.15.8 Natural Resources

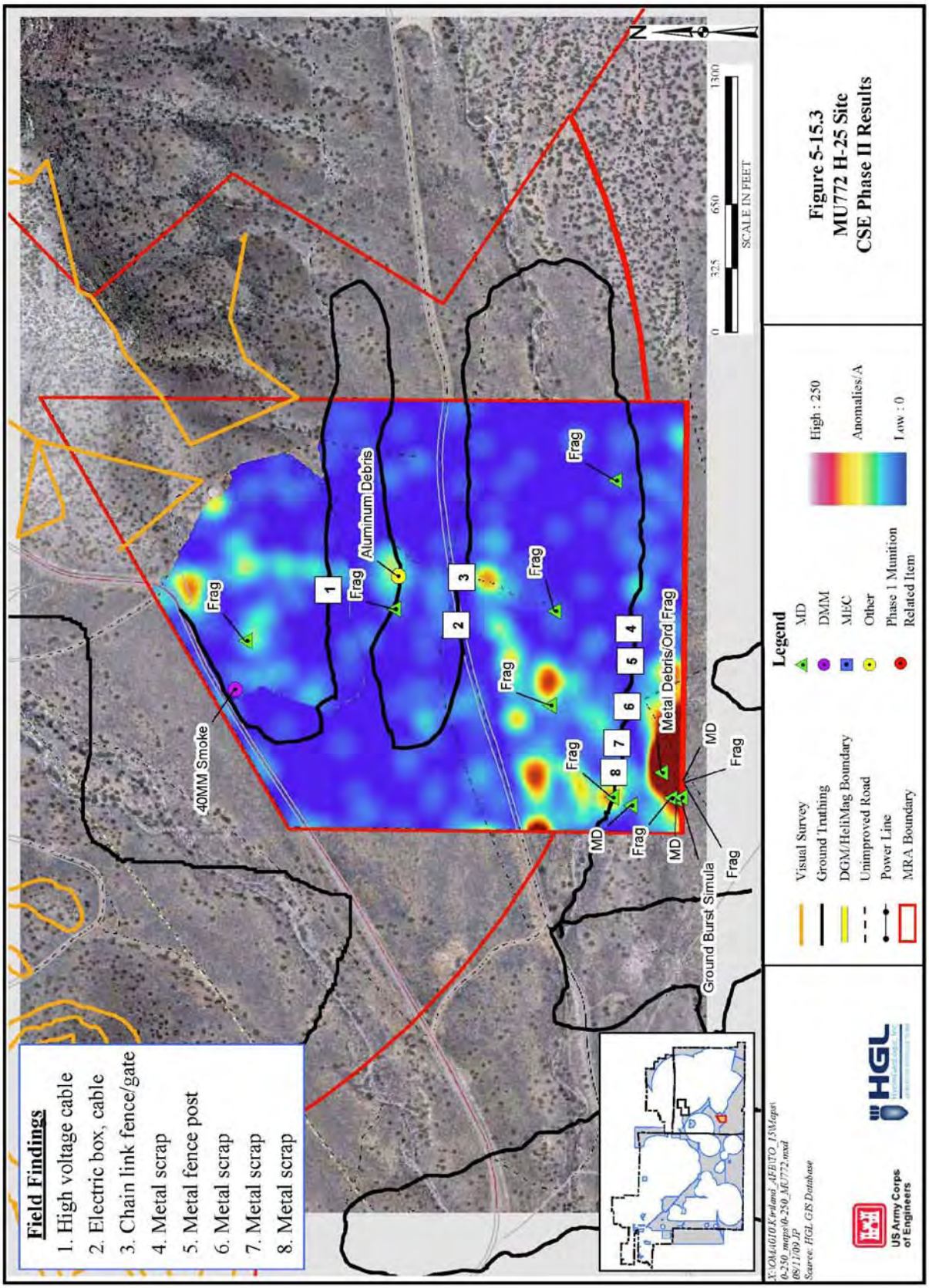
MU772 includes areas considered to be potential gray vireo habitat. The gray vireo, a state threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

5.15.9 Sensitive Environments

Due to the location of MU7721 along the foothills of the Manzanita Mountains, unnamed arroyos exist near this site. Portions of MU772 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
MU772
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 40 80 160 240 320 Meters
Anomaly Density
High : 250
Anomalies / HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
0 5 10
Kilometers
MU772
Figure 5-15.1
MU772 - H-25 Site
DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By P. Hills
Last Modified 01/15/10
Checked By JAR
Approved By
367400
367600
367800
368000
368200
368400
368600
3670000
3670200
3670400
3670600
3670800
3671000


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-15.2
MU772 H-25 Site
Full Coverage Map
Y:\OAL\010Kirtland_AFB\TO_15\Maps\
CSE Phase_II\5-15 02\MU772_coverage.mxd
01/26/09
US Army Corps
of Engineers
HGL
HydroGeologic, Inc.
N
0
225
450
900
SCALE IN FEET


Field Findings
1. High voltage cable
2. Electric box, cable
3. Chain link fence/gate
4. Metal scrap
5. Metal fence post
6. Metal scrap
7. Metal scrap
8. Metal scrap
40MM Smoke
Frag
Aluminum Debris
Metal Debris/Ord Frag
MD
Ground Burst Simula
1
2
3
4
5
6
7
8
0
325
650
1300
SCALE IN FEET
N
Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
Unimproved Road
Power Line
MRA Boundary
High : 250
Anomalies/A
Low : 0
US Army Corps of Engineers
HGL
Figure 5-15.3
MU772 H-25 Site
CSE Phase II Results

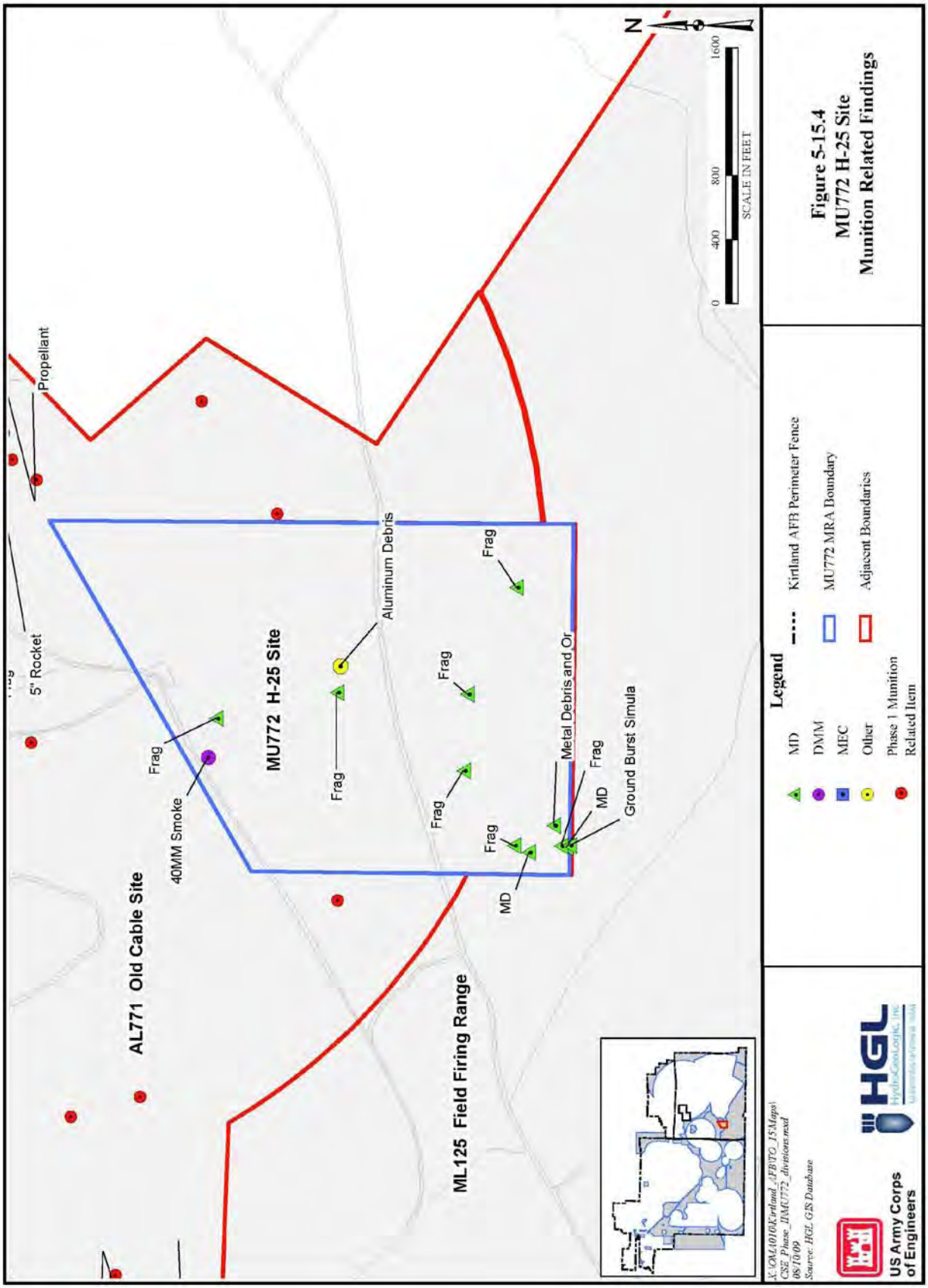


Figure 5-15.4
MU772 H-25 Site
Munition Related Findings

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5.16 PT123 Tijeras Small Arms Range

5.16.1 Site Description

PT123 Tijeras Small Arms Range is classified as a multi-use range and was used as a small combat training range located in the northeastern portion of Kirtland AFB (Figure 5-16.1). The 434.2-acre range exists in an area of very steep and mountainous slopes. SNL ER sites 10, 59, and 60 are located within this MRA.

5.16.2 History of MEC Activities

PT123 official dates for use as a small combat training range are unknown. There is scattered evidence of small squad tactics training presently taking place in this area.

5.16.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for PT123 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, PT123 is undeveloped space.

5.16.4 Access Controls

A chain link fence parallels the entire east and north boundaries of this MRA, and is patrolled multiple times each day by US Air Force and DOE/SNL security. Extremely large boulders in the area create additional physical access controls.

5.16.5 Restrictions

Once access onto Kirtland AFB is obtained, entry on PT123 is not restricted, but is monitored by US Air Force and DOE/SNL security.

5.16.6 Field Investigation Results

CSE Phase II activities at the site included litter/cart, visual survey, and ground truthing.

5.16.6.1 Site Reconnaissance Observations

PT123 encompasses a large area in the Manzano foothills and includes grassy valleys and steep, piñon-juniper slopes. During the initial site reconnaissance it was determined that the majority of the area would be covered utilizing litter/cart, while **v**isual survey would be used to survey steep terrain not accessible by the litter/cart.

5.16.6.2 Geophysical Survey Results

The geophysical survey included 322 acres of litter/cart (Figure 5-16.2), which revealed multiple areas of high anomaly density (Figure 5-16.1).

5.16.6.3 Visual Survey

Approximately 67 acres of visual survey was completed at PT123 (Figure 5-16.2). MD was observed including slap flare casings, a 40mm grenade casings and 7.62mm blanks (Figure 5-16.3).

5.16.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 21 miles of ground truthing were completed in this MRA (Figure 5-16.2). Ground truthing confirmed cultural features were the cause of the high anomaly density areas.

5.16.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, PT123 did not meet the established criteria for sample collection.

5.16.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.16.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for PT123 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.16.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. PT123 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.16.7.2 Buildings Near/Within MRA

There are two buildings, one numbered and the other unnumbered, within PT123. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.16.7.3 Utilities On/Near MRA

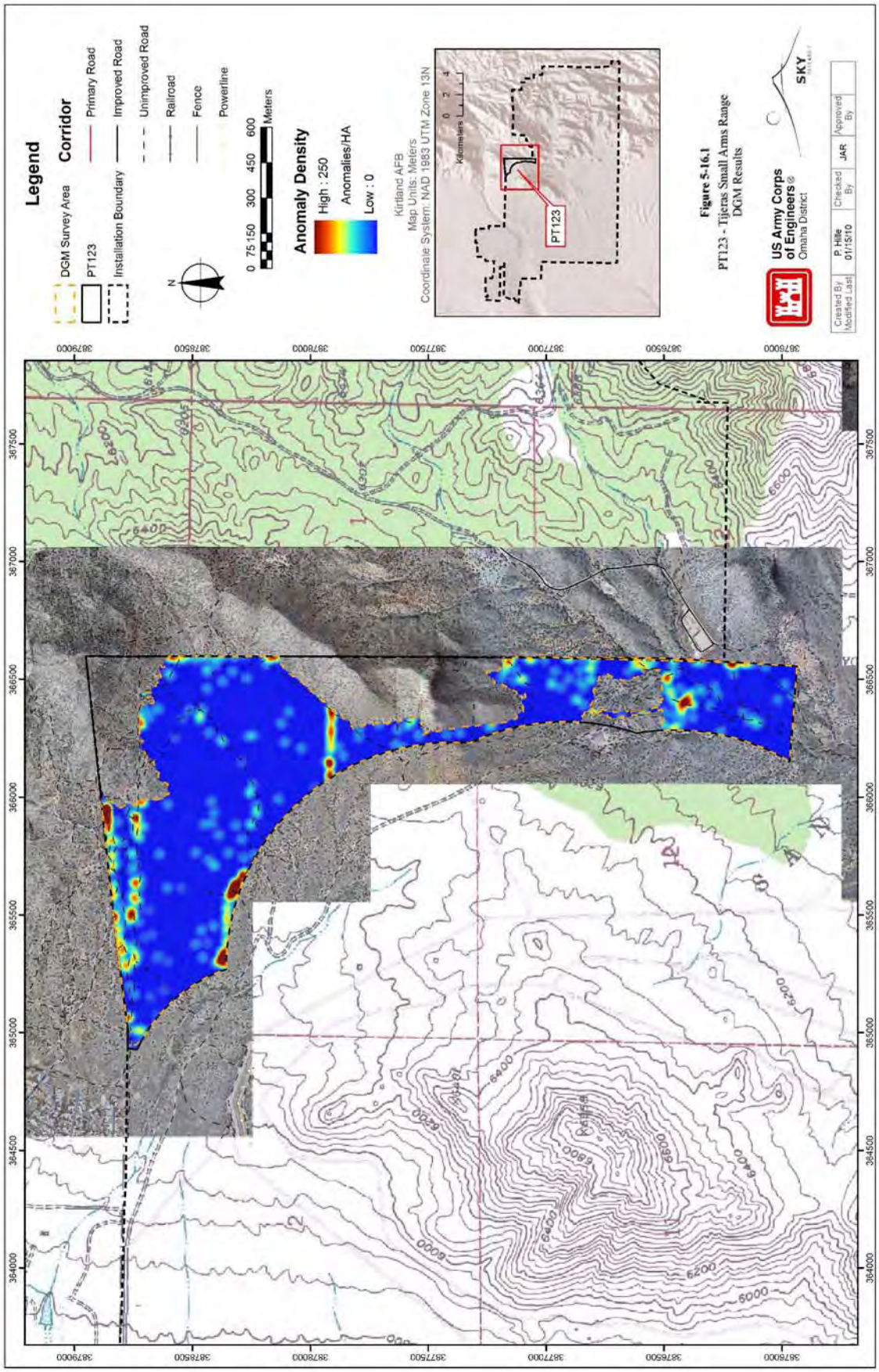
There are no utilities within PT123.

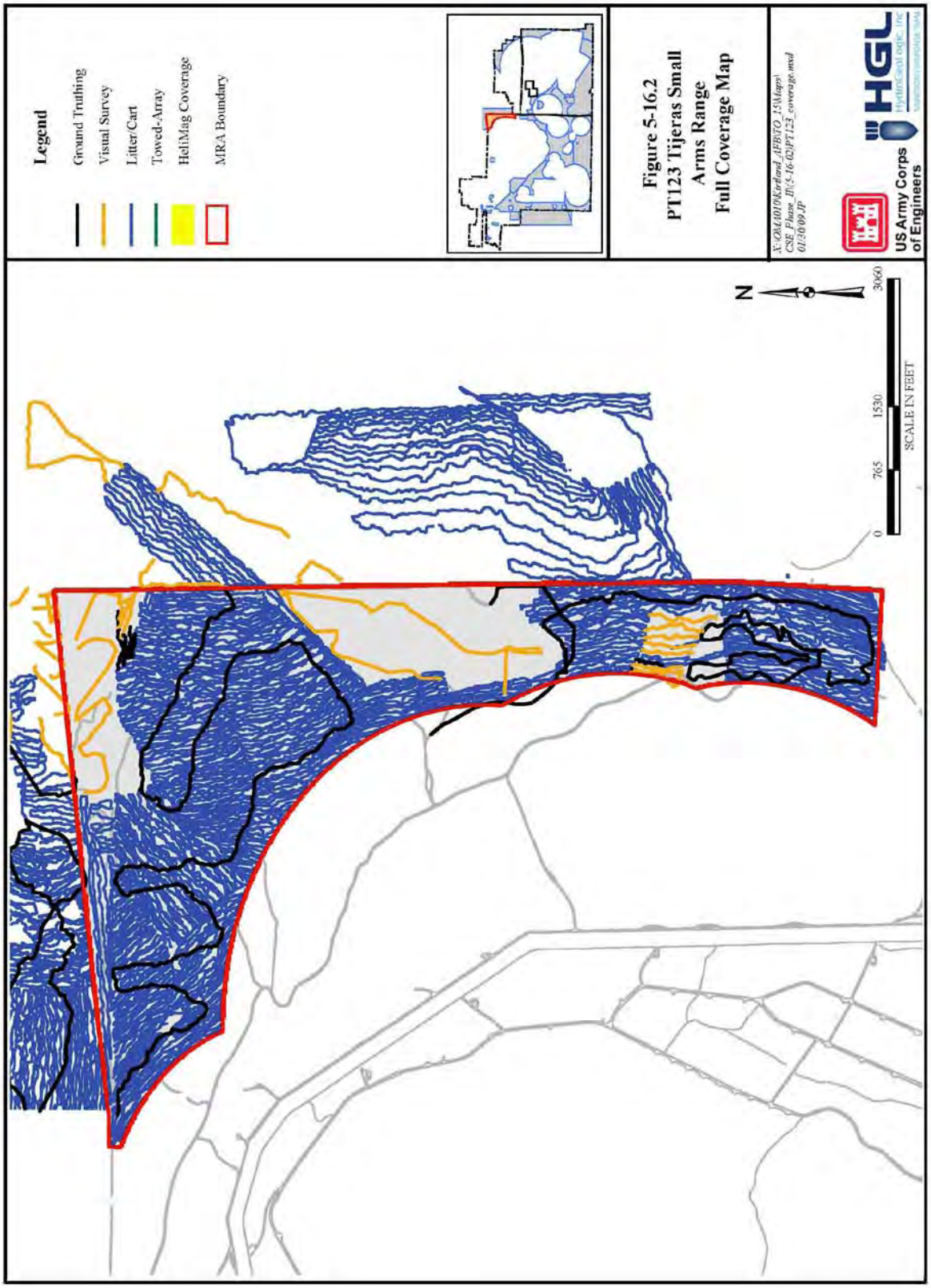
5.16.8 Natural Resources

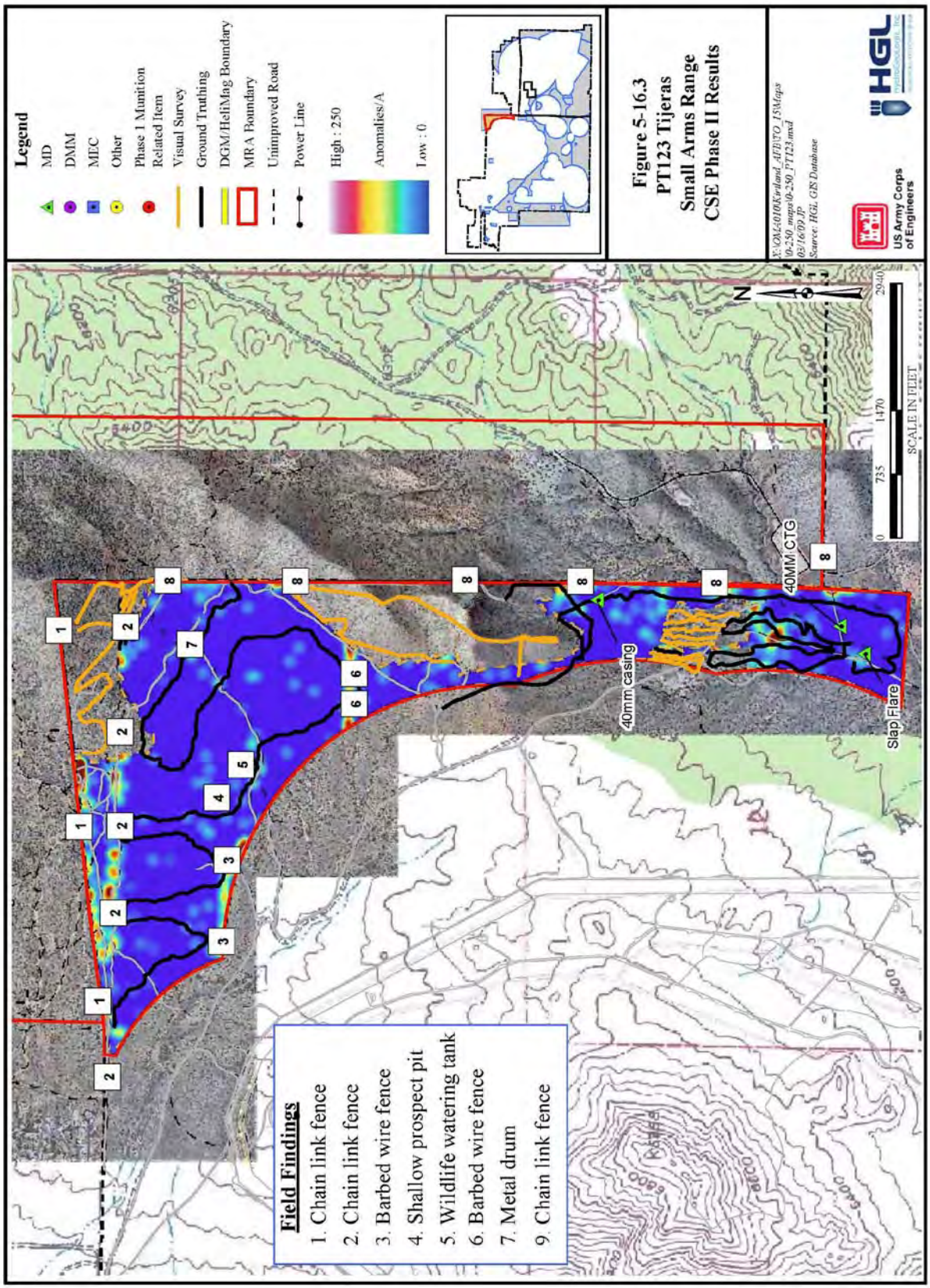
PT123 includes areas considered to be potential gray vireo habitat. The gray vireo, a state-threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

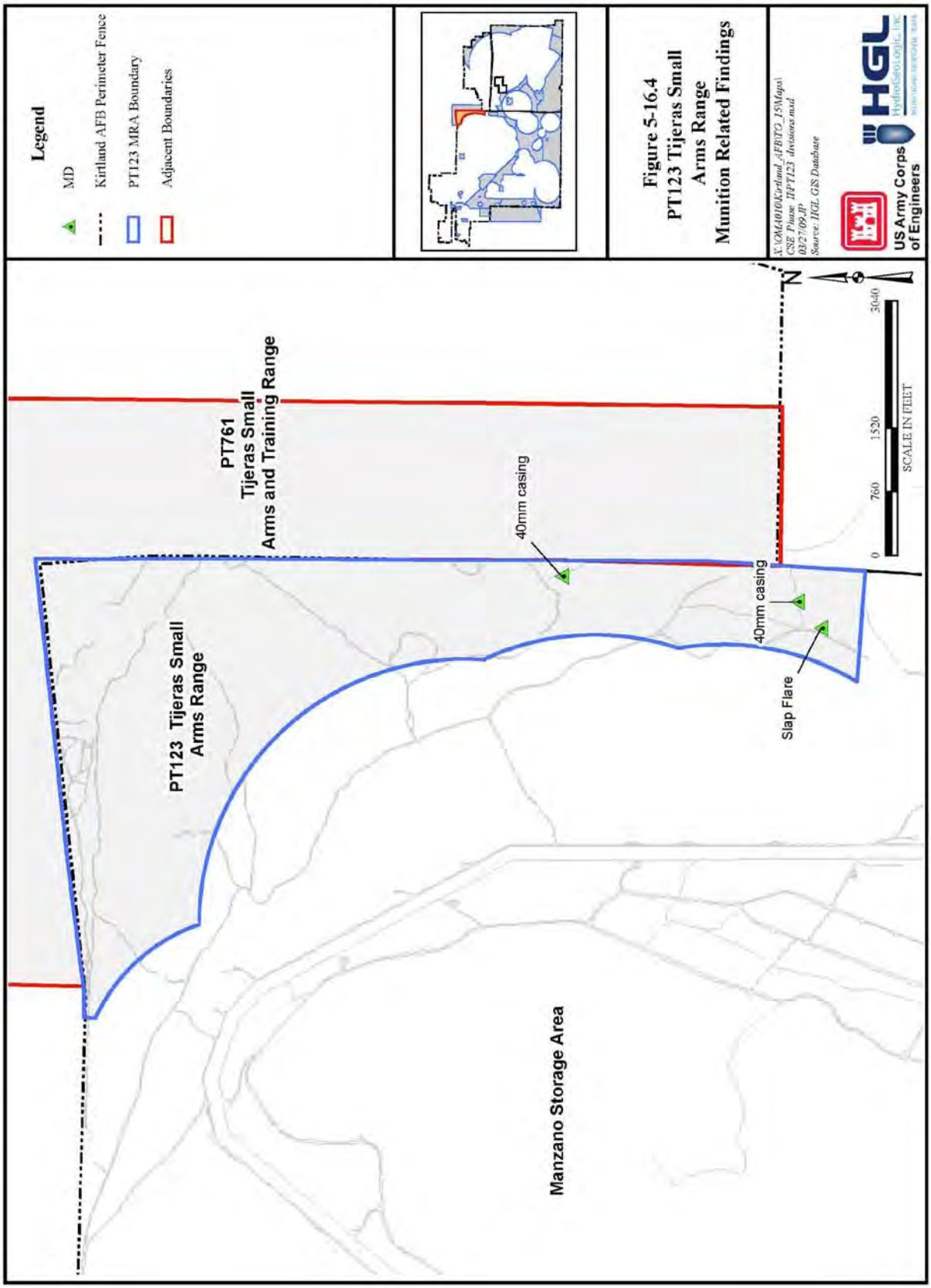
5.16.9 Sensitive Environments

Portions of PT123 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
PT123
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 75 150 300 450 600
Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
Kilometers
0 2 4
PT123
Figure 5-16.1
PT123 - Tijeras Small Arms Range
DGM Results
US Army Corps of Engineers
Omaha District
SKY
Created By: P. Hille
Modified Last: 01/15/10
Checked By: JAR
Approved By:


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-16.2
PT123 Tijeras Small
Arms Range
Full Coverage Map
US Army Corps
of Engineers
HGL
N
0
765
1530
3060
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/A
Low : 0
Figure 5-16.3
PT123 Tijeras
Small Arms Range
CSE Phase II Results
US Army Corps of Engineers
HGL
SCALE IN FEET
0
735
1470
2940
N
40mm casing
40MM CTG
Slap Flare
Field Findings
1. Chain link fence
2. Chain link fence
3. Barbed wire fence
4. Shallow prospect pit
5. Wildlife watering tank
6. Barbed wire fence
7. Metal drum
9. Chain link fence


Legend
MD
Kirtland AFB Perimeter Fence
PT123 MRA Boundary
Adjacent Boundaries
Figure 5-16.4
PT123 Tijeras Small
Arms Range
Munition Related Findings
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE Phase II\PT123 divisions.mxd
03/27/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
HydroGeologic, Inc.
PT761
Tijeras Small
Arms and Training Range
PT123 Tijeras Small
Arms Range
40mm casing
40mm casing
Slap Flare
Manzano Storage Area
N
0
760
1520
3040
SCALE IN FEET

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5.17 PT761 Tijeras Small Arms and Training Range

5.17.1 Site Description

PT761 is the portion of PT123 that extends beyond the northern property boundary of Kirtland AFB (Figure 5-17.1). The MRA is classified as a multi-use range and is known to have formerly been a small combat training range. The terrain is extremely steep and mountainous. This MRA is not owned or leased by the US Air Force. The western portion of the MRA now belongs to the City of Albuquerque Open Space Division. Part of the southern portion of the MRA is privately owned and the owners did not grant right of access for the CSE Phase II. Inquiries were made with the Real Property Office at Kirtland Air Force Base and the Bernalillo County Assessor's office to determine if the property was ever owned by the Air Force. Neither office was able to confirm that the property was ever owned by the Air Force.

5.17.2 History of MEC Activities

The history and use of PT761 is unknown.

5.17.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for PT761 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002).

5.17.4 Access Controls

The City of Albuquerque granted HGL vehicle access through a locked gate in the western corner of the MRA for the duration of field efforts. This area is also open to the public for foot-traffic only. The steep terrain in the southeastern area creates additional physical access controls.

5.17.5 Restrictions

Entry onto PT761 is restricted through entry on private roads through a locked gate. There are roads through the MRA that remain from previous ownership and fencing efforts. Although the area is closed to public vehicle traffic, some of these pre-existing roads are utilized as "service roads" by various local government agencies.

5.17.6 Field Investigation Results

CSE Phase II activities at the site included litter/cart, visual survey, and ground truthing.

5.17.6.1 Site Reconnaissance Observations

PT761 encompasses a large area in the Manzano foothills and includes grassy valleys and steep, piñon-juniper slopes.

5.17.6.2 Geophysical Survey Results

The geophysical survey included 138 acres of litter/cart (Figure 5-17.2). The geophysical survey revealed four large and six small areas with a high anomaly density (Figure 5-17.1).

5.17.6.3 Visual Survey

Approximately 26 acres of visual survey was completed at PT761 (Figure 5-17.2). No munitions-related items were observed.

5.17.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 5 miles of ground truthing were completed at PT761 (Figure 5-17.2). High density anomalies in the northern portion of the MRA were discovered to be cultural features including chain-link and barbed-wire fencing. No munitions-related items aside from scattered small arms range brass were observed.

5.17.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, PT761 did not meet the established criteria for sample collection.

5.17.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.17.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for PT761 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.17.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. PT761 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.17.7.2 Buildings Near/Within MRA

Approximately five private residences were observed by the field team; however, an accurate account of the number of buildings within the MRA could not be calculated because access was denied. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.17.7.3 Utilities On/Near MRA

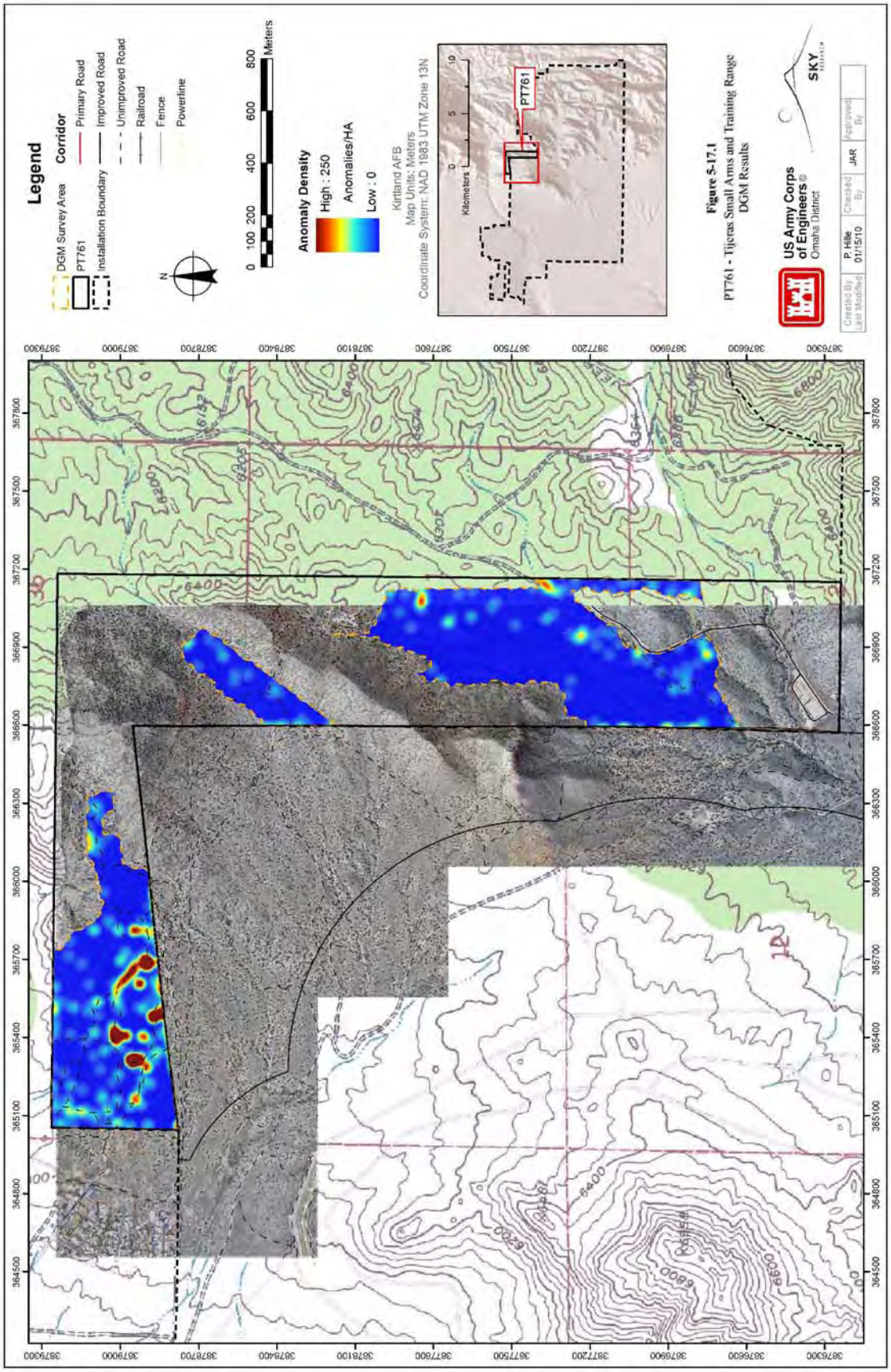
Although there are no utilities located within the western portion of this MRA, the Four Hills subdivision is located immediately adjacent to the western boundary. Because these residences are under private ownership, it is assumed that water, electric, gas, and sewer are available within PT761.

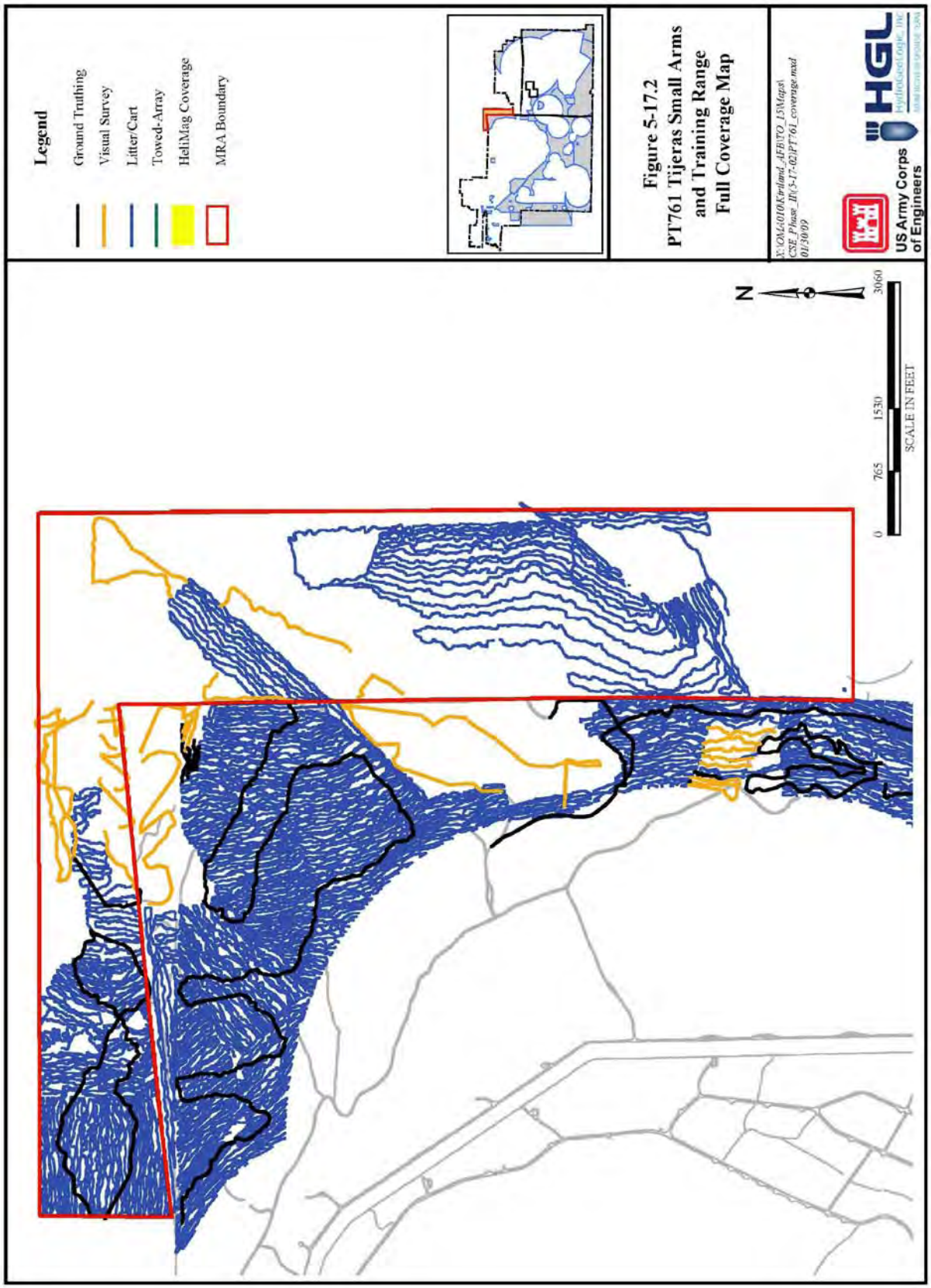
5.17.8 Natural Resources

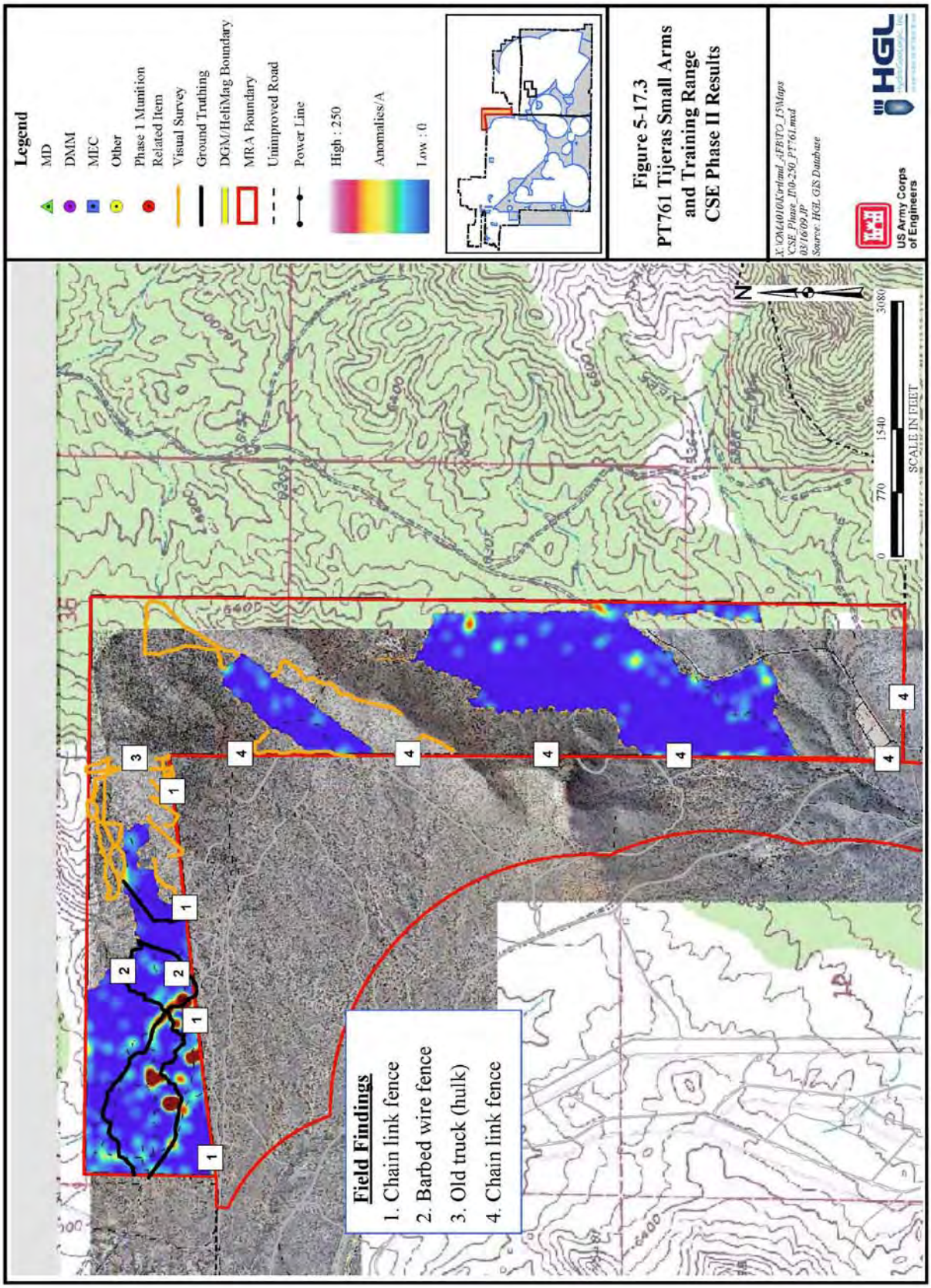
PT761 includes areas considered to be potential gray vireo habitat. The gray vireo, a state-threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

5.17.9 Sensitive Environments

Portions of PT761 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
PT761
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 100 200 400 600 800 Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
0 5 10
Kilometers
PT761
Figure 5-17.1
PT761 - Tijeras Small Arms and Training Range
DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By: P. Hille
Last Modified: 01/15/10
Checked By: JAR
Approved By:


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-17.2
PT761 Tijeras Small Arms and Training Range Full Coverage Map
X:\ONA\010Kirtland_AFB\TO_15\Maps\CSE_Phase_II\5-17-02\PT761_coverage.mxd
01/30/09
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
www.hydrogeologic.com
N
0
765
1530
3060
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/A
Low : 0
Figure 5-17.3
PT761 Tijeras Small Arms and Training Range CSE Phase II Results
X:\OM4010Kirtlnd_AFB\TO_15\Maps\CSE Phase_II\0-250_PT761.mxd
03/16/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
Field Findings
1. Chain link fence
2. Barbed wire fence
3. Old truck (hulk)
4. Chain link fence
N
0
770
1540
3080
SCALE IN FEET

5.18 PT773 Coyote Canyon Tech Site

5.18.1 Site Description

Located in the central portion of Kirtland AFB, PT773 is a former explosive testing site and is classified as a pyrotechnics range (Figure 5-18.1). DOE/SNL ER sites 8, 58, and 92 are located within PT773. The topography of PT773 includes level grassland and steeper, piñon-juniper terrain.

5.18.2 History of MEC Activities

PT773 was used in the 1950s for explosives testing. Live munitions and munitions debris (including white phosphorus canisters) associated with the Manzano Combat Range were removed from the nearby DOE/SNL Site 58 (Coyote Canyon Blast Area) in 1996.

5.18.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for PT773 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, PT773 is undeveloped open space.

5.18.4 Access Controls

Warning signs, partial fencing, and vehicle patrols are the primary means of controlling access to PT773. It also is located in a very remote location of Kirtland AFB and requires a four wheel drive vehicle to navigate the deep sand on the access roads leading to the MRA.

5.18.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto PT773 is not restricted, but is monitored by vehicle patrols.

5.18.6 Field Investigation Results

CSE Phase II activities at the site included HeliMag, towed-array, litter/cart, visual survey, and ground truthing.

5.18.6.1 Site Reconnaissance Observations

PT773 lies mostly in a canyon surrounded on the east and west by steep, rocky foothills. Remnants of a small building were noted on the site in addition to construction debris and several underground vaults, apparently for electrical cables.

5.18.6.2 Geophysical Survey Results

The geophysical survey included 58 acres of HeliMag, 0.01 acres of towed-array and 19 acres of litter/cart (Figure 5-18.2). The geophysical surveys revealed an area of high anomaly density (Figure 5-18.1).

5.18.6.3 Visual Survey

Approximately 6 acres of visual survey was completed at PT773 (Figure 5-18.2). No MEC or non-MEC related items were found during the visual survey.

5.18.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 8 miles of ground truthing were completed in this MRA (Figure 5-18.2). The southeast end of the MRA was noted to have considerable construction debris including concrete, rebar and asphalt. On the north end of the MRA, an area of high density corresponded to a series of underground electrical cable vaults and a 20-foot long subsurface linear feature. Another area located in the north-central portion during ground truthing of the MRA was the site of another electric cable vault and a 5-inch diameter steel pipe (Figure 5-18.3). Groundtruthing also revealed munitions debris in the southern half of the MRA consisting of heavy case HE fragments and 7.62mm cartridge casings. Metal fragments with cartridge casings were noted to be littered on the surface in some areas of the southern section. Non-MEC items included aluminum debris (Figure 5-18.4).

5.18.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, PT773 did not meet the established criteria for soil sample collection.

5.18.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.18.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for PT773 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.18.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. PT773 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.18.7.2 Buildings Near/Within MRA

There are nine buildings within PT773. Of those buildings, three are numbered and the remaining six are unnumbered. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.18.7.3 Utilities On/Near MRA

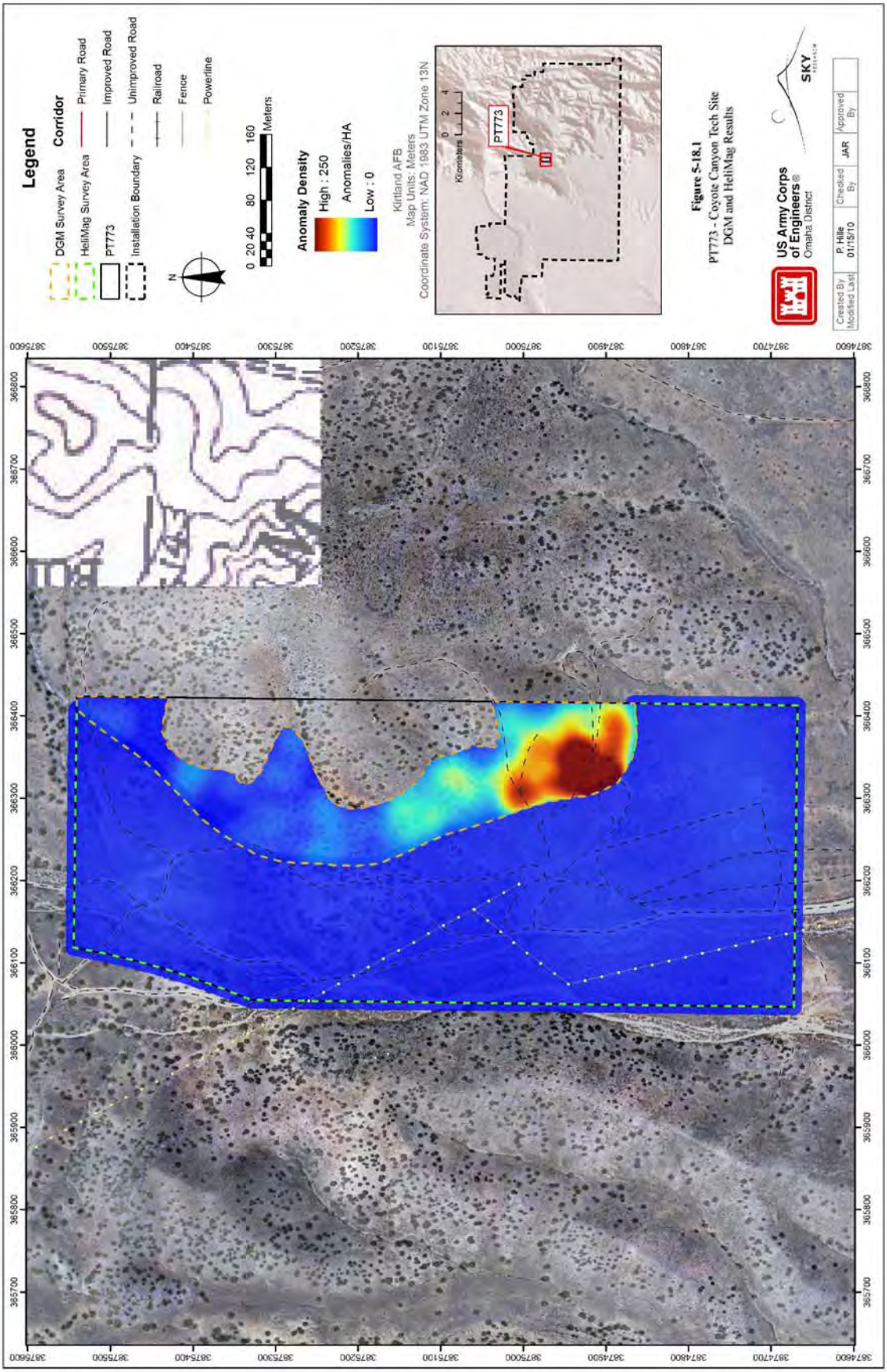
Electric and water utilities are located within PT773.

5.18.8 Natural Resources

PT773 includes areas considered to be potential gray vireo habitat. The gray vireo, a state threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

5.18.9 Sensitive Environments

Portions of MRA PT773 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
HeliMag Survey Area
PT773
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 20 40 80 120 160
Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
0 2 4
Kilometers
PT773
Figure 5-18.1
PT773 - Coyote Canyon Tech Site
DGM and HeliMag Results
US Army Corps of Engineers®
Omaha District
SKY
Created By Modified Last
P. Hille 01/15/10
Checked By
JAR
Approved By

Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-18.2
PT773 Coyote
Canyon Tech Site
Full Coverage Map
X:\OG4010Kirtland_AFB\TO_15\Mgps\
CSE_Phase_II\5-15-02\PT773_coverage.mxd
01/30/09 JP
US Army Corps
of Engineers
HydroGeoLogic, Inc
N
0
250
500
1000
SCALE IN FEET

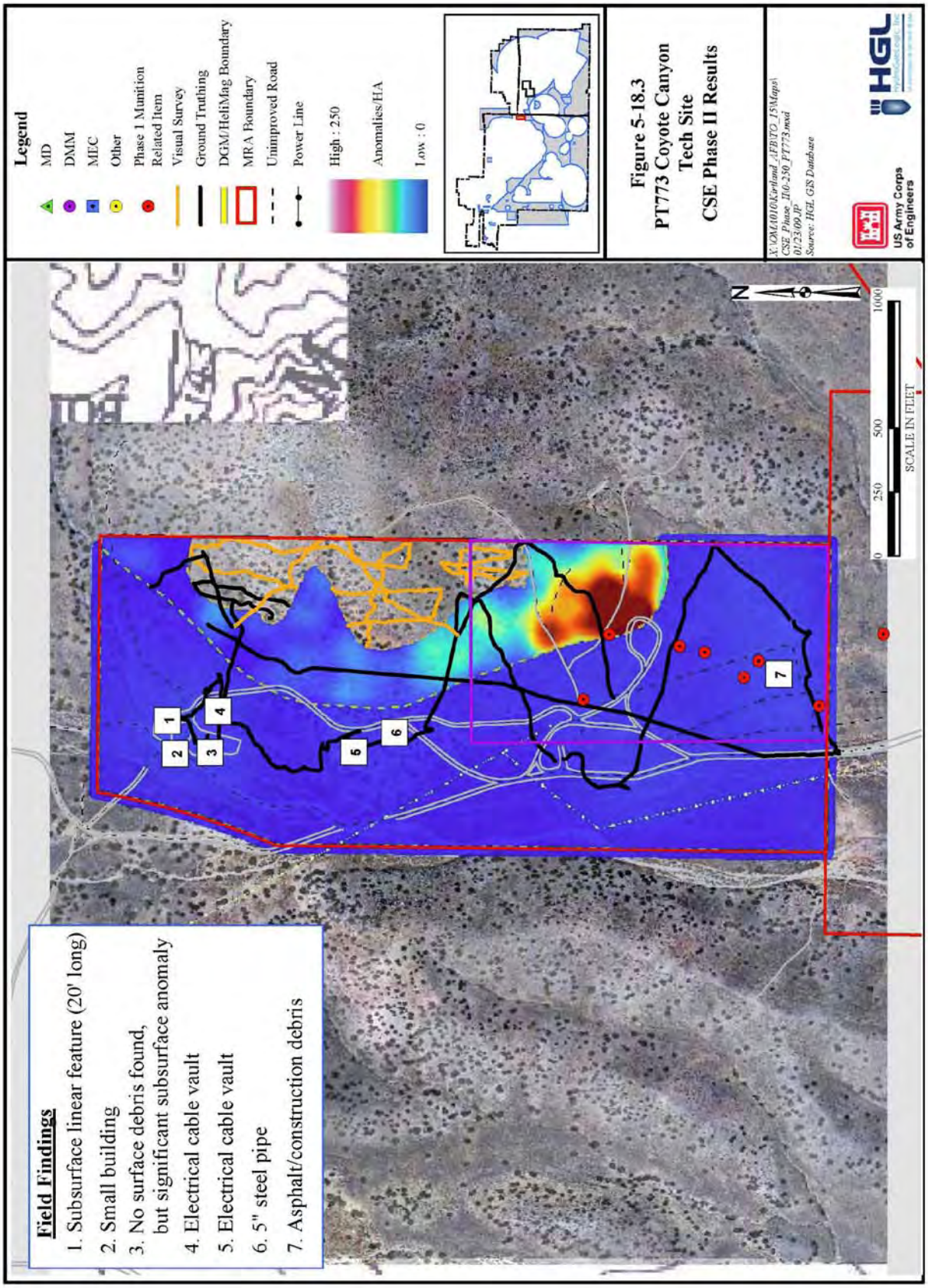
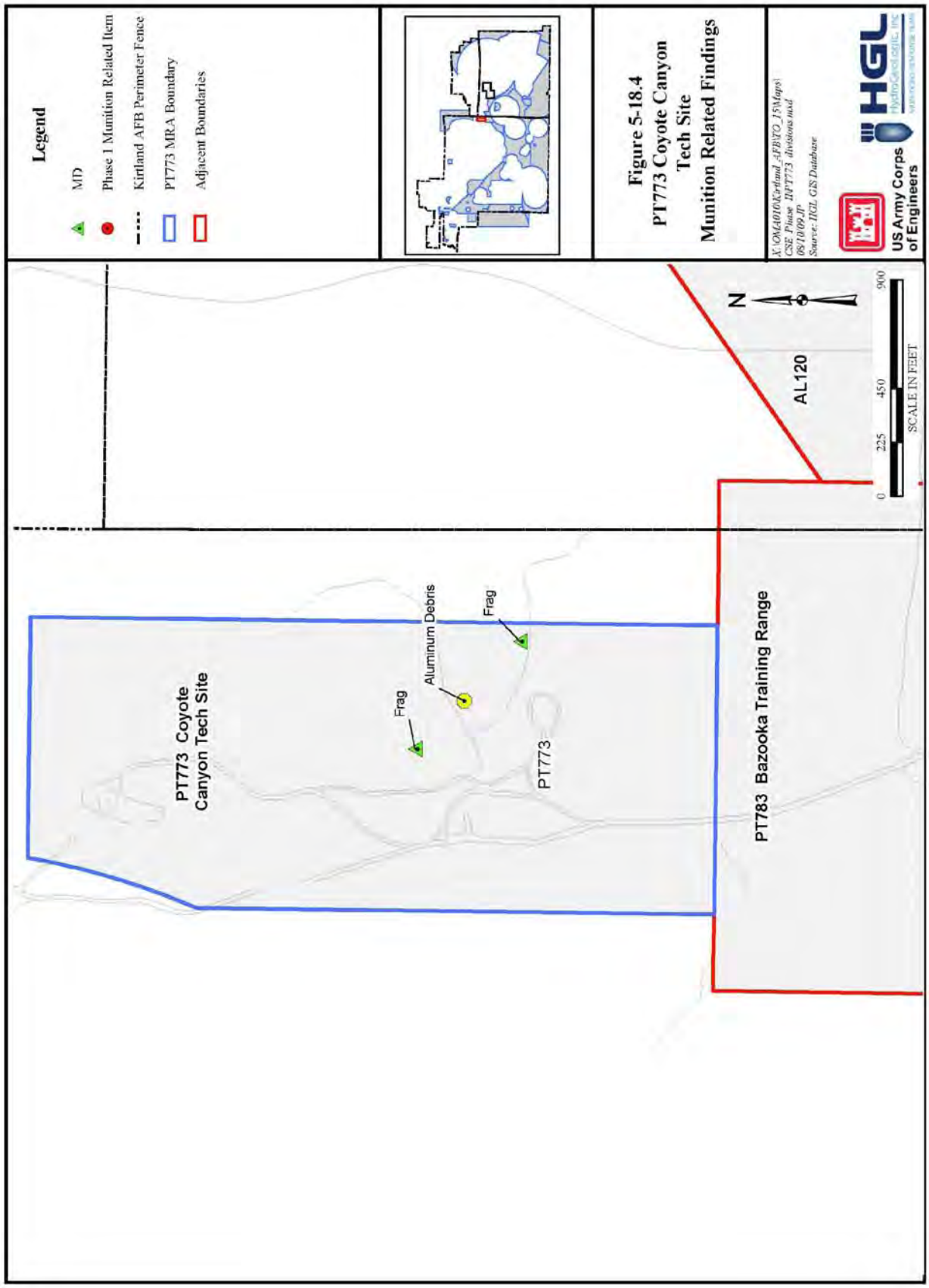


Figure 5-18.3
PT773 Coyote Canyon Tech Site
CSE Phase II Results

X:\OM\010Kirtland_AFB\TO_15\Maps\CSE Phase_II\0-250_PT773.mxd
01/23/09 JP
Source: HGL GIS Database


Legend
MD
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
PT773 MRA Boundary
Adjacent Boundaries
Figure 5-18.4
PT773 Coyote Canyon
Tech Site
Munition Related Findings
X:\OMA010\Kirtland -SFB\TO_15\Maps\
CSE Phase II\PT773 divisions.mxd
08/10/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
HydroGeologic, Inc.
AL120
N
0
225
450
900
SCALE IN FEET
PT773 Coyote
Canyon Tech Site
Frag
Aluminum Debris
Frag
PT773
PT783 Bazooka Training Range

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5.19 PT783 Bazooka Training Range

5.19.1 Site Description

Located in the central portion of Kirtland AFB, PT783 is a former bazooka training area (Figure 5-19.1). It is classified as a multi-use/training and maneuver area. The MRA contains a portion of the DOE/SNL ER Site 8. The terrain is a combination of level grassland and hilly, piñon-juniper type vegetation.

5.19.2 History of MEC Activities

PT783 was used as a bazooka training area, but the dates of use are unknown.

5.19.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for PT783 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, PT783 is undeveloped open space.

5.19.4 Access Controls

Access to PT783 is controlled by warning signs and vehicle patrols located on the southwest corner of the MRA. Natural springs and a small creek trending northeast to southwest feed the wetland and restrict movement.

5.19.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto PT783 is not restricted, but monitored.

5.19.6 Field Investigation Results

CSE Phase II activities at the site included HeliMag, towed-array, litter/cart, visual survey, and ground truthing.

5.19.6.1 Site Reconnaissance Observations

PT783 lies mostly in a canyon surrounded on the east, west and south by steep, rocky foothills.

5.19.6.2 Geophysical Survey Results

The geophysical survey included 87 acres of HeliMag, 29 acres of towed-array, and 19 acres of litter/cart (Figure 5-19.2). The geophysical surveys revealed one large and four smaller areas of high anomaly density (Figure 5-19.1).

5.19.6.3 Visual Survey

Approximately 9 acres of visual survey was completed at PT783 (Figure 5-19.2). No MEC or non-MEC related items were found during the visual survey.

5.19.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 4 miles of ground truthing were completed in this MRA (Figure 5-19.2). Cultural features associated with the areas of high anomaly density included communications shacks, powerlines, fence lines, and other non-munitions items (Figure 5-19.3). Munitions debris observed included a slap flare and fuze (Figure 5-19.4).

5.19.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, PT783 did not meet the established criteria for sample collection.

5.19.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.19.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for PT783 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.19.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. PT783 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.19.7.2 Buildings Near/Within MRA

There are no buildings within PT783. The Population Near Hazard data indicate there are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRA.

5.19.7.3 Utilities On/Near MRA

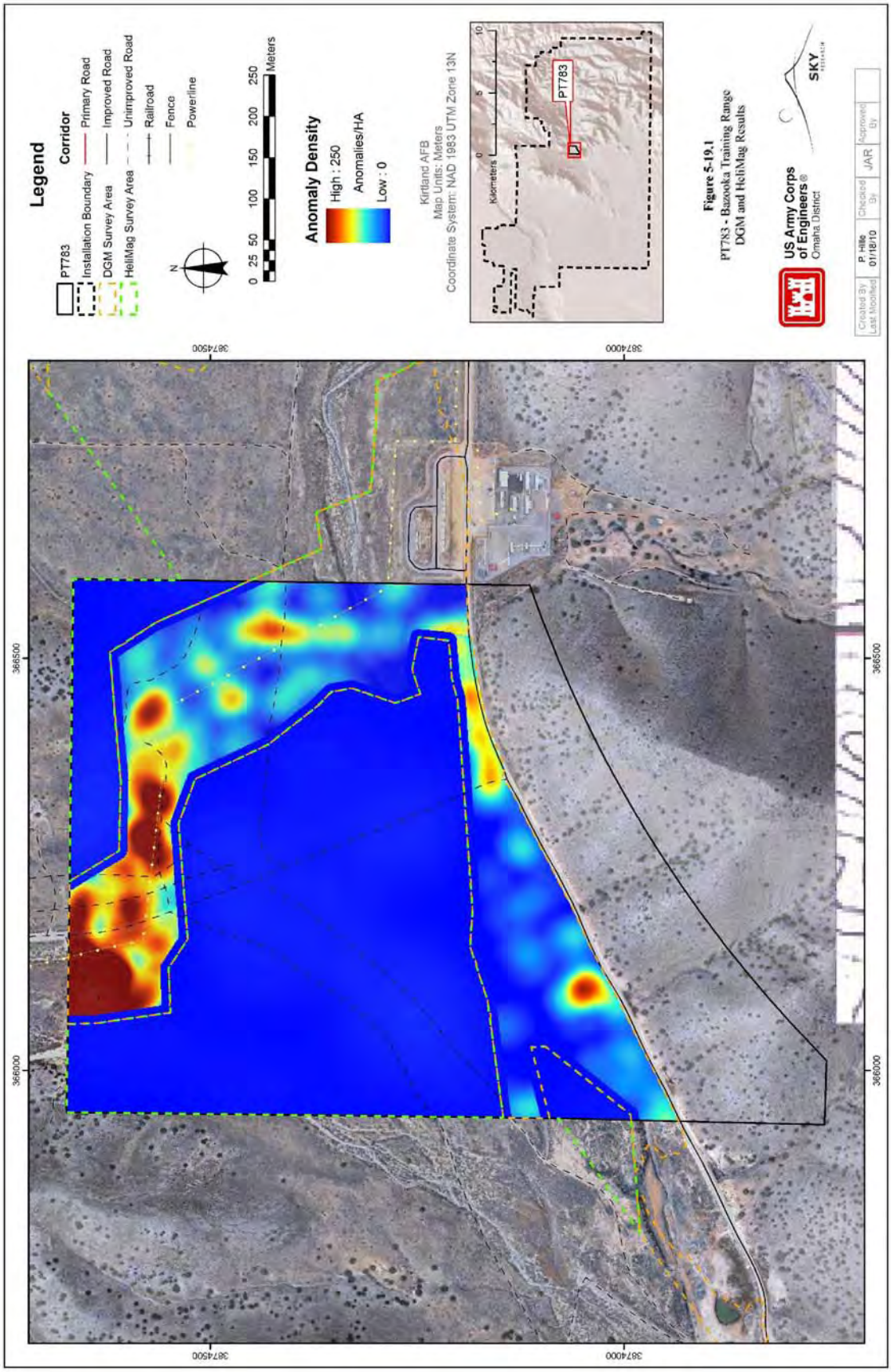
Electric power lines are located within PT783.

5.19.8 Natural Resources

PT783 includes areas considered to be potential gray vireo habitat. The gray vireo, a state-threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

5.19.9 Sensitive Environments

Based on a USACE 1995 *Wetland Inventory Survey* (USACE, 1995) and a 2001 *Wetland Delineation Report* prepared for Kirtland AFB (Ogden, 2001), 13 wetland sites were documented at Kirtland AFB. Figure 5-1.17 depicts the location of springs along the Arroyo del Coyote, including two springs in PT783.


Legend
PT783
Installation Boundary
DGM Survey Area
HeliMag Survey Area
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 25 50 100 150 200 250 Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
0 5 10
Kilometers
PT783
Figure 5-19.1
PT783 - Bazooka Training Range
DGM and HeliMag Results
US Army Corps of Engineers®
Omaha District
SKY
Created By P. Hills
Last Modified 01/18/10
Checked By JAR
Approved By
366000
366500
3874000
3874500

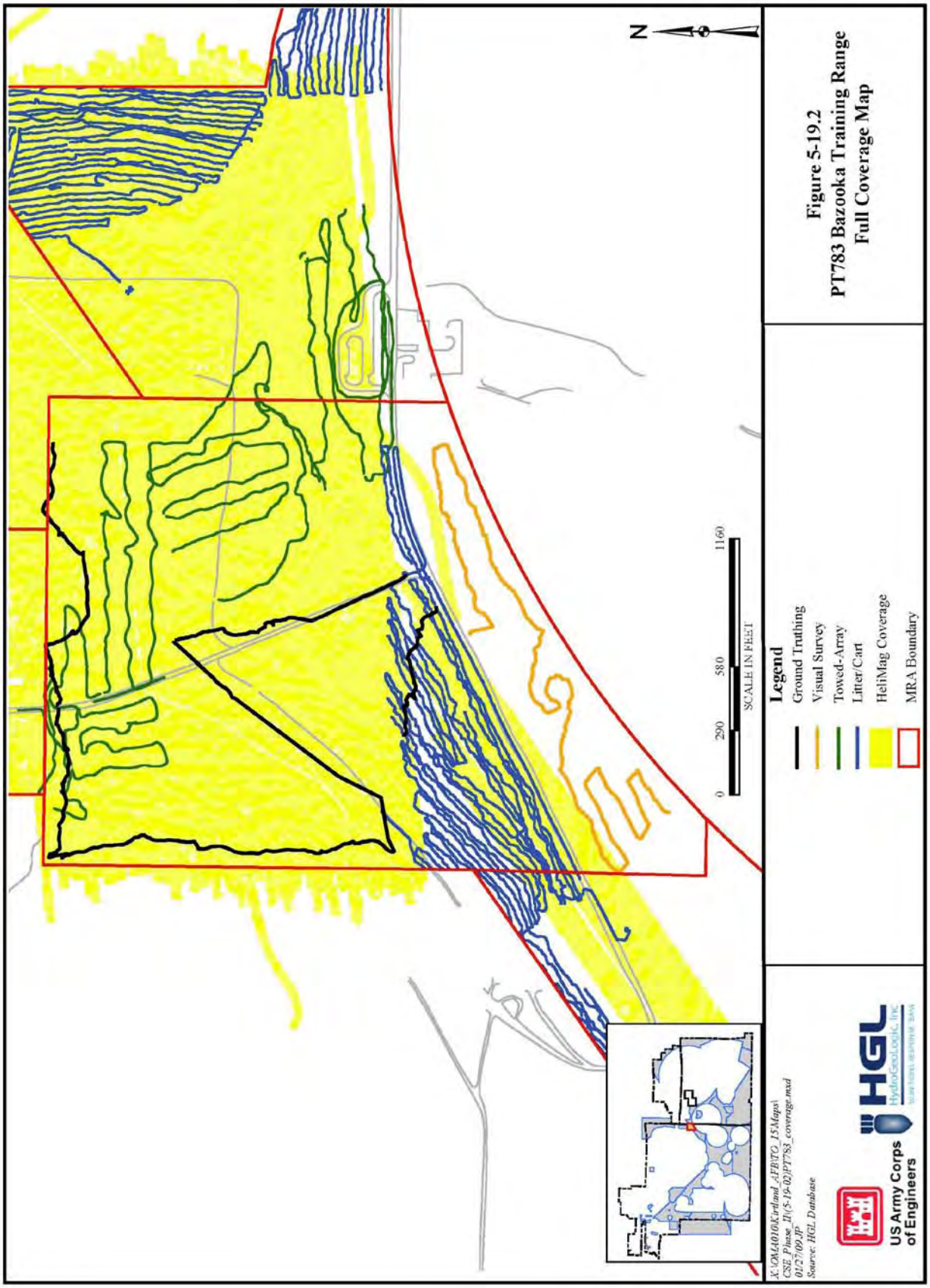


Figure 5-19.2
PT783 Bazooka Training Range
Full Coverage Map

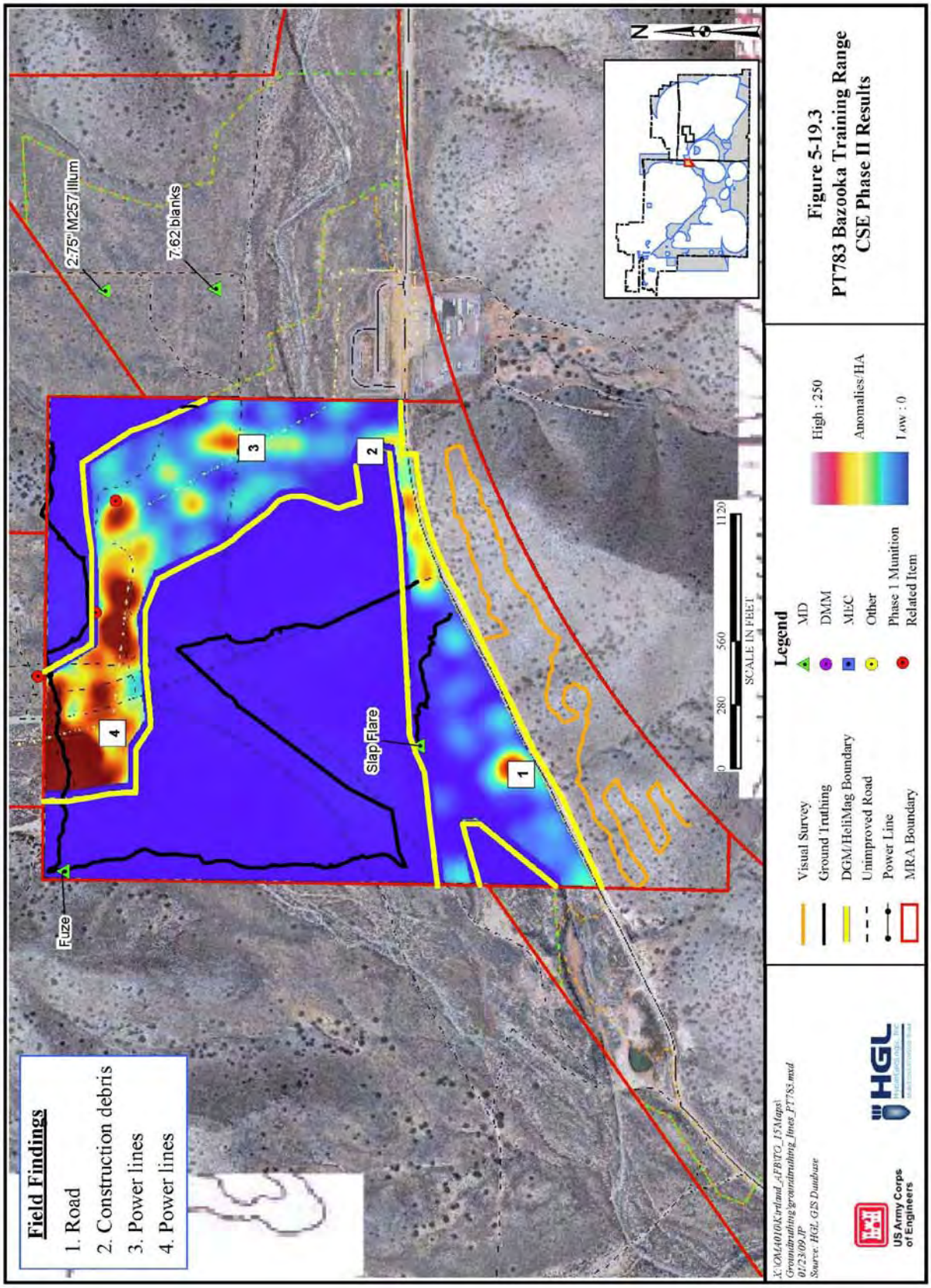
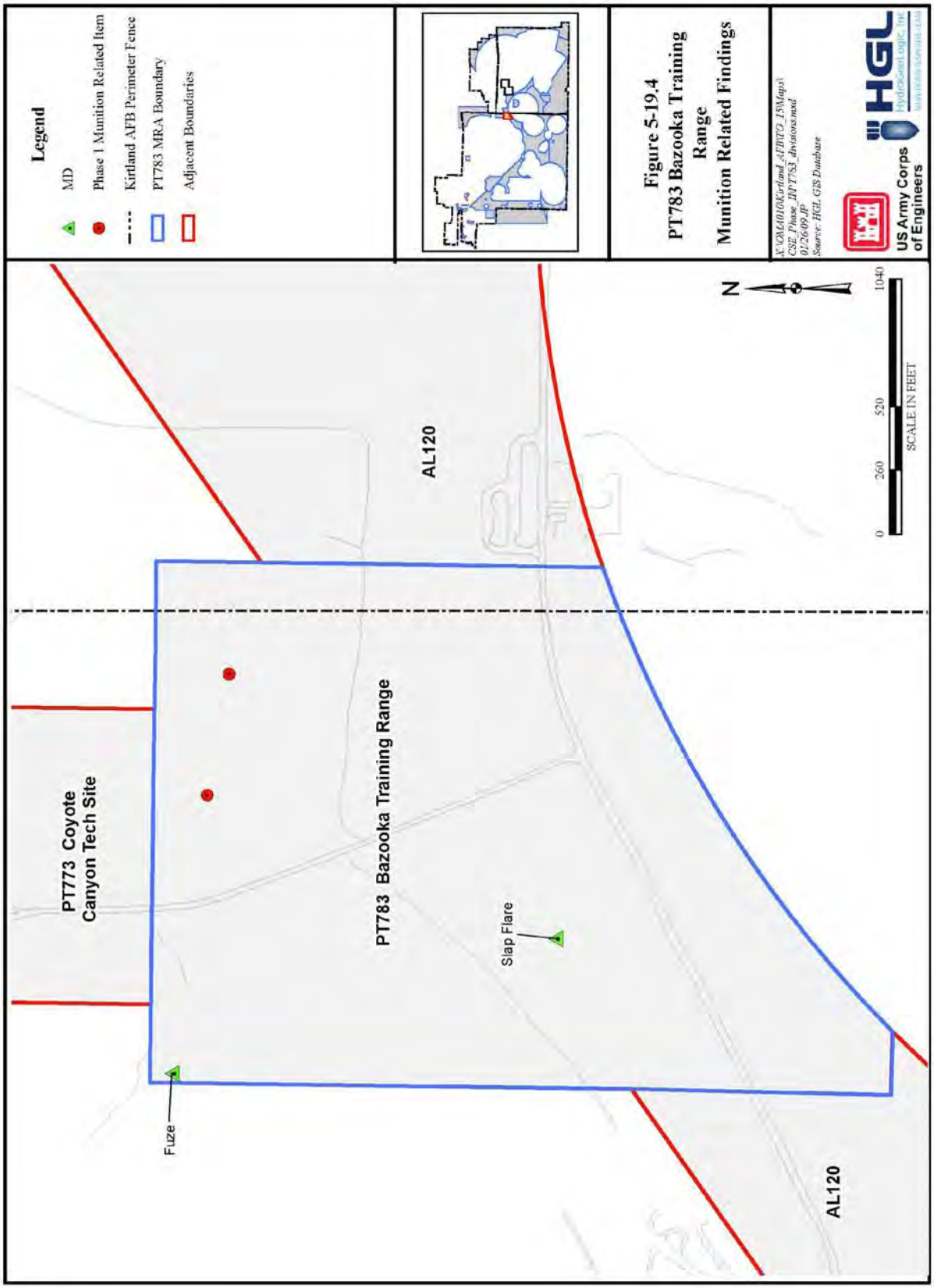


Figure 5-19.3
PT783 Bazooka Training Range
CSE Phase II Results


Legend
MD
Phase I Munition Related Item
Kirtland AFB Perimeter Fence
PT783 MRA Boundary
Adjacent Boundaries
Figure 5-19.4
PT783 Bazooka Training Range
Munition Related Findings
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\PT783_divisions.mxd
01/26/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc.
N
0
260
520
1040
SCALE IN FEET
AL120
PT773 Coyote Canyon Tech Site
PT783 Bazooka Training Range
Slap Flare
Fuze
AL120

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5.20 SR763 Rifle Range

5.20.1 Site Description

The SR763 Rifle Range is a former Sandia Base rifle range located in the northwest portion of Kirtland AFB (Figure 5-20.1). The 17.9-acre MRA is classified as a small arms range and generally consists of flat grassland.

5.20.2 History of MEC Activities

SR763 was once used as a Sandia Base rifle range; however, the years of operation are unknown. Historical information specific to this MRA did not indicate the caliber of munitions used at this site. However, supplemental historical information based on the time frame this site was used indicates that it was likely .30-caliber (Kirtland AFB, 1954). The range is visible in aerial photographs from the 1950s.

5.20.3 Current Land Use

The footprint of the original SR763 rifle range is partially covered by Pad 5 (Figure 5-20.2). Pad 5 has an asphalt and concrete access road leading to it and a cable wire fence that surrounds it. According to the Kirtland AFB General Plan, the current land-use scenario for SR763 includes administration and research, aircraft operations/maintenance, open space, industrial and constrained use areas. Administration and research designation includes uses such as personnel, headquarters, legal, research, laboratory, and other support functions. Aircraft operations and maintenance includes uses that are closely associated with the airfield including maintenance hangars and docks, avionics, facilities such as control towers, base operations, and flight simulators. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002).

5.20.4 Access Controls

This area is strictly controlled via the utilization of signs, fencing, locked gates, vehicle patrols, guard posts, and electronic anti-intrusion devices.

5.20.5 Restrictions

Once access onto Kirtland AFB is obtained, SR763 is off limits to all personnel without prior notification of, and approval from, DOE/SNL Security and Kirtland AFB Security Forces Flight.

5.20.6 Field Investigation Results

CSE Phase II activities at SR763 included media sampling.

5.20.6.1 Site Reconnaissance Observations

The area that contained the rifle range is now part of the airfield and is partially covered by Pad 5. The former target line is visible at the south end of the site and is the only remaining evidence of the rifle range. The rest of the MRA is flat grassland. No munitions-related items were observed.

5.20.6.2 Geophysical Survey Results

No geophysical surveys were conducted at SR763.

5.20.6.3 Visual Survey

No visual survey was conducted at SR763.

5.20.6.4 Ground Truthing

No ground truthing was conducted at SR763.

5.20.6.5 Media Sampling Results

Soil sample collection was concentrated in those areas of SR763 most likely to have been impacted by munitions use. XRF sample locations are presented in Figure 5-20.1. The XRF results are listed in Table 5-20.1. None of the sample results exceeded the NMED and USEPA Region 6 screening levels for lead. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 19 locations. The results ranged from 40 ppm to 114.6 ppm.

5.20.6.6 Background Determination

In addition to the NMED and EPA Region 6 screening levels, metals results were also compared to background levels developed for specific areas of Kirtland AFB. SR763 falls within the North Super Group.

5.20.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR763 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.20.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. SR763 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.20.7.2 Buildings Near/Within MRA

There are no buildings within the physical range of SR763. The Population Near Hazard data indicate there are more than 26 inhabited structures located up to 2 miles from the boundary of the MRA.

5.20.7.3 Utilities On/Near MRA

Underground electric cables exist within SR763.

5.20.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising SR763.

5.20.9 Sensitive Environments

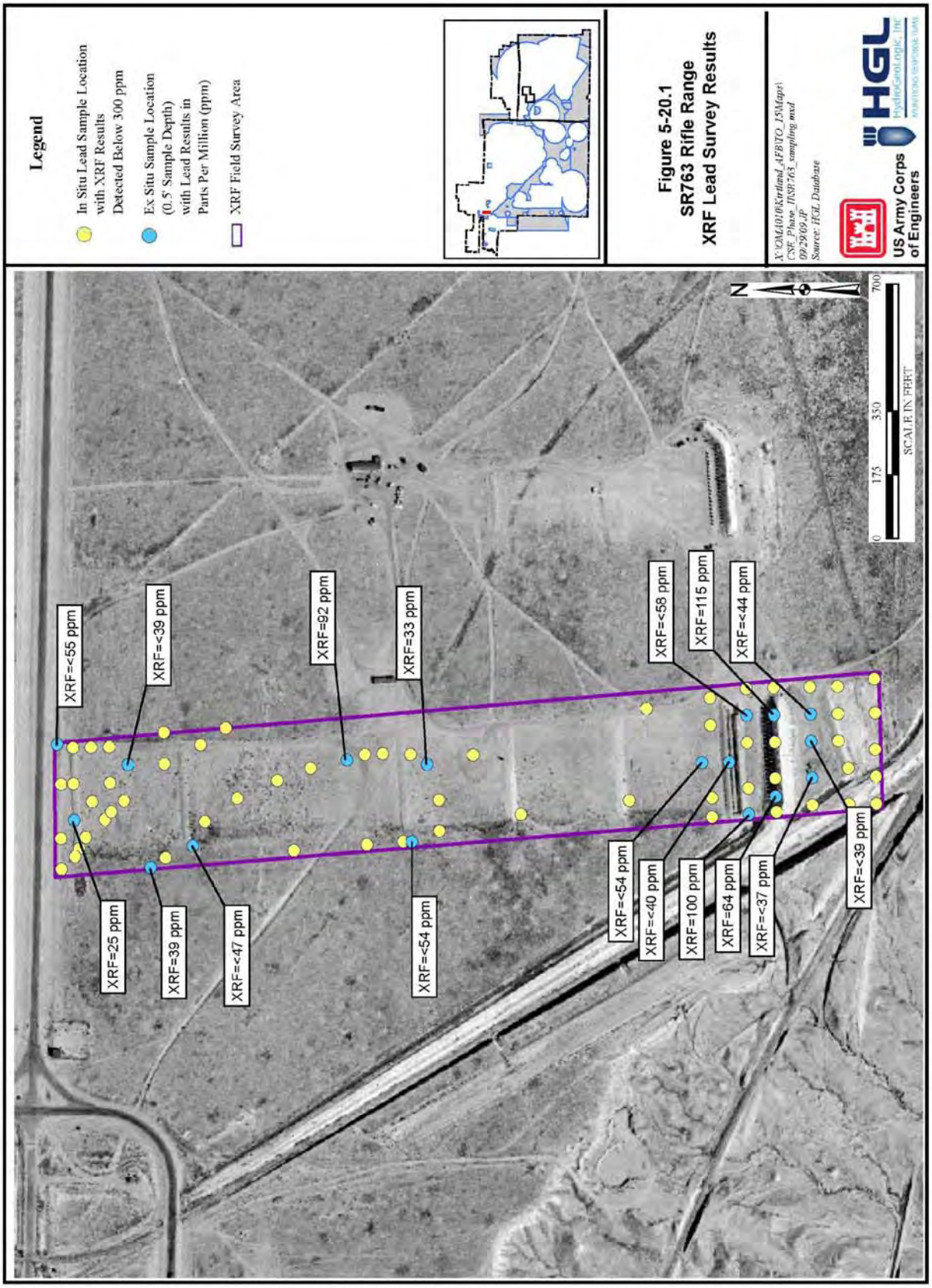
No sensitive environments are known to exist in or near SR763.

Table 5-20.1. SR763 Rifle Range XRF Results

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
1	<40.2			<46.1	<57.2	<60.5	<54.6	13.8
2	47.3	29						
3	<37.1							
4	<40.9							
5	<45.4							
6	50.3	28	SR763-001	32.4	<21.7	<22	25.4	24.0
7	<38.2							
8	<38.5							
9	<46.4							
10	<36.3							
11	<36.3							
12	44.2	26.9						
13	<38.9							
14	<37.4							
15	<33.6							
16	<33.6							
17	<39.2							
18	<53.3							
19	82.7	35.1	SR763-002	50.2	<26.2	39.3	38.6	31.2
20	<37.1							
21	<40.4							
22	<37.6							
23	<39.2							
24	<38.6							
25	50.5	27.5						
26	<39.9							
27	36.6	22.7						
28	<40.4							
29	<39.6							
30	<37							
31	63.1	28.3	SR763-003	117.8	90.4	68.6	92.3	26.7
32	<40.3							
33	<38.2							
34	<39.6							
35	<41.5							
36	<36							
37	53.3	28.9	SR763-004	33	33.4	32.4	32.9	1.5
38	45.2	27.1						
39	<36.8							

Table 5-20.1. SR763 Rifle Range XRF Results (Concluded, Page 2 of 2)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
40	<37.4			<46.7	<56.2	<58.9	<53.9	11.9
41	<39.6							
42	<45.8							
43	99.8	35.3	SR763-005	91.3	101	106.1	99.5	7.6
44	<44.6							
45	69.6	32.3						
46	<36.3			<48.8	<60.9	<63.8	<57.8	13.8
47	<43.6							
48	<30.3							
49	88.8	30.6	SR763-006	116.3	109.6	117.8	114.6	3.8
50	52.3	30.9						
51	65.8	33.8						
52	87.8	35.3	SR763-007	64.7	59.8	68.3	64.3	6.6
53	55.4	28.2						
54	50.4	27.3						
55	78.1	33.4		<49.0	<31.1	<31.8	<37.3	27.2
56	42.9	25.9		<19.6	<45.9	<50.5	<38.7	43.1
57	<33.4			<30.1	<58.4	<42.8	<43.8	32.4
58	<39							
59	40	22.6						
60	50	30.2						
61	<35.2							
62	59.5	28.9						
63	<40.5							
64	64.9	30.1						
65	<37.4							
66	<39.7							
67	<39.2							
68	Pavement							
69	NA		SR763-008	<58.1	<43.7	<61.3	<54.4	17.2
71	Pavement							
72	Pavement							
73	NA			<59.6	<16.8	<43.3	<39.3	54.1
74	NA			<36.5	<58.1	<46.9	<47.2	22.9


Legend
In Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-20.1
SR763 Rifle Range
XRF Lead Survey Results
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
XRF=<55 ppm
XRF=<39 ppm
XRF=92 ppm
XRF=33 ppm
XRF=<58 ppm
XRF=115 ppm
XRF=<44 ppm
XRF=25 ppm
XRF=39 ppm
XRF=<47 ppm
XRF=<54 ppm
XRF=<54 ppm
XRF=<40 ppm
XRF=100 ppm
XRF=64 ppm
XRF=<37 ppm
XRF=<39 ppm
0
175
350
700
SCALE IN FEET
N

Legend
MRA Boundary
Figure 5-20.2
SR763 Rifle Range
Current Land Use
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\SR763_landuse.mxd
08/10/09 JP
Source: HGL Database
HGL
HydroGeologic, Inc.
US Army Corps
of Engineers
N
0
175
350
700
SCALE IN FEET

5.21 SR764 Rifle Range

5.21.1 Site Description

SR764 is a former Sandia Base rifle range located in the northwestern corner of Kirtland AFB (Figure 5-21.1). The 6.6-acre MRA is classified as a small arms range. The terrain is flat grassland.

5.21.2 History of MEC Activities

SR764 was once used as a Sandia Base rifle range; however, the years of operation are unknown. Historical information specific to this MRA did not indicate the caliber of munitions used at this site. However, supplemental historical information based on the time frame this site was used indicates that it was likely .30-caliber (Kirtland AFB, 1954). The range is visible in aerial photographs from the 1950s.

5.21.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for the SR764 includes administration and research, aircraft operations/maintenance, open space, industrial and constrained use areas. Administration and research designation includes uses such as personnel, headquarters, legal, research, laboratory, and other support functions. Aircraft operations and maintenance includes uses that are closely associated with the airfield including maintenance hangars and docks, avionics, facilities such as control towers, base operations, and flight simulators. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently the site is undeveloped open space (Figure 5-21.2).

5.21.4 Access Controls

There are no access controls for SR764.

5.21.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto SR764 is not restricted.

5.21.6 Field Investigation Results

CSE Phase II activites at SR764 included media sampling.

5.21.6.1 Site Reconnaissance Observations

SR764 has a jogging path that transects the property, located in the populated, urban/industrial northwest corner of Kirtland AFB. There is no remaining evidence of the rifle range. No munitions-related items were observed.

5.21.6.2 Geophysical Survey Results

No geophysical surveys were conducted at SR764.

5.21.6.3 Visual Survey

No visual survey was conducted at SR764.

5.21.6.4 Ground Truthing

No ground truthing was conducted at SR764.

5.21.6.5 Media Sampling Results

Soil sample collection was concentrated in those areas of SR764 most likely to have been impacted by munitions use. XRF sample locations are presented in Figure 5-21.1. The XRF results are listed in Table 5-21.1. None of the sample results exceeded the NMED or USEPA Region 6 screening levels for lead. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 24 locations, ranging from 42.4 ppm to 72 ppm.

5.21.6.6 Background Determination

In addition to the NMED and USEPA Region 6 screening levels, metals results also were compared to background levels developed for specific areas of Kirtland AFB. SR764 falls within the North Super Group background values.

5.21.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR764 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.21.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. SR764 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.21.7.2 Buildings Near/Within MRA

There are no buildings within the physical range of SR764. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.21.7.3 Utilities On/Near MRA

There are no utilities within SR764.

5.21.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising SR764.

5.21.9 Sensitive Environments

No sensitive environments are known to exist in or near SR764.

Table 5-21.1. SR764 Rifle Range XRF Data

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
1	<43.3		SR764-001	<21.2	27.1	<19.5	22.6	17.7
2	<46.8							
3	<36.3							
4	<34.6							
5	46.4	34.3						
6	46.9	20.5						
7	<45.7							
8	<28							
9	<38.5							
10	<40.4							
11	<21							
12	69.6	34.3	SR764-003	48.4	31.9	47.4	42.6	21.7
13	47.7	31.2						
14	72	34.2						
15	<37		SR764-002	29.5	32.2	50.8	37.5	30.9
16	<40.3							
17	67.6	33.3						
18	<37.9							
19	<35.7							
20	<43							
21	<38.6							
22	44.2	29.4	SR764-004	26.1	28.6	30.3	28.3	7.5
23	<43.7							
24	<44.6							
25	<51.5							
26	<46.2							
27	<42.4							
28	<39.2							
29	<48.6							
30	<48.1							
31	<39.5							
32	<43							
33	<35.4							
34	<28.8							
35	<45.6							
36	<46.7							
37	<43.8							
38	<46.5							
39	<44.9			<51.2	<43.3	<29.2	<41.2	27.0
40	<41.3							
41	<50.2							

Table 5-21.1. SR764 Rifle Range XRF Data (Continued, Page 2 of 4)

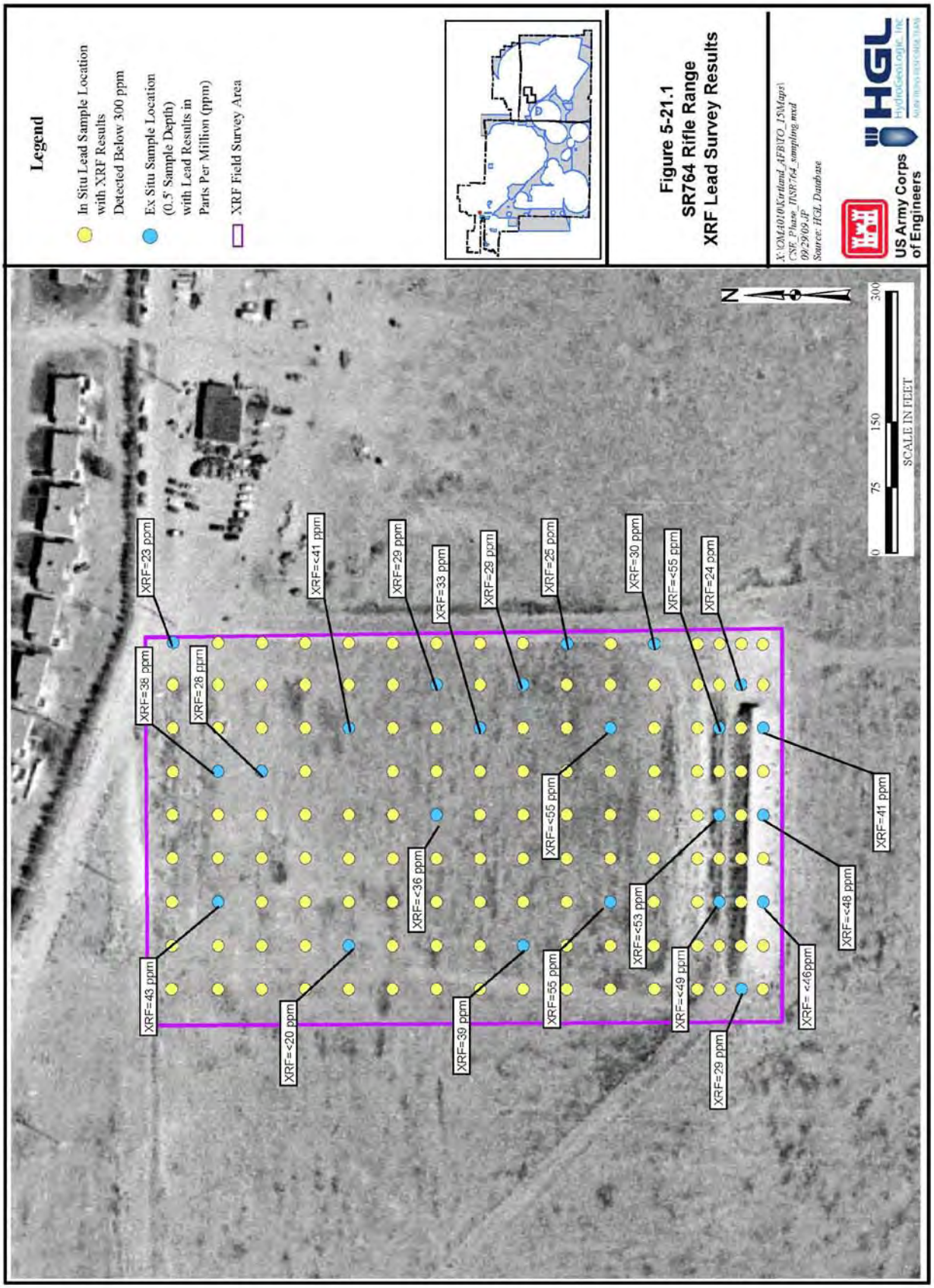
Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
42	<46.5							
43	<42.4		SR764-005	<18	<24.3	<17.7	<20	18.7
44	<44.9							
45	<45.4							
46	<40.6							
47	<54.1							
48	<51.9							
49	<44.1							
50	<38.5							
51	<48.4							
52	<43.1							
53	<45.5							
54	<36.5							
55	53.4	34.4	SR764-006	31.2	25.7	29.2	28.7	9.7
56	<48.8							
57	<41.1							
58	<49.7			<58.8	<48.5	<52.3	<53.2	9.8
59	<55.7							
60	<40.1							
61	<46.1							
62	<45.4							
63	<37.1							
64	<52.8							
65	<44.9							
66	<37.1							
67	<41.6							
68	<43							
69	70.5	35.8	SR764-014	37.4	33.4	27.2	32.7	15.7
70	50.2	32.5						
71	<37.7							
72	<41.2							
73	58.4	31.2	SR764-007	29.9	27.4	29.3	28.9	4.5
74	48.4	30.3						
75	42.4	28.1						
76	51.8	31.2						
77	<30.6							
78	56	31.2						
79	65.7	31.7	SR764-013	38.2	42.1	37.3	30	6.5
80	60.4	31.7						
81	<34.7							
82	53	31.4						

Table 5-21.1. SR764 Rifle Range XRF Data
(Continued, Page 3 of 4)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
83	<38.2							
84	56.6	28.8						
85	<43.6							
86	<40.1							
87	<43.9							
88	<39							
89	54.4	31.7	SR764-008	27.5	29.4	19.4	25.4	20.9
90	<41.4							
91	<40.9							
92	<49.8			<65.7	<50.7	<47.8	<54.7	17.6
93	<40.8							
94	<42							
95	43.8	27.1						
96	<51.5		SR764-015	<48.3	<47.6	<58.2	<51.4	11.5
97	46.2	28.6						
98	60.2	27.2						
99	<38.8							
100	<34.4							
101	<42.4							
102	<34.2							
103	<40.4							
104	<40.7							
105	<43.6							
106	<29.7							
107	<31.1		SR764-009	29.7	26.8	34.6	30.4	13.0
108	<40.9							
109	<39.1							
110	<31.9							
111	<34.4							
112	<40.5							
113	<38.8							
114	<34.2							
115	<43.5							
116	<40.2							
117	<44.6							
118	<35.6							
119	<40.8			<51.6	<46.3	<48	<48.6	5.6
120	<40.6							
121	<39.2			<57.1	<46.8	<54.1	<52.7	10.1
122	<40.4							
123	<46.6			<46.9	<53.6	<65.2	<55.2	16.8
124	<41.3							

Table 5-21.1. SR764 Rifle Range XRF Data
(Concluded, Page 4 of 4)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
125	<37.6							
126	<30.7							
127	67.3	29.9	SR764-010	24.4	20.4	27.3	24	14.4
128	<33.7							
129	45.6	25.8						
130	<38							
131	<38.5							
132	<43.7							
133	<45.8							
134	66.3	32.1	SR764-012	27.3	26.7	33.2	29.1	11.3
135	<46.5							
136	<38.4							
137	<40.9			<53.4	<40.7	<43.3	<45.8	14.7
138	<39.5							
139	60.1	29.7		<60.1	<42.1	<42	<48.1	21.7
140	<35.1							
141	70.2	31.2	SR764-011	50.1	36.3	37.1	41.2	18.8
142	43.4	22.8						
143	<41.9							


Legend
In Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-21.1
SR764 Rifle Range
XRF Lead Survey Results
X:\OM4010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\SR764_sampling.mxd
09/29/09 JP
Source: HGL Database
US Army Corps of Engineers
HGL
Hydrogeologic, Inc.
SCALE IN FEET
0
75
150
300
N
XRF=23 ppm
XRF=<41 ppm
XRF=29 ppm
XRF=33 ppm
XRF=29 ppm
XRF=25 ppm
XRF=30 ppm
XRF=<55 ppm
XRF=24 ppm
XRF=38 ppm
XRF=28 ppm
XRF=<55 ppm
XRF=41 ppm
XRF=<36 ppm
XRF=<53 ppm
XRF=<48 ppm
XRF=43 ppm
XRF=<20 ppm
XRF=39 ppm
XRF=55 ppm
XRF=<49 ppm
XRF=<46ppm
XRF=29 ppm

Legend
MRA Boundary
Figure 5-21.2
SR764 Rifle Range
Current Land Use
X:\CM4010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\SR764_landuse.mxd
03/10/09 JP
Source: HGL Database
US Army Corps
of Engineers
HGL
Hydrogeologic, Inc.
N
0
75
150
300
SCALE IN FEET

5.22 SR765 WWII Pistol Range

5.22.1 Site Description

SR765 is an abandoned WWII-era pistol range. The 2.3-acre MRA, located in the northwest portion of Kirtland AFB, is classified as small arms range (Figure 5-22.1). The site is flat grassland.

5.22.2 History of MEC Activities

SR765 was used as a pistol range around WWII. The specific years of operation are unknown; however, historical records and aerial photographs show SR765 during the 1950s. Historical information specific to this MRA did not indicate the caliber of munitions used at this site. However, supplemental historical information based on the time frame this site was used indicates that it was likely .45-caliber. Additionally, since this is a WWII-era pistol range, caliber as small as .22 may also have been used (Kirtland AFB, 1954).

5.22.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for SR765 includes administration and research, aircraft operations/maintenance, open space and industrial. Administration and research designation includes uses such as personnel, headquarters, legal, research, laboratory, and other support functions. Aircraft operations and maintenance includes uses that are closely associated with the airfield including maintenance hangars and docks, avionics, facilities such as control towers, base operations, and flight simulators. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities (US Air Force, 2002). Currently, the majority of SR765 is within the fenced area of the Big Crow Facility (Figure 5-22.2).

5.22.4 Access Controls

SR765 is strictly controlled with fencing and locked gates.

5.22.5 Restrictions

Visitors must contact the Big Crow Facility prior to entry and sign in and out at the main building. An escort from the Big Crow Facility also was required to accompany HGL while field work was conducted.

5.22.6 Field Investigation Results

CSE Phase II activities included media sampling.

5.22.6.1 <u>Site Reconnaissance Observations</u>

Site reconnaissance revealed that the majority of the pistol range was in the fenced area of the Big Crow Facility. A small portion of the range was outside of the fence. Most of the area is flat grassland and t no munitions-related items were observed.

5.22.6.2 <u>Geophysical Survey Results</u>

No geophysical surveys were conducted at SR765.

5.22.6.3 Visual Survey

No visual survey was conducted at SR765.

5.22.6.4 Ground Truthing

No ground truthing was conducted at SR765.

5.22.6.5 Media Sampling Results

Soil sample collection was concentrated in those areas of SR765 most likely to have been impacted by munitions use. XRF sample locations are presented in Figure 5-22.1. The XRF results are listed in Table 5-22.1. None of the sample results exceeded the NMED and USEPA Region 6 screening levels for lead. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 14 locations, ranging from 39.8 ppm to 73.1 ppm.

5.22.6.6 Background Determination

In addition to the NMED and USEPA Region 6 screening levels, metals results also were compared to background levels developed for specific areas of Kirtland AFB. SR765 falls within the North Super Group background values.

5.22.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR765 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.22.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. SR765 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.22.7.2 Buildings Near/Within MRA

There are no buildings within the physical range of SR765. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.22.7.3 Utilities On/Near MRA

There are no utilities within SR765.

5.22.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising SR765.

5.22.9 Sensitive Environments

No sensitive environments are known to exist in or near SR765.

Table 5-22.1. SR765 XRF WWII Pistol Range XRF Results

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
1	64.5	34.3						
2	50.7	28.5						
3	<44.9							
4	35.9	23.1						
5	<44.8							
6	<42.4							
7	<40.1							
8	<35.6							
9	<41.6							
10	<38.6			<42.6	<60	<33.8	<45.5	29.3
11	<38							
12	<35.1			<45.6	<39.5	<37.4	<40.8	10.4
13	<37.4							
14	<43.7							
15	Roadway							
16	<42.5							
17	<41.4							
18	<40.9							
19	<40.9							
20	<55							
21	46.1	24.2						
22	39.8	24						
23	57.7	28.7						
24	<35.1							
25	<41.4							
26	44.6	28.2						
27	<48.2							
28	Roadway							
29	Roadway							
30	92.4	39.4	SR765-001	33.3	38.2	37.7	36.4	7.41
31	85.9	35.3	SR765-002	31.3	30.2	42.4	34.6	19.5
32	47.9	29.4						
33	<24.8			<39.9	<35.6	<38.9	<38.1	5.9
34	<34.7							
35	<34.5							
36	<38.6							
37	<39.6							
38	<34.2			<43.4	<39.2	<30.8	<37.8	17.0
39	<43		SR765-005	<36.9	<49.6	<41.7	<42.7	15.0
40	<33.5			<46	<46	<53.7	<48.6	9.2
41	51.1	38.1		<56.9	<38.7	<40.3	<45.3	22.3
42	Roadway							

Table 5-22.1. SR765 WWII Pistol Range XRF Results (Concluded, Page 2 of 2)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
43	Roadway							
44	64.9	30.5		<36.2	<40.9	<48.6	<41.9	15.0
45	65.9	33.4	SR765-003	72	79.9	67.4	73.1	8.7
46	<54.7							
47	<41.9			<17.8	<33.5	<51	<34.1	48.7
48	<42			<32.2	<26.4	<45.8	<34.8	28.6
49	<42.5							
50	54.2	27						
51	57.3	34.6						
52	82.7	38.1	SR765-004	33.9	38.5	59.8	44.1	31.4
53	Concrete							
54	41.9	27.4						

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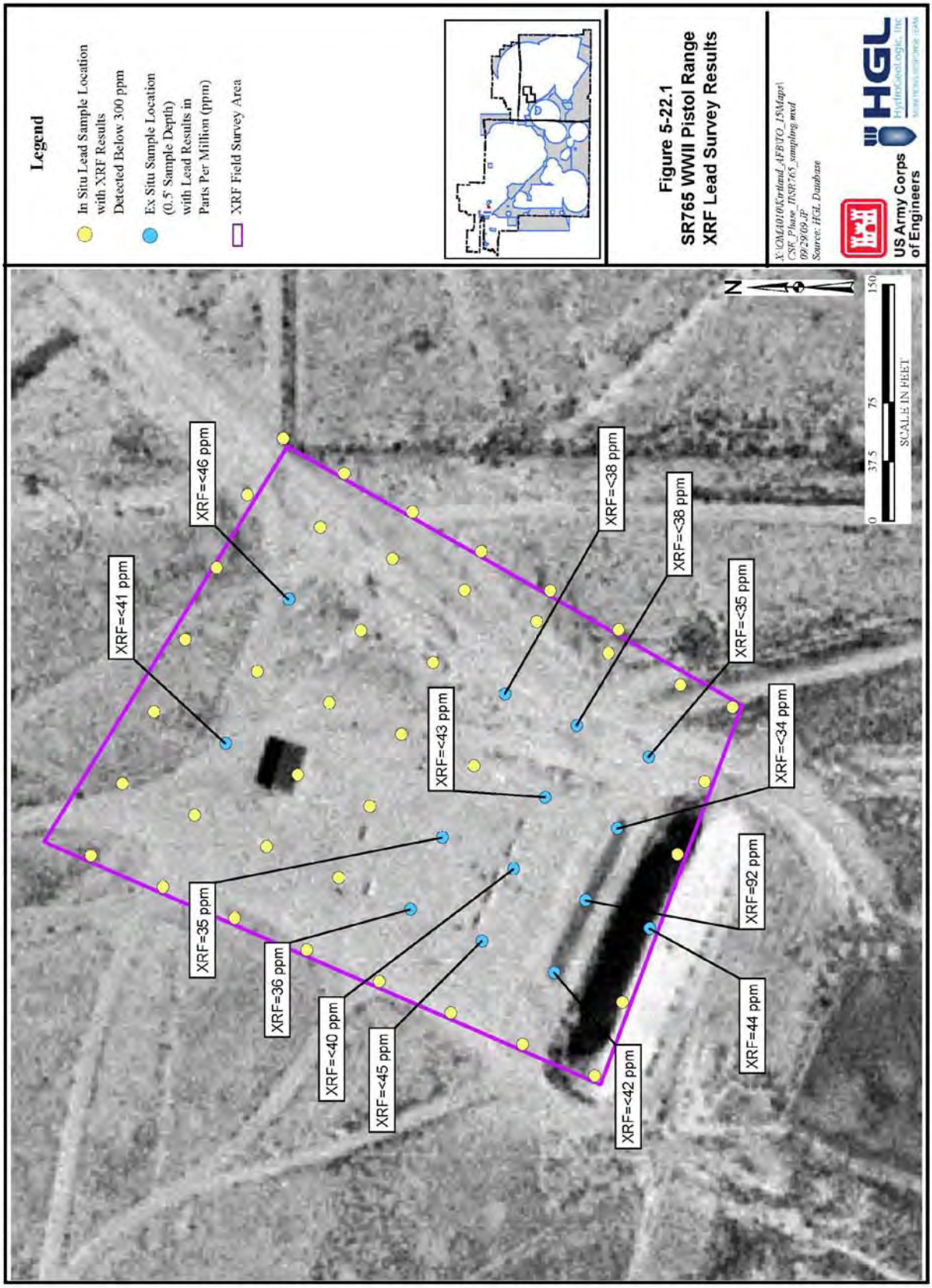

Legend
In Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-22.1
SR765 WWII Pistol Range
XRF Lead Survey Results
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\SR765_sampling.mxd
09/29/09 JP
Source: HGL Database
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
XRF=<41 ppm
XRF=<46 ppm
XRF=<38 ppm
XRF=<38 ppm
XRF=<35 ppm
XRF=<43 ppm
XRF=<34 ppm
XRF=35 ppm
XRF=92 ppm
XRF=36 ppm
XRF=<40 ppm
XRF=<45 ppm
XRF=44 ppm
XRF=<42 ppm
N
0
37.5
75
150
SCALE IN FEET

Legend
MRA Boundary
Figure 5-22.2
SR765 WWII Pistol Range
Current Land Use
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\SR765_landuse.mxd
03/10/09 JP
Source: HGL Database
US Army Corps
of Engineers
HGL
HydroGeoLogic, Inc.
N
0
37.5
75
150
SCALE IN FEET

5.23 SR766 Sub-Machine Gun Range

5.23.1 Site Description

SR766 Sub-Machine Gun Range is a 64-acre MRA classified as a small arms range. The MRA is located in the northwest portion of Kirtland AFB and consists of flat grassland (Figure 5-23.1).

5.23.2 History of MEC Activities

SR766 was reportedly a sub-machine gun range. Although included in a 1950s Sandia Base Range Regulation, no evidence of its existence could be found in historic base maps or aerial photographs. Historical information specific to this MRA did not indicate the caliber of munitions used at this site. However, supplemental historical information based on the time frame this site was used indicates that it was likely .45-caliber (Kirtland AFB, 1954).

5.23.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for SR766 includes administration and research, aircraft operations/maintenance, open space and industrial. Administration and research designation includes uses such as personnel, headquarters, legal, research, laboratory, and other support functions. Aircraft operations and maintenance includes uses that are closely associated with the airfield including maintenance hangars and docks, avionics, facilities such as control towers, base operations, and flight simulators. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities (US Air Force, 2002). Currently, the site is undeveloped open space within the airport runway fenceline (Figure 5-23.2).

5.23.4 Access Controls

SR766 is within the fenced area of the airport runway. Access must be coordinated with Kirtland Base Operations and the New Mexico Air National Guard.

5.23.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto SR766 is restricted and monitored. Permission was required from Kirtland Base Operations and the New Mexico Air National Guard and an escort to and from the site was mandatory.

5.23.6 Field Investigation Results

CSE Phase II activities at SR766 included media sampling.

5.23.6.1 <u>Site Reconnaissance Observations</u>

The area where the sub-machine gun range was thought to be located is within the fenced area of the airport runway. There was no visible evidence of the range, located in the populated, urban/industrial northwest corner of Kirtland AFB. The area is flat grassland and no munitions-related items were observed.

5.23.6.2 Geophysical Survey Results

No geophysical surveys were conducted at SR766.

5.23.6.3 Visual Survey

A visual survey of the area was done to locate the range, but no evidence was found.

5.23.6.4 Ground Truthing

No ground truthing was conducted at SR766.

5.23.6.5 Media Sampling Results

Soil sample collection was concentrated in those areas of SR766 most likely to have been impacted by munitions use. XRF sample locations are presented in Figure 5-23.1. The XRF results are listed in Table 5-23.1. None of the sample results exceeded the NMED or USEPA Region 6 screening levels. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in four locations, ranging from 42.3 ppm to 76 ppm.

5.23.6.6 Background Determination

In addition to the NMED and USEPA Region 6 screening levels, metals results also were compared to background levels developed for specific areas of Kirtland AFB. SR766 falls within the North Super Group background values.

5.23.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR766 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.23.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. SR766 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.23.7.2 Buildings Near/Within MRA

There are no buildings within the physical range of SR766; however, there are multiple buildings associated with the airport and New Mexico Air National Guard in close proximity. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.23.7.3 Utilities On/Near MRA

There were no utilities visible within the physical range of SR766. Due to the proximity to airport operations, it is likely that underground utilities are present.

5.23.8 Natural Resources

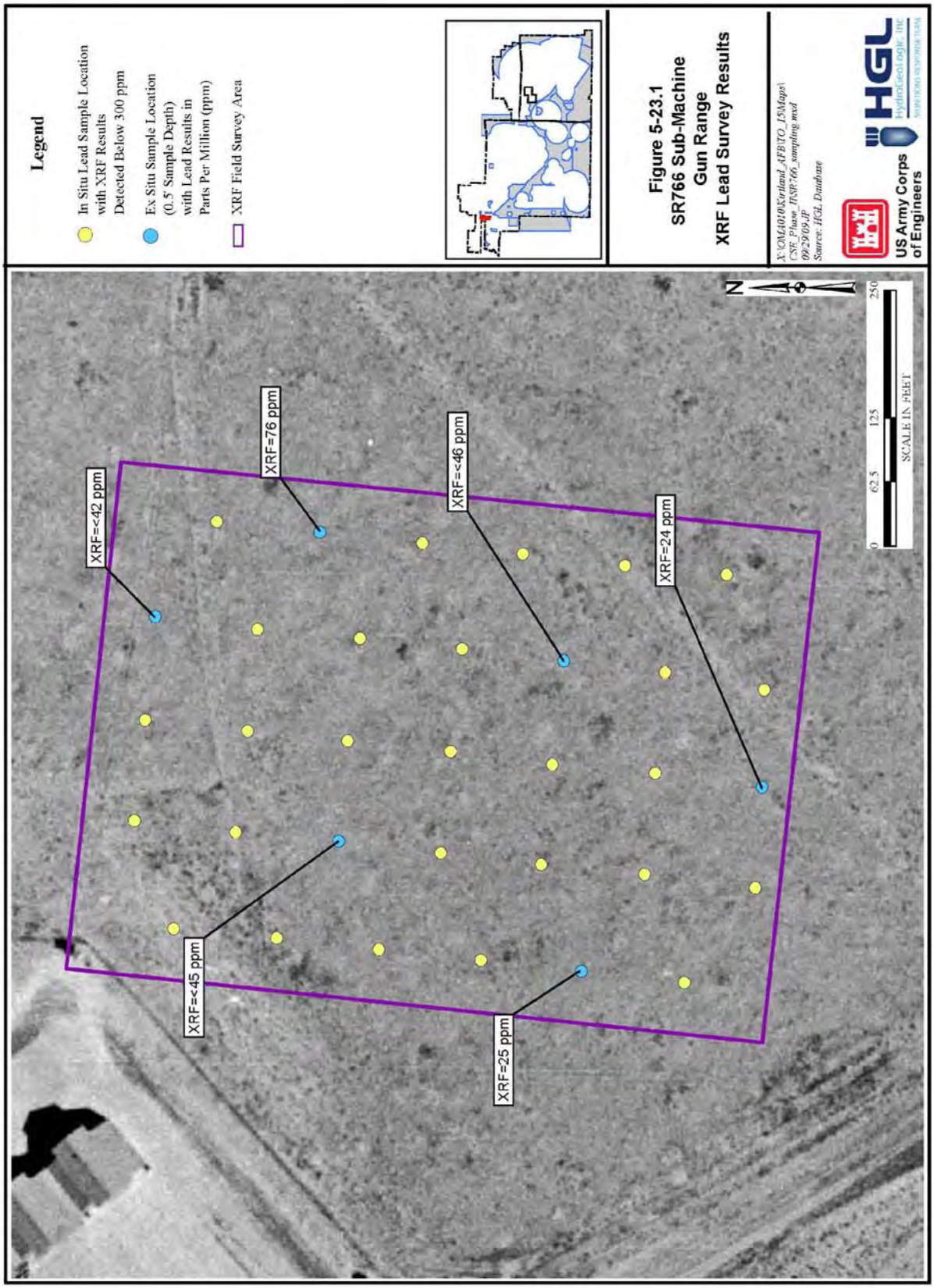
No threatened or endangered animal or plant species are known to exist in the areas comprising SR766.

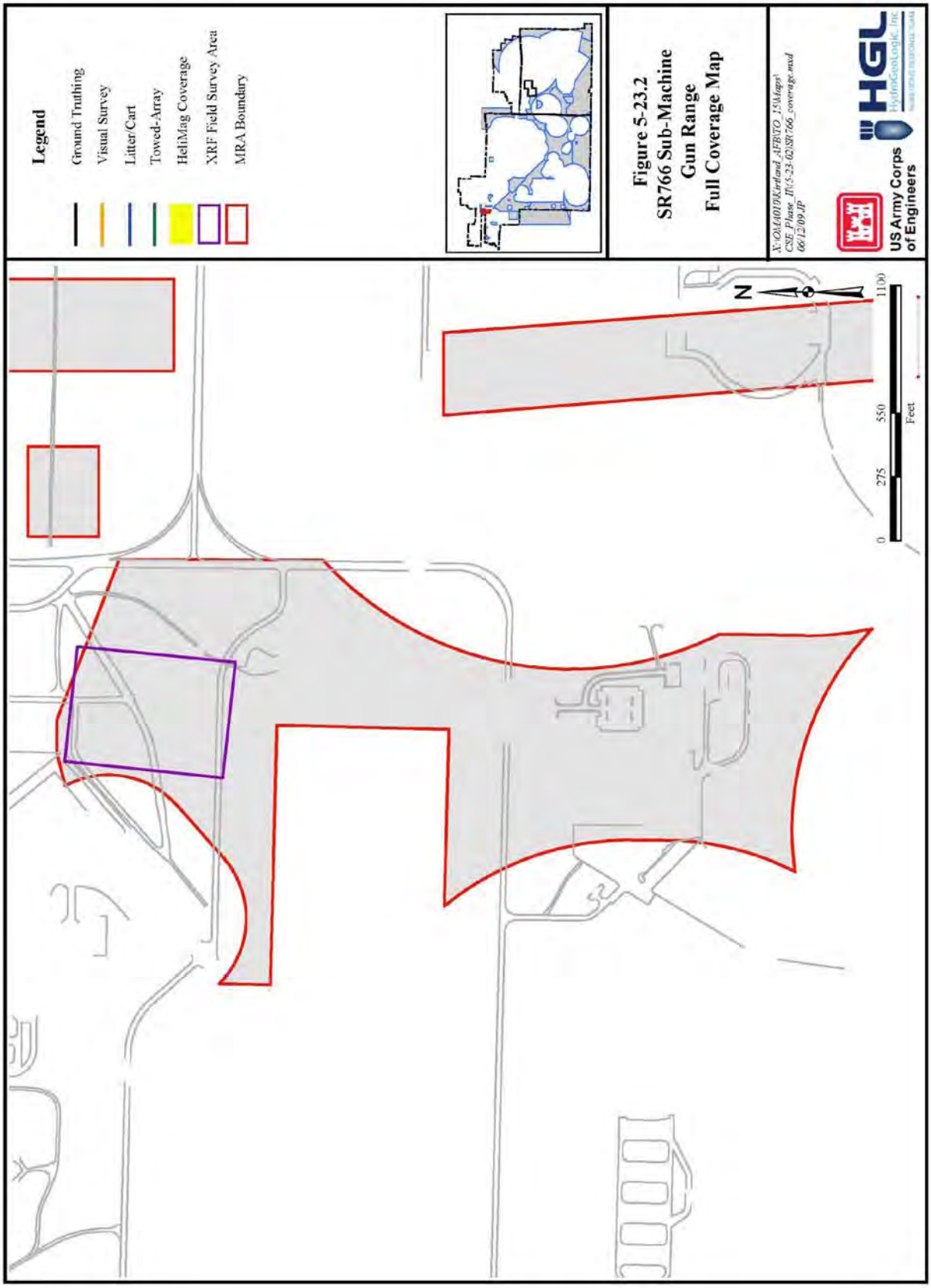
5.23.9 Sensitive Environments

Portions of SR766 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

Table 5-23.1. SR766 Sub-Machine Gun Range XRF Data

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
1	<34.4			<55.4	<28.4	<40.7	<41.9	32.6
2	<42							
3	<40.7							
4	<39.7							
5	<41.3							
6	<43.7							
7	<45.3							
8	<39.9							
9	42.3	26.8						
10	136.3	37.5	SR766-001	24.8	27.2	175.8	76	113.9
11	<40.5							
12	<41.3							
13	<29.3			<55.6	<42	<36.2	<44.6	22.3
14	<33.6							
15	<38							
16	<39.6							
17	<39.1							
18	<39.2							
19	<36.4							
20	42.5	22.1						
21	<34.2			<34.9	<48.9	<53.3	<45.7	21.0
22	<34.5							
23	<35.4							
24	50.5	29.4	SR766-002	26.7	24.5	24.7	25.3	4.8
25	44.7	25.4						
26	<33.6							
27	<31.7							
28	<34.8							
29	<40.7							
30	<40.4							
31	<35.9							
32	44.3	28.3	SR766-003	21.3	21.2	29.6	24	20.1
33	<36							


Legend
In Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-23.1
SR766 Sub-Machine Gun Range
XRF Lead Survey Results
X:\OMA010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\SR766_sampling.mxd
09/29/09 JP
Source: HGL Database
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
XRF=<42 ppm
XRF=76 ppm
XRF=<46 ppm
XRF=24 ppm
XRF=<45 ppm
XRF=25 ppm
N
0
62.5
125
250
SCALE IN FEET


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
XRF Field Survey Area
MRA Boundary
Figure 5-23.2
SR766 Sub-Machine
Gun Range
Full Coverage Map
X:\OLA01DK\rtland_AFB\TO_15\Maps\
CSE_Phase_II\5-23-02\SR766_coverage.mxd
06/12/09 JP
US Army Corps
of Engineers
HGL
HydroGeoLogic, Inc.
N
0
275
550
1100
Feet

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5.24 SR767 Rifle Range

5.24.1 Site Description

SR767 is a former rifle range located in the northwest portion of Kirtland AFB (Figure 5-24.1). The 3-acre MRA is classified as a small arms range. The terrain is flat and consists predominantly of grassland.

5.24.2 History of MEC Activities

SR767 is a WWII-era rifle range visible in 1950s aerial photographs, and reports indicate the range was used through the 1960s and 1970s. Historical information specific to this MRA did not indicate the caliber of munitions used at this site. However, supplemental historical information based on the time frame this site was used indicates that it was likely .30-caliber (Kirtland AFB, 1954).

5.24.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for SR767 includes administration and research, aircraft operations/maintenance, open space and industrial. Administration and research designation includes uses such as personnel, headquarters, legal, research, laboratory, and other support functions. Aircraft operations and maintenance includes uses that are closely associated with the airfield including maintenance hangars and docks, avionics, facilities such as control towers, base operations, and flight simulators. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities (US Air Force, 2002). Currently, the site is undeveloped open space (Figure 5-24.2).

5.24.4 Access Controls

There are no access controls for SR767.

5.24.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto SR767 is not restricted.

5.24.6 Field Investigation Results

CSE Phase II activities for SR767 included media sampling.

5.24.6.1 Site Reconnaissance Observations

SR767 has a jogging path that transects the property, located in the populated, urban/industrial northwest corner of Kirtland AFB. There is no remaining evidence of the rifle range. The MRA is flat grassland and no munitions-related items were observed.

5.24.6.2 Geophysical Survey Results

No geophysical surveys were conducted at SR767

5.24.6.3 Visual Survey

No visual surveys were conducted at SR767.

5.24.6.4 Ground Truthing

No ground truthing was conducted at SR767.

5.24.6.5 Media Sampling Results

Soil sample collection was concentrated in those areas of SR767 most likely to have been impacted by munitions use, which include the firing lines and impact berms. Sample locations are presented in Figure 5-24.13 and include XRF analysis for lead. The XRF results are listed in Table 5-24.1. None of the sample results exceeded the NMED or USEPA Region 6 screening levels. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 20 locations, ranging from 39.9 ppm to 60.7 ppm.

5.24.6.6 Background Determination

In addition to the NMED and USEPA Region 6 screening levels, metals results also were compared to background levels developed for specific areas of Kirtland AFB. SR767 falls within the North Super Group background values.

5.24.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR767 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.24.7.1 Nearby Population

Kirtland AFB is located just outside of the city of Albuquerque. SR767 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.24.7.2 Buildings Near/Within MRA

There are no buildings within the physical range of SR767. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.24.7.3 Utilities On/Near MRA

There are no utilities present within SR767.

5.24.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising SR767.

5.24.9 Sensitive Environments

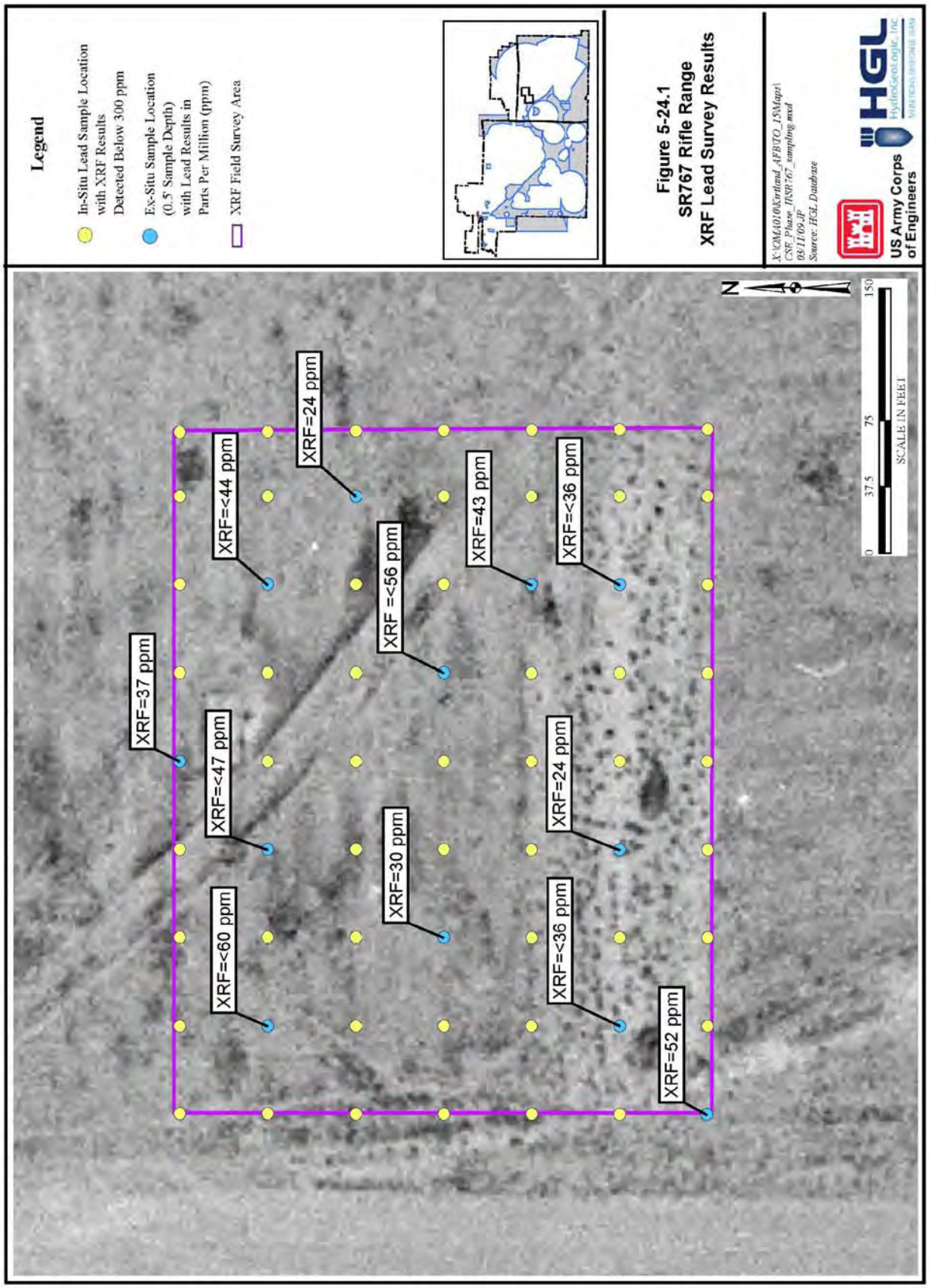
No sensitive environments are known to exist in or near SR767.

Table 5-24.1. SR767 Rifle Range XRF Results

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
1	50	20.1						
2	45.3	26.5						
3	60.7	25.7						
4	<29.8							
5	60.9	24.5	SR767-001	28.8	37.4	45.3	37.2	22.2
6	51.2	28.7						
7	<41.2							
8	asphalt trail							
9	53.4							
10	65	29						
11	<34.8			<61.5	<51.9	<65.1	<59.5	11.5
12	asphalt trail							
13	55.8	25.8	SR767-007	<54.9	<40.5	<44.6	<46.7	15.9
14	37.3	23.7						
15	53.9	24.7						
16	<40.9			<43.1	<49.1	<38.9	<43.7	11.7
17	47.5	25.1						
18	<30.9							
19	<39.8							
20	64.1	37.5	SR767-002	21.5	31.6	<19.9	24.3	26.9
21	<50.9							
22	<41.3							
23	asphalt trail							
24	<40.8							
25	<38.6							
26	40.8	20.7						
27	<34.7							
28	<36.6							
29	<67.5	30.8						
30	71.6	32.7	SR767-003	26.6	28.8	33.1	29.5	11.2
31	<47.3							
32	40.4	23.1						
33	<34.6			<48.7	<51.2	<68.1	<56.0	18.8
34	<36.4							
35	<34.9							
36	<34.2							
37	<43.7							
38	<40							
39	55.9	30.2	SR767-004	40.1	47.1	42.6	43.3	8.2
40	<37.2							

Table 5-24.1. SR767 Rifle Range XRF Results (Concluded, Page 2 of 2)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
41	44.3	25.8						
42	<37.3							
43	<43.1							
44	<34							
45	38.6	23.7						
46	<36.3							
47	<35.7			<28.3	<38.1	<40.9	<35.8	18.5
48	<34							
49	64	30.1	SR767-005	<18.6	20.4	31.9	23.6	30.5
50	36.1	22.8						
51	52.3	27.2						
52	<41.5			<41.3	<47.6	<19.5	<36.4	40.8
53	44.5	26						
54	39.9	20.9						
55	<35.3							
56	46.7	27.2						
57	<31.3							
58	<39.8							
59	<36.2							
60	<37.9							
61	43.3	27.7						
62	43.8	28.1						
63	<35.3		SR767-006	45.2	59.4	52.2	52.3	13.6


Legend
In-Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex-Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-24.1
SR767 Rifle Range
XRF Lead Survey Results
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\SR767_sampling.mxd
09/11/09 JP
Source: HGL Database
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
SCALE IN FEET
0
37.5
75
150
N
XRF=37 ppm
XRF=<44 ppm
XRF=24 ppm
XRF=<47 ppm
XRF=<56 ppm
XRF=43 ppm
XRF=<36 ppm
XRF=<60 ppm
XRF=30 ppm
XRF=24 ppm
XRF=<36 ppm
XRF=52 ppm

Legend
MRA Boundary
Figure 5-24.2
SR767 Rifle Range
Current Land Use
X:\CMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\SR767_landuse.mxd
03/11/09 JP
Source: HGL Database
US Army Corps
of Engineers
HGL
HydroGeologic, Inc.
0
37.5
75
150
SCALE IN FEET
N

5.25 SR768 Close Combat Infiltration course

5.25.1 Site Description

The SR768 Close Combat Infiltration Course is classified as a multi-use range. The 180.7-acre site comprises rocky, pinon-juniper studded foothills and is located in the central portion of Kirtland AFB (Figure 5-25.1).

5.25.2 History of MEC Activities

The history and use for SR768 are currently unknown.

5.25.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for SR768 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, SR768 is undeveloped space.

5.25.4 Access Controls

The majority of this area is behind locked gates and fencing. Along with its extreme remoteness on the base, chain-link and barbed-wire fencing with warning signs surround much of the MRA. Rough roads and steep inclines provide natural barriers in SR768.

5.25.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto SR768 is restricted, but not monitored.

5.25.6 Field Investigation Results

Only visual survey activities were conducted at SR768 due to the difficult terrain.

5.25.6.1 Site Reconnaissance Observations

Due to the steep, mountainous and often thickly-vegetated nature of the site, it was determined the entire MRA would be covered utilizing visual survey.

5.25.6.2 Geophysical Survey Results

No geophysical surveys were conducted at SR768.

5.25.6.3 Visual Survey

Approximately 95 acres of visual survey was completed at SR768 to characterize the site (Figure 5-25.1). The visual survey confirmed the presence of one 155mm base ejection round (Figure 5-25.2). It is likely the ejection round is from another MRA.

5.25.6.4 Ground Truthing

No ground truthing was conducted at SR768.

5.25.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, SR768 did not meet the established criteria for sample collection.

5.25.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.25.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR768 include authorized personnel, trespassers, and ecological receptors.

5.25.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. SR768 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.25.7.2 Buildings Near/Within MRA

There are 12 buildings within SR768. Of those buildings, one is numbered while the remaining 11 are unnumbered. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.25.7.3 Utilities On/Near MRA

There are utilities on or near this MRA.

5.25.8 Natural Resources

SR768 includes areas considered to be potential gray vireo habitat. The gray vireo, a state threatened species as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007).

5.25.9 Sensitive Environments

Portions of SR768 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

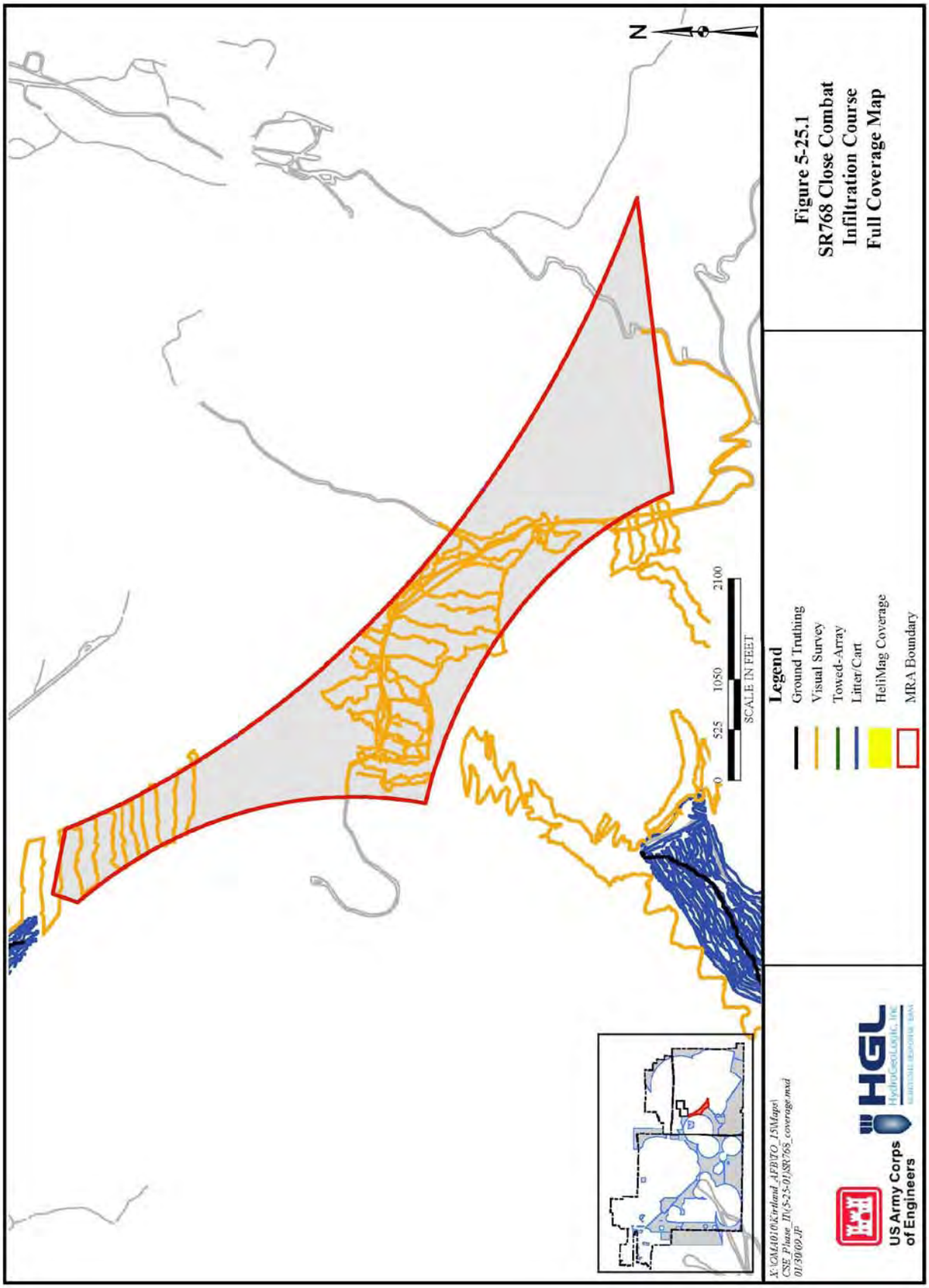
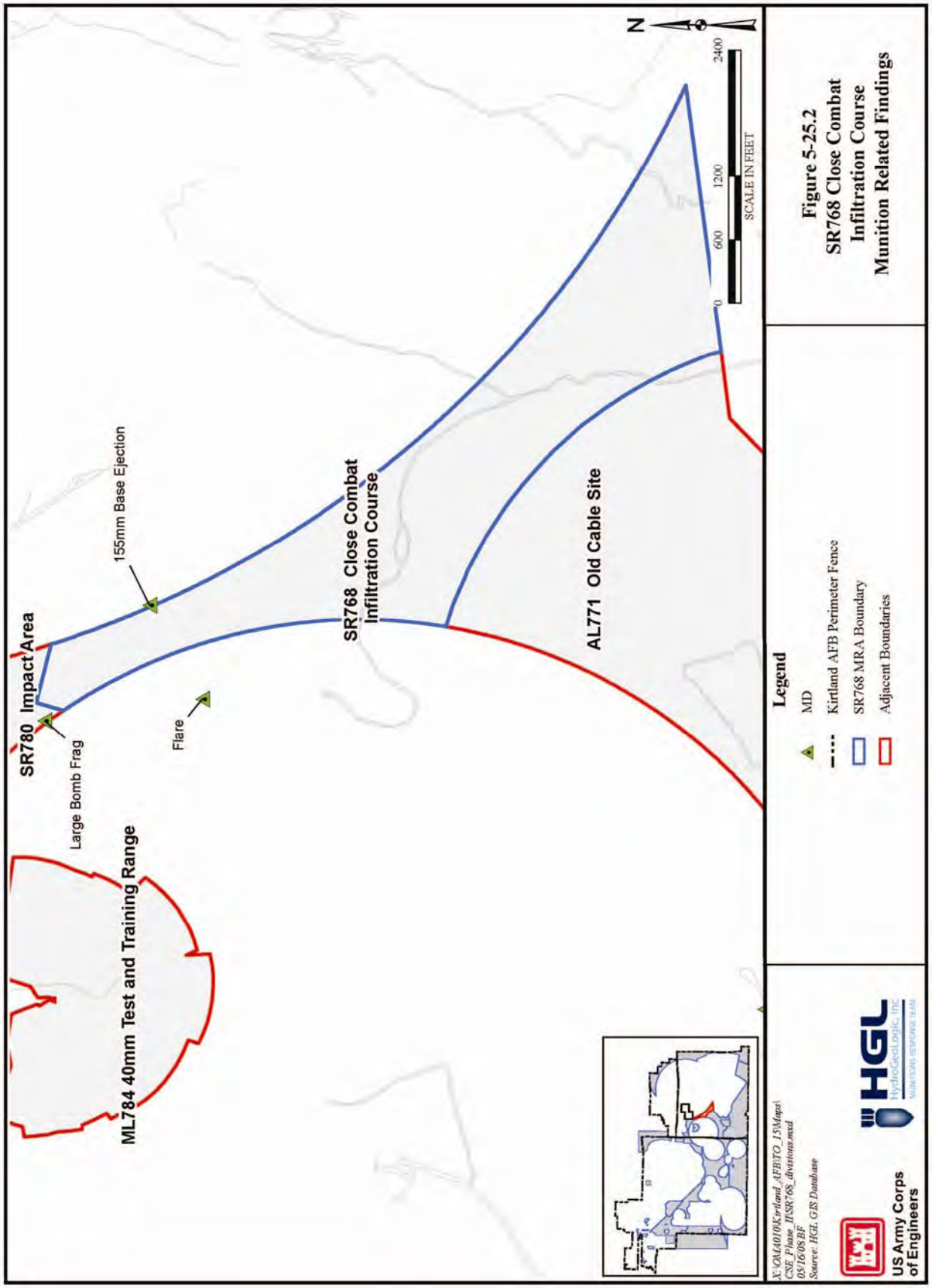
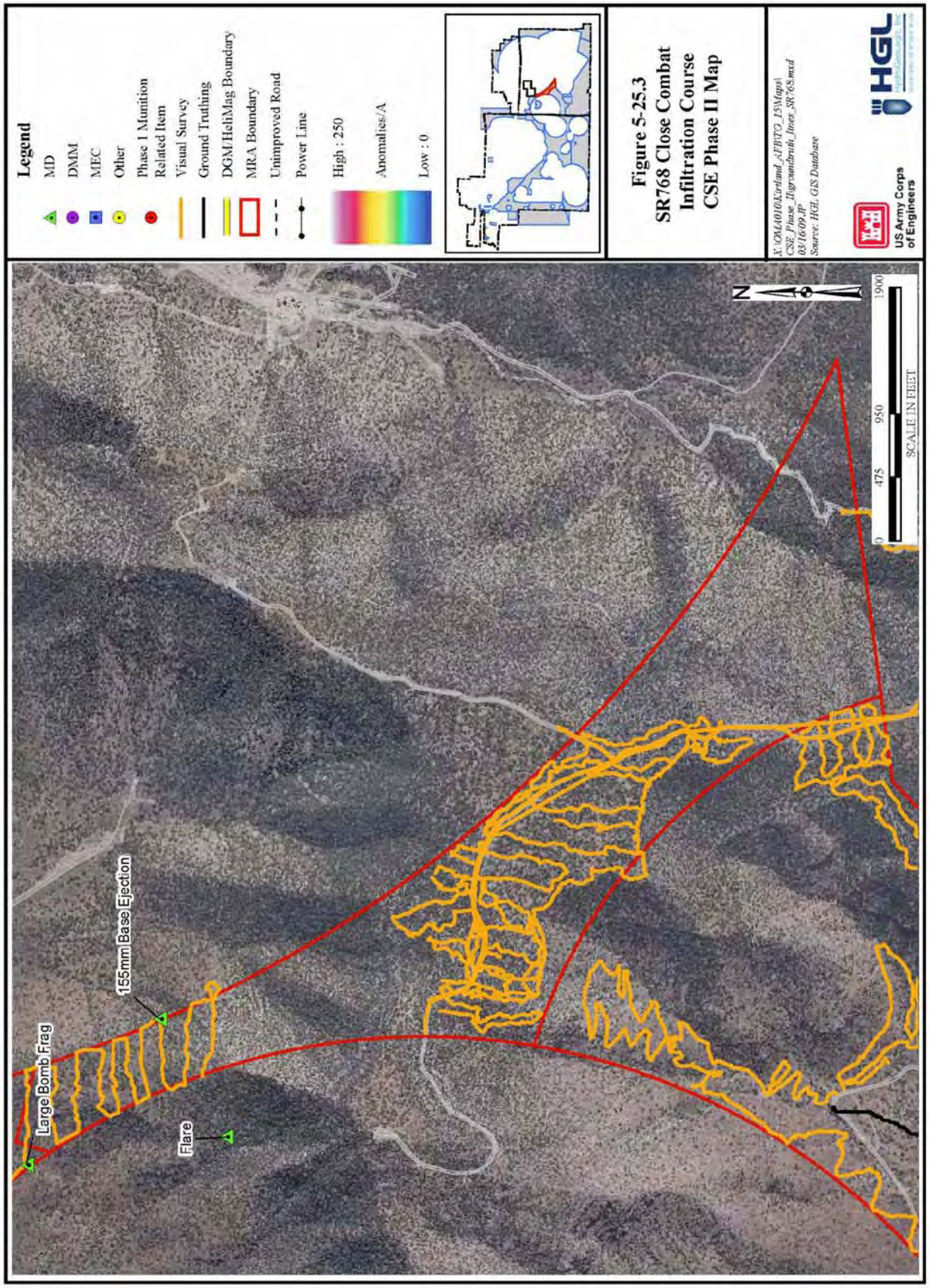


Figure 5-25.1
SR768 Close Combat
Infiltration Course
Full Coverage Map


SR780 Impact Area
155mm Base Ejection
Large Bomb Frag
Flare
ML784 40mm Test and Training Range
SR768 Close Combat Infiltration Course
AL771 Old Cable Site
N
0
600
1200
2400
SCALE IN FEET
Legend
MD
Kirtland AFB Perimeter Fence
SR768 MRA Boundary
Adjacent Boundaries
Figure 5-25.2
SR768 Close Combat Infiltration Course Munition Related Findings
X:\OM\4010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\SR768_divisions.mxd
05/16/08 BF
Source: HGL GIS Database
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc.
MINERVA REMEDIAL TEAM


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/A
Low : 0
Figure 5-25.3
SR768 Close Combat Infiltration Course CSE Phase II Map
X:\OMA010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\groundtruth_lines_SR768.mxd
03/16/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
Large Bomb Frag
155mm Base Ejection
Flare
N
0
475
950
1900
SCALE IN FEET

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5.26 SR777 Rifle Range

5.26.1 Site Description

SR777 is classified as a small arms range. The 51-acre range is located in the northwest portion of Kirtland AFB and consists of flat, grassy terrain (Figure 5-26.1).

5.26.2 History of MEC Activities

The following two ranges were identified as being associated with SR777. They were part of the Defense Training Areas used by Sandia Base in the 1950s (TLI, 2006):

1 **Defense Training Area I** – This range was used for company attack problems, extended close order drills, "dry firing", combat and field exercises, and was suitable for night exercises. This range was re-aligned and contained SR777 at one point.
2 **Defense Training Area K** – This range was used for company attack problems, extended close order drills, "dry firing", combat and field exercises, and was suitable for night exercises. This range was re-aligned and contained SR777 at one point.

Despite mention of the ranges in Kirtland AFB documents, no aerial evidence of this MRA was found in historical photographs. Historical information specific to this MRA did not indicate the caliber of munitions used at this site. However, supplemental historical information based on the time frame this site was used indicates that it was likely .30-caliber (Kirtland AFB, 1954).

5.26.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for SR777 is that of constrained land use. Areas designated as constrained land use have been so designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (USAF, 2002). Currently SR777 is undeveloped open space.

5.26.4 Access Controls

There are no access controls for SR777.

5.26.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto SR777 is unrestricted.

5.26.6 Field Investigation Results

CSE Phase II activities at SR777 consisted of groundtruthing.

5.26.6.1 <u>Site Reconnaissance Observations</u>

The site is generally flat, located west of the Manzano uplift on the gently, north-northwest sloping alluvial fan.

5.26.6.2 Geophysical Survey Results

No geophysical surveys were conducted at SR777.

5.26.6.3 Visual Survey

The entire MRA was extensively covered during the visual survey. (Figure 5-26.1). No munitions-related items or evidence of a small arms range were observed.

5.26.6.4 Ground Truthing

No ground truthing was conducted at SR777.

5.26.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, SR777 did not meet the established criteria for sample collection.

5.26.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.26.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR777 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.26.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. SR777 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.26.7.2 Buildings Near/Within MRA

There are no buildings within SR777. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.26.7.3 Utilities On/Near MRA

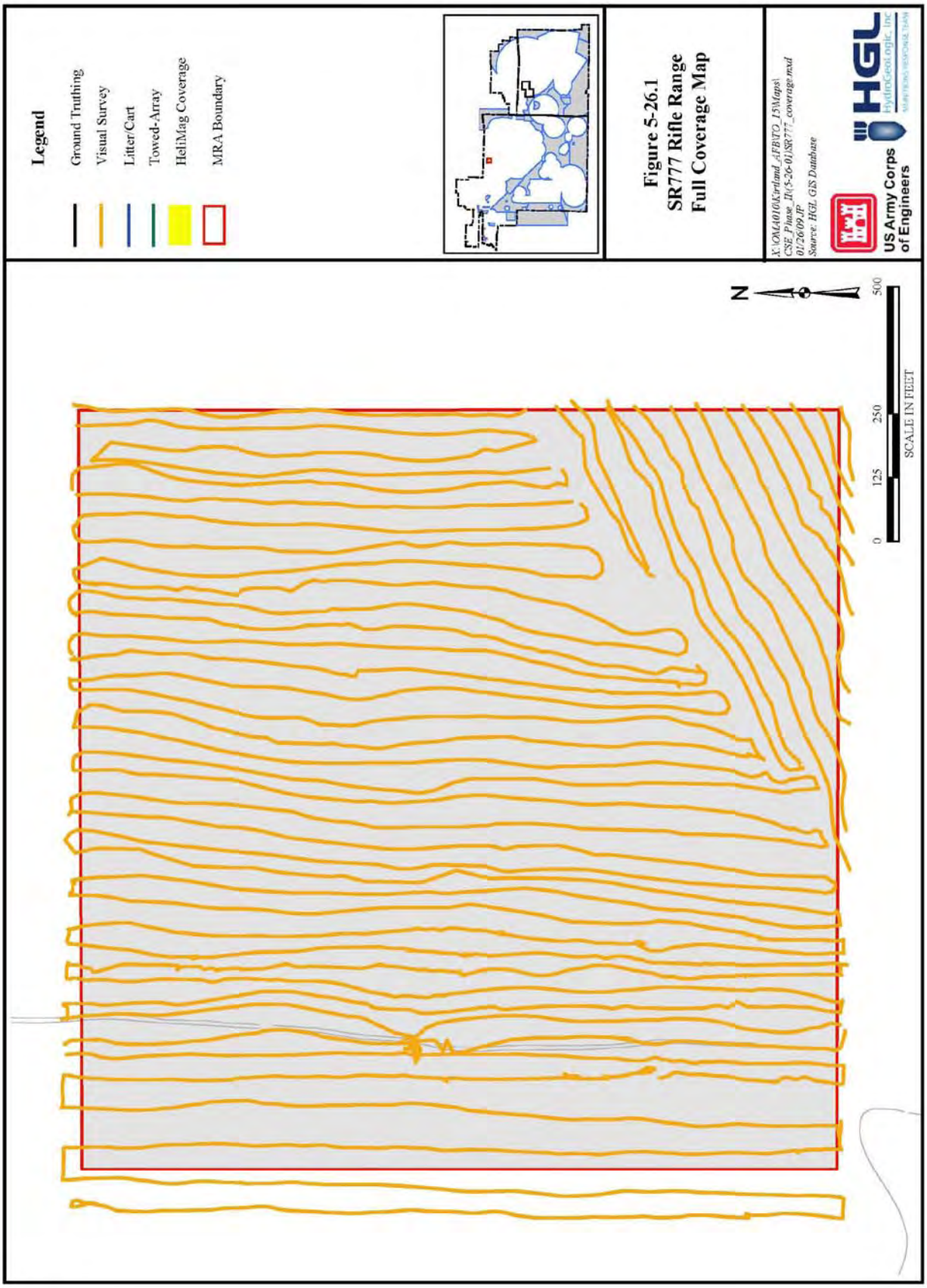
There are no utilities present within SR777.

5.26.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising MRA SR777.

5.26.9 Sensitive Environments

Unnamed arroyos exist near SR777. Portions of SR777 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-26.1
SR777 Rifle Range
Full Coverage Map
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE Phase_II\5-26-01\SR777_coverage.mxd
01/26/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
Hydrogeologic, Inc.
N
0
125
250
500
SCALE IN FEET

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5.27 SR778 Airfield Pistol Range

5.27.1 Site Description

SR778 Airfield Pistol Range is a 2-acre located in the northwest portion of Kirtland AFB. SR778 is classified as small arms range, and consists of flat, grassy terrain (Figure 5-27.1).

5.27.2 History of MEC Activities

The site was a pistol range visible in 1950s aerial photographs, but the years of operation are unknown. Historical information specific to this MRA did not indicate the caliber of munitions used at this site. However, supplemental historical information based on the time frame this site was used indicates that it was likely .45-caliber (Kirtland AFB, 1954).

5.27.3 Current Land Use

The area comprising SR778 is now utilized as a fire training area (Figure 5-27.2). According to the Kirtland AFB General Plan, the current land-use scenario for SR778 includes administration and research, open space and industrial. Administration and research designation includes uses such as personnel, headquarters, legal, research, laboratory, and other support. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities (US Air Force, 2002).

5.27.4 Access Controls

There are no access controls in place for SR778.

5.27.5 Restrictions

Once on Kirtland AFB property, entry onto SR778 is not restricted.

5.27.6 Field Investigation Results

CSE Phase II activites consisted of visual survey.

5.27.6.1 Site Reconnaissance Observations

The site is relatively flat, located on the alluvial fan/mesa top on the edge of the escarpment that descends into the Tijeras Arroyo.

5.27.6.2 Geophysical Survey Results

No geophysical surveys were conducted at SR778.

5.27.6.3 Visual Survey

Visual survey at SR778 revealed that this former pistol range was no longer visibly present. The area comprising the former pistol range is now utilized as the Kirtland AFB Aircraft Fire Training Area and is covered with asphalt. Figure 5-27.1 shows the approximate location of the former pistol range in relation to the current training area.

5.27.6.4 Ground Truthing

Ground truthing was not conducted at SR778.

5.27.6.5 Media Sampling Results

Because the area of the MRA was paved as part of the Kirtland AFB Aircraft Fire Training Area, an XRF field survey was not conducted and no samples were collected.

5.27.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.27.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR778 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.27.7.1 Nearby Population

Kirtland AFB is located just outside of the city of Albuquerque. SR778 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.27.7.2 Buildings Near/Within MRA

There are no buildings within SR778; however a structure utilized for fire training exercises is present. The Population Near Hazard data indicates there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.27.7.3 Utilities On/Near MRA

Because it is a fire training area, it is possible that there are water utilities and possibly a storm sewer near the MRA.

5.27.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising SR778.

5.27.9 Sensitive Environments

No sensitive environments are known to exist in or near SR778.

Figure 5-27.1
SR778 Airfield Pistol Range
Historic Land Use

Figure 5-27.2
SR778 Airfield Pistol Range
Current Land Use

5.28 SR780 Impact Area

5.28.1 Site Description

Located in the central portion of Kirtland AFB, the SR780 Impact Area has been determined to be associated with the Madera Canyon Gun Site (Figure 2-7). The area formerly referred to as SR780 actually exists within AL120 northcentral; however, the original area thought to be SR780 was investigated as part of the CSE Phase II investigation (Figure 5-28.1). Investigation details are presented below. As described in Sections 13 and 14, the area and acreage previously shown as SR780 will be added to the boundary of AL120 northcentral.

5.28.2 History of MEC Activities

The period of use and purpose of SR780 are unknown.

5.28.3 Current Land Use

According to the Kirtland AFB General Plan, SR780 falls within the constrained land use category. Areas designated as constrained land use have restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (Kirtland AFB, 2005a).

5.28.4 Access Controls

There are no access controls for SR780. The steep mountainous terrain and extremely rough roads provide physical barriers making access difficult.

5.28.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto SR780 is not restricted.

5.28.6 Field Investigation Results

CSE Phase II activities included litter/cart, visual survey, and ground truthing.

5.28.6.1 Site Reconnaissance Observations

This area is characterized by moderate to steep rolling piñon-juniper/grassland foothills. The site reconnaissance observations for the SR780 acreage were included within the SR768 MRA as part of the initial site reconnaissance.

5.28.6.2 Geophysical Survey Results

The geophysical survey included 98 acres of litter/cart (Figure 5-28.2). The geophysical survey revealed four areas of high anomaly density (Figure 5-28.1). During UXO avoidance for the litter/cart, munitions-related items observed included one 155mm base ejecting round (Figure 5-28.3).

5.28.6.3 Visual Survey

Approximately 43 acres of visual survey was completed at SR780 (Figure 5-28.2). Non munitions-related items observed include fencing and an observation tower. Large bomb fragments were observed (Figure 5-28.3).

5.28.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in "track" mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 11 miles of ground truthing were completed in this MRA (Figure 5-28.2). No MEC or non-MEC related items were found during ground truthing.

5.28.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, SR780 did not meet the established criteria for sample collection.

5.28.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.28.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for SR780 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.28.7.1 Nearby Populations

Kirtland AFB is located just outside of the City of Albuquerque. SR780 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to miles from the boundary of the MRA.

5.28.7.2 Buildings Near/Within MRA

There are no buildings in SR780, but several buildings exist in close proximity.

5.28.7.3 Utilities On/Near MRA

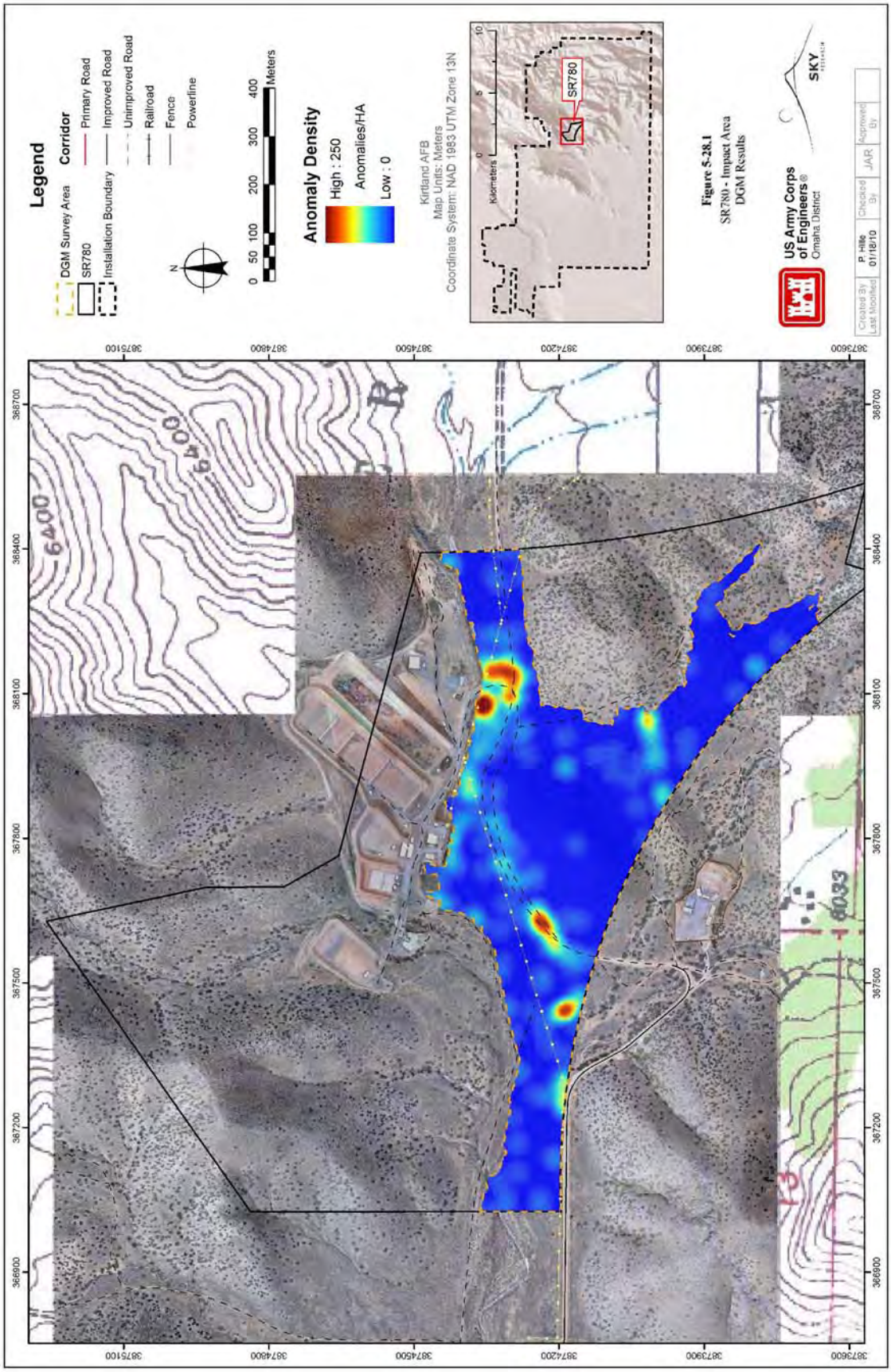
Due to its proximity to multiple buildings, there are electric, water, and sewer utilities located near this MRA.

5.28.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising SR780.

5.28.9 Sensitive Environments

Portions of SR780 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).


Legend
DGM Survey Area
SR780
Installation Boundary
Corridor
Primary Road
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 50 100 200 300 400 Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
Kilometers
SR780
Figure 5-28.1
SR780 - Impact Area
DGM Results
US Army Corps of Engineers®
Omaha District
SKY
Created By P. Hiller
Last Modified 01/18/10
Checked By JAR
Approved By
6400
6033

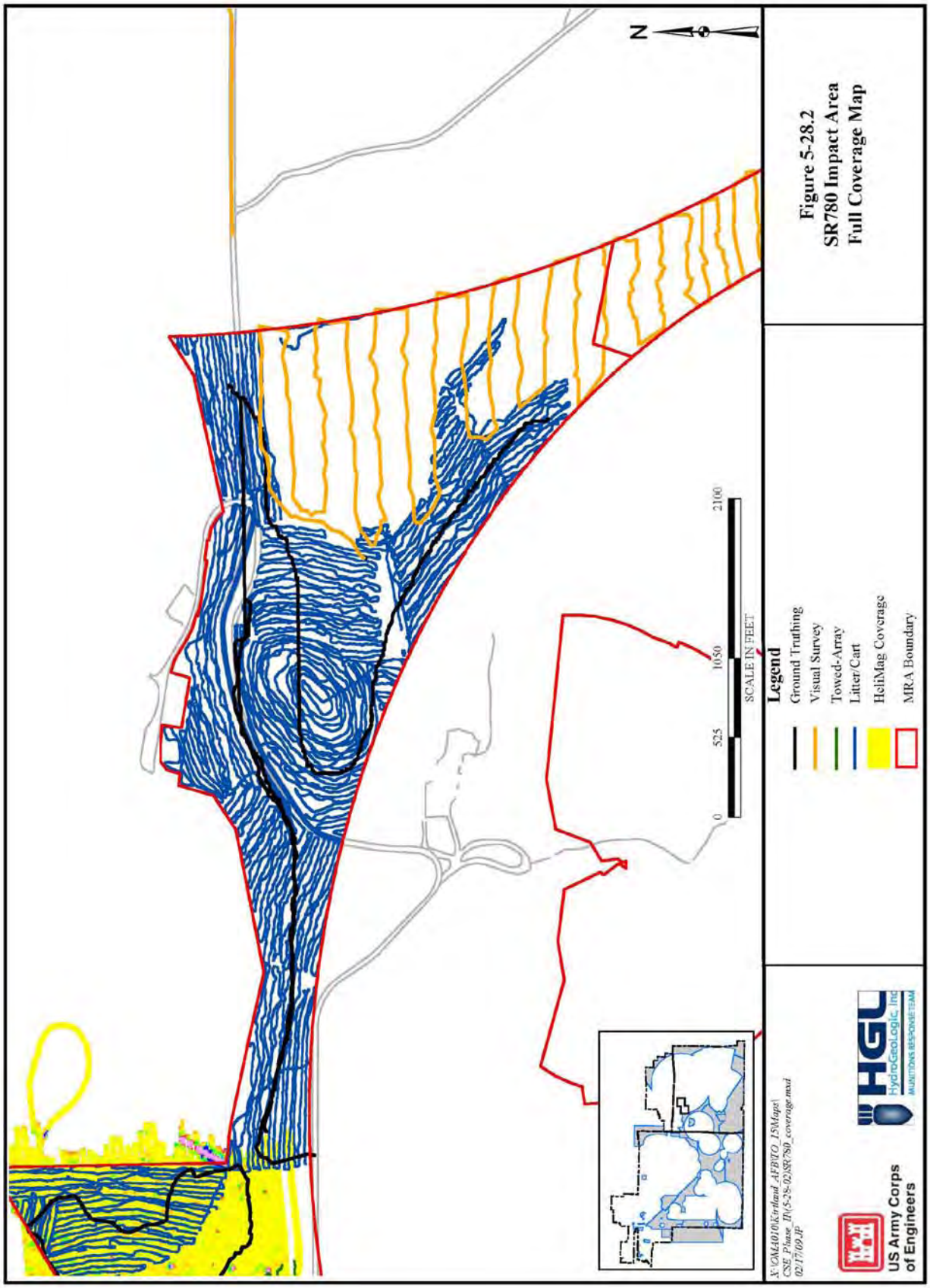
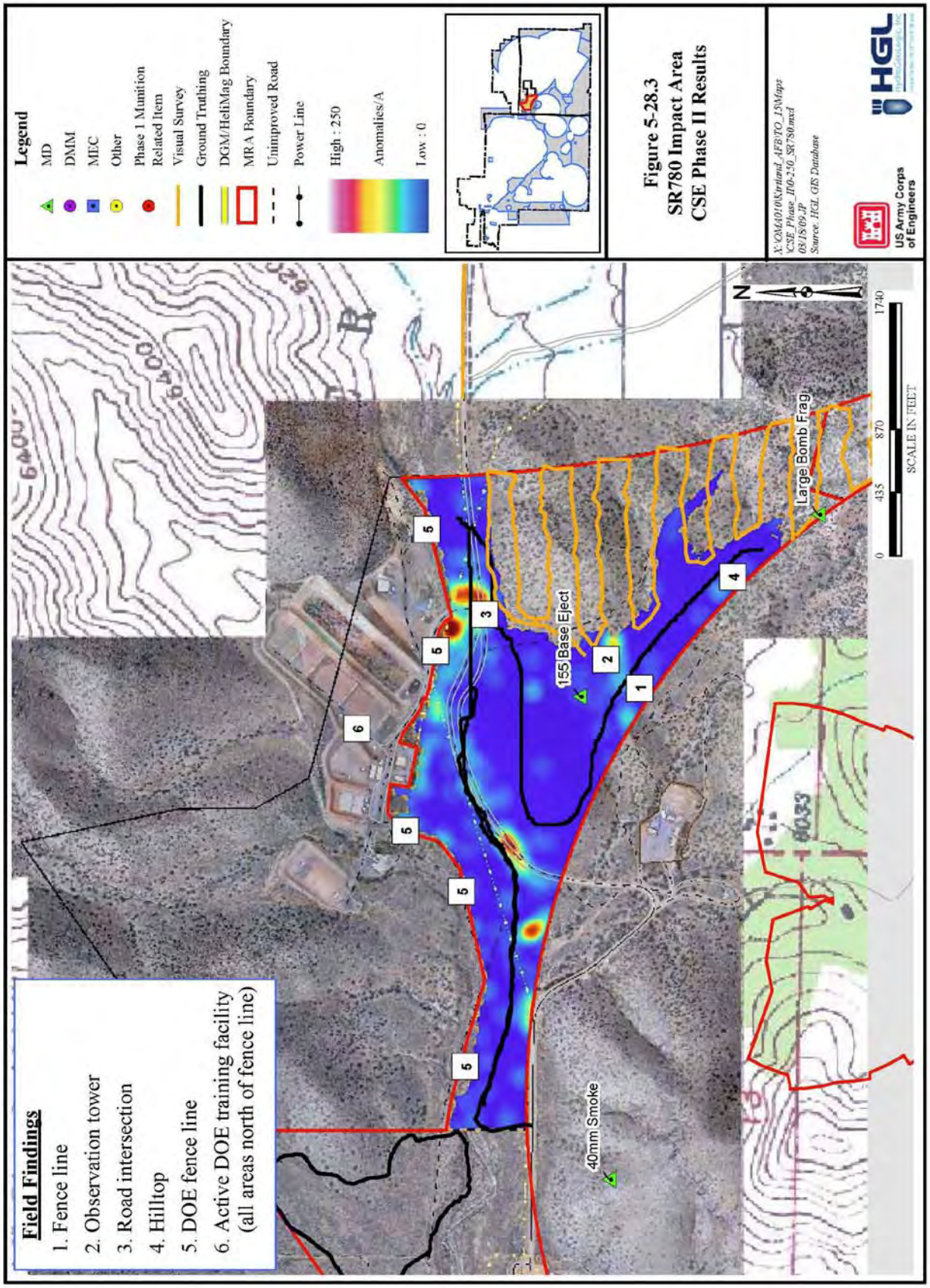


Figure 5-28.2
SR780 Impact Area
Full Coverage Map


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/A
Low : 0
Figure 5-28.3
SR780 Impact Area
CSE Phase II Results
X:\OMA010\Kirtland_AFB\TO_15\Maps\CSE Phase_II\0-250_SR780.mxd
08/18/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
Field Findings
1. Fence line
2. Observation tower
3. Road intersection
4. Hilltop
5. DOE fence line
6. Active DOE training facility (all areas north of fence line)
155 Base Eject
Large Bomb Frag
40mm Smoke
0
435
870
1740
SCALE IN FEET
N

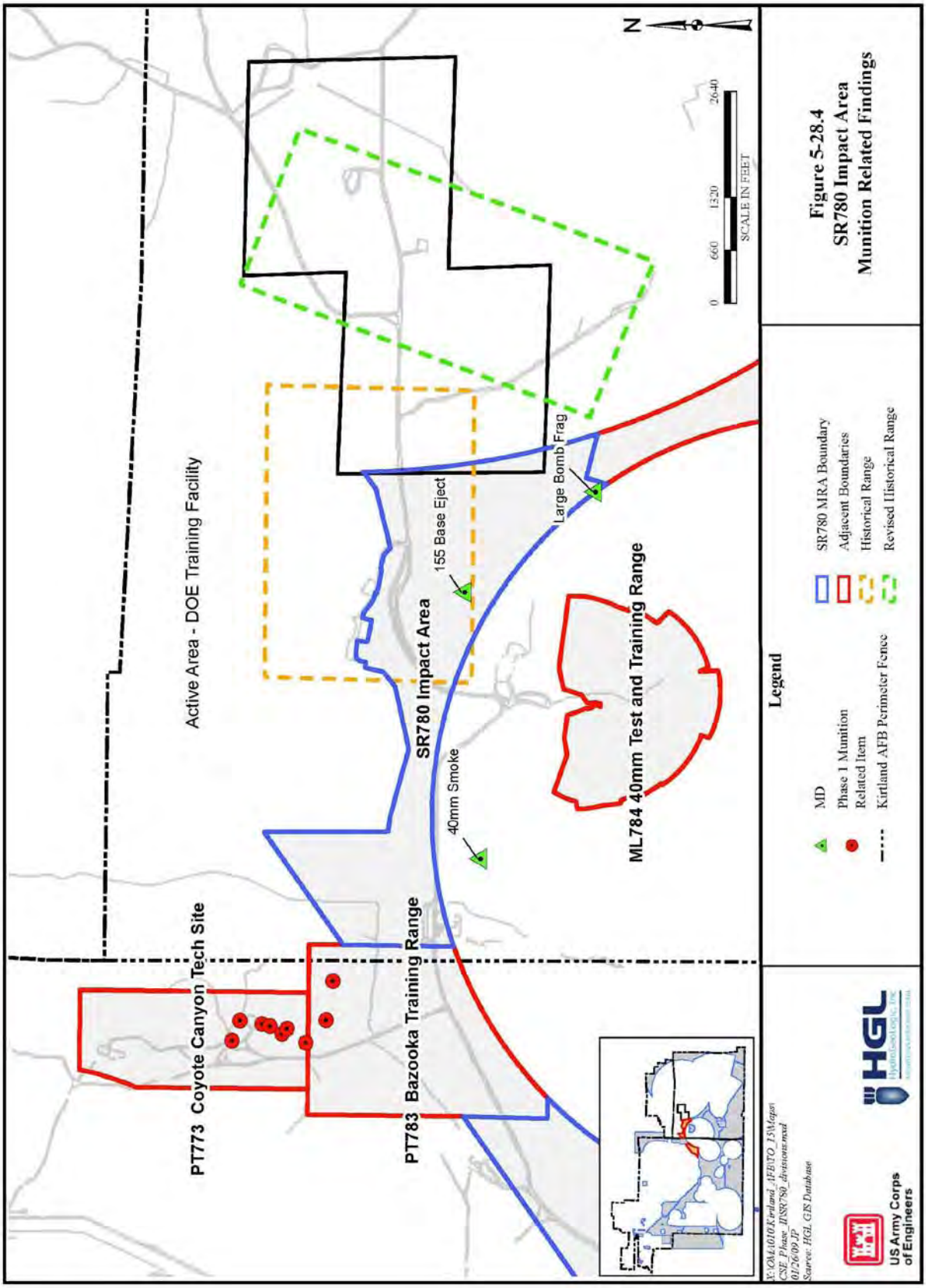


Figure 5-28.4
SR780 Impact Area
Munition Related Findings

5.29 TG100 Bomb Target

5.29.1 Site Description

TG100 Bomb Target is located in the northwest corner of Kirtland AFB. The 37.8-acre MRA is classified as an air-to-ground range, consisting of predominantly flat grassland (Figure 5-29.1).

5.29.2 History of MEC Activities

TG100 was identified in a 1958 aerial photograph that showed the outline of a bomb target. Its years of use are unknown. The ordnance used at this site is 100-lb practice bombs based on the presence of tail fins and other debris found with the MRA. These findings are corroborated with historical information pertaining to 100-lb practice bombs (Ordnance Pamphlet 1280, 1945).

5.29.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for TG100 includes industrial and constrained land use. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities. Areas designated as constrained land use have been designated as a result of restrictions imposed by airfield or explosive safety criteria, physical constraints, zoning, and compatibility with the development of surrounding communities (US Air Force, 2002). Currently, TG100 is undeveloped open space.

5.29.4 Access Controls

Partial fencing and warning signs exist around TG100.

5.29.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto TG100 is not restricted.

5.29.6 Field Investigative Results

CSE Phase II activities at TG100 included HeliMag and ground truthing.

5.29.6.1 Site Reconnaissance Observations

Site reconnaissance of TG100 prior to the CSE Phase II Investigation revealed MD fragments on the site. This area, located within the broad floodplain of the Tijeras Arroyo, is characterized by low rolling sandy hills cut by multiple gullies that descend into the bottom of the arroyo.

5.29.6.2 Geophysical Survey Results

The geophysical survey included 38 acres of HeliMag, which revealed a low anomaly density (Figure 5-29.1).

5.29.6.3 Visual Survey

No visual survey was conducted at TG100.

5.29.6.4 Ground Truthing

Ground truthing transect data was collected using the GPS in “track” mode. The GPS data was then loaded into ArcGIS and mileage was calculated by the program. Because there were 3 people walking approximately 10 to 15 ft apart during ground truthing, the mileage was then multiplied by 3. The ground truthing number reported includes the multiplier.

Approximately 12 miles of ground truthing were completed at TG100 (Figure 5-29.2). Ground truthing confirmed munitions debris items including 100-lb practice bomb debris, 100 lb bomb fuze, practice bomb skin, 100 lb fin assembly debris and a 2.75" rocket container cap (Figure 5-29.3 and Figure 5-29.4). Non-munitions surface items were also observed including a power line and fencing.

5.29.6.5 Media Sampling Results

In accordance with Section 6.15.2.4 of the CSE Phase II Work Plan, TG100 did not meet the established criteria for soil sample collection.

5.29.6.6 Background Determination

No media samples were collected for comparison to background concentrations.

5.29.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for TG100 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors

5.29.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. TG100 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.29.7.2 Buildings Near/Within MRA

There are no buildings within TG100. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.29.7.3 Utilities On/Near MRA

Electric utilities exist within TG100.

5.29.8 Natural Resources

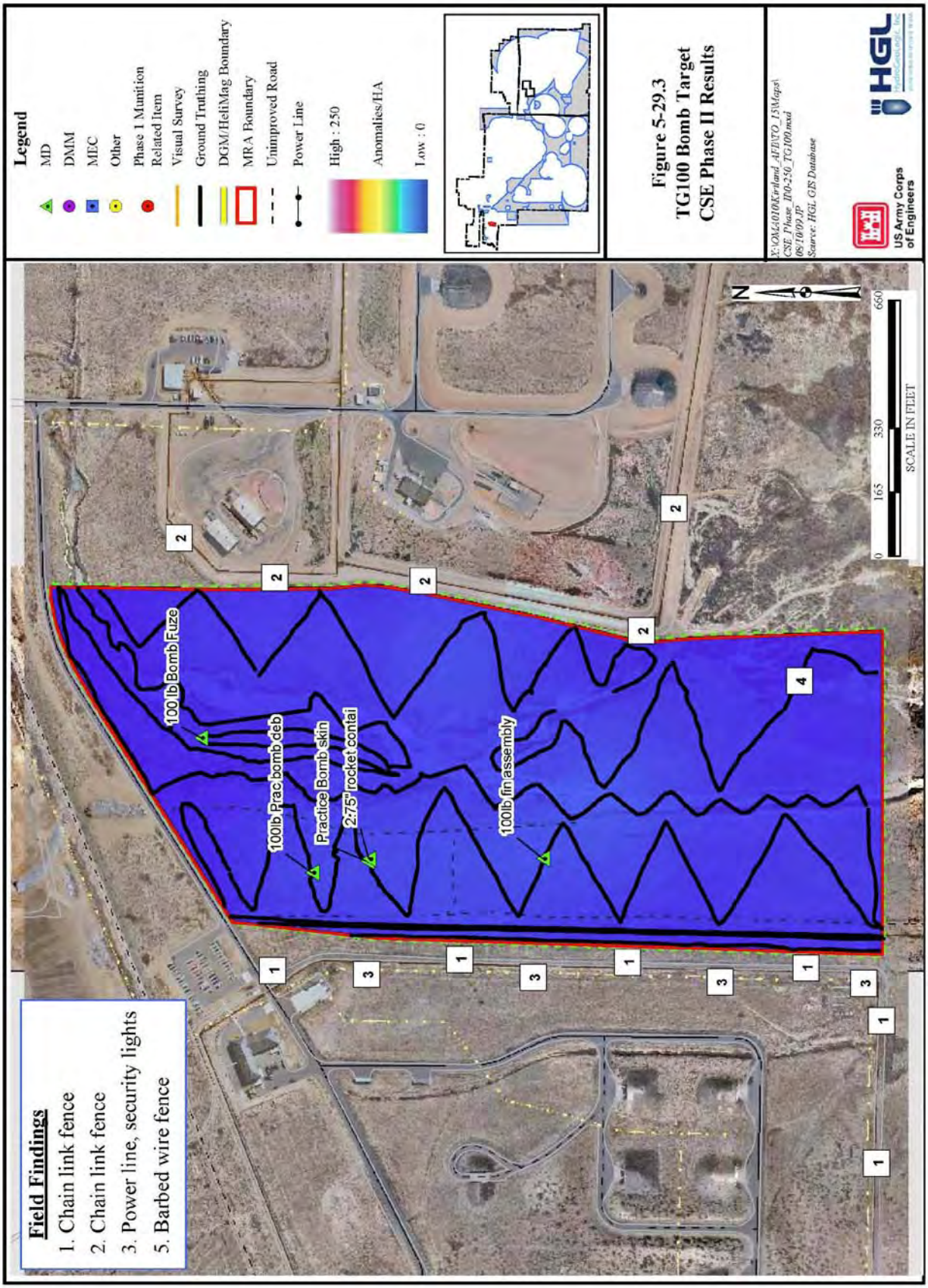
No threatened or endangered animal or plant species are known to exist in the areas comprising TG100.

5.29.9 Sensitive Environments

TG100 is in proximity to Arroyo del Coyote, the primary surface water feature on Kirtland AFB. Portions of TG100 either contain or are in close proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

Legend
HeliMag Survey Area
Corridor
Bomb Target
Primary Road
Installation Boundary
Improved Road
Unimproved Road
Railroad
Fence
Powerline
N
0 25 50 100 150 200 Meters
Anomaly Density
High : 250
Anomalies/HA
Low : 0
Kirtland AFB
Map Units: Meters
Coordinate System: NAD 1983 UTM Zone 13N
Kilometers
0 5 10
TG100
Figure 5-29.1
TG100 - Bomb Target
HeliMag Results
US Army Corps of Engineers®
Omaha District
SKY
Created By P. Hille
Last Modified 01/18/10
Checked By JAR
Approved By
355000
355200
355400
355600
355800
3878200
3878000
3877800

Legend
Ground Truthing
Visual Survey
Litter/Cart
Towed-Array
HeliMag Coverage
MRA Boundary
Figure 5-29.2
TG100 Bomb Target
Full Coverage Map
X:\Q\Ai010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\5-29-02\TG100_coverage.mxd
9/3/05 JP
US Army Corps
of Engineers
HGL
Hydrogeologic, Inc.
N
0
165
330
660
SCALE IN FEET


Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Visual Survey
Ground Truthing
DGM/HeliMag Boundary
MRA Boundary
Unimproved Road
Power Line
High : 250
Anomalies/HA
Low : 0
Figure 5-29.3
TG100 Bomb Target
CSE Phase II Results
US Army Corps of Engineers
HGL
Field Findings
1. Chain link fence
2. Chain link fence
3. Power line, security lights
5. Barbed wire fence
100 lb Bomb Fuze
100lb Prac bomb deb
Practice Bomb skin
2.75" rocket contai
100lb fin assembly
SCALE IN FEET
0
165
330
660
N

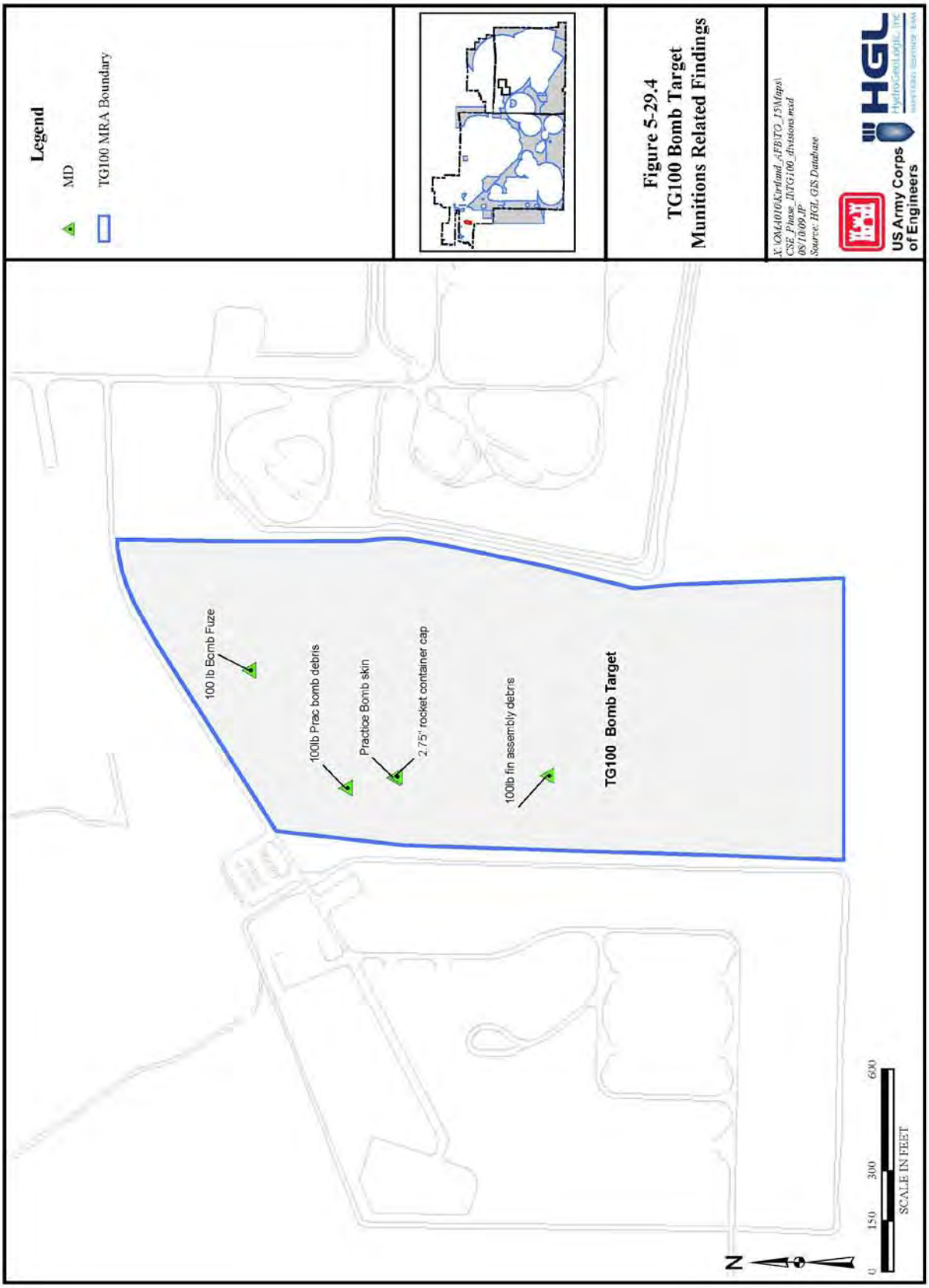


Figure 5-29.4
TG100 Bomb Target
Munitions Related Findings

5.30 TS775 Airfield Skeet Range

5.30.1 Site Description

TS775 is a former 25-acre trap and skeet range located in the northwest portion of Kirtland AFB (Figure 5-30.1). The terrain is predominantly flat grassland.

5.30.2 History of MEC Activities

TS775 is suspected of being a WWII-era trap and skeet range; however, the years of operation are unknown. The range is visible in aerial photograhs from the 1950s. The shotgun gauges specifically used at this site are unknown; however, according to historical information regarding Air Force skeet ranges, it is likely that 10- and 12- gauge shotguns were used (Kirtland AFB, 1954).

5.30.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for TS775 includes administration and research, open space and industrial. Administration and research designation includes uses such as personnel, headquarters, legal, research, laboratory, and other support functions. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity. Industrial uses include sites for supply storage, base maintenance, and utility and munitions facilities (US Air Force, 2002). Currently, the site is undeveloped open space located adjacent to an airport runway (Figure 5-30.3).

5.30.4 Access Controls

TS775 is within the fenced area of the airport runway and can only be accessed through coordination with Kirtland Base Operations.

5.30.5 Restrictions

Once access onto Kirtland AFB is obtained, entry on to TS775 is restricted and monitored. Permission is required from Kirtland Base Operations and an escort to the site is mandatory.

5.30.6 Field Investigation Results

CSE Phase II activities included media sampling.

5.30.6.1 Site Reconnaissance Observations

Clay targets and spent pellets were observed and expended shotgun shells were visible on the eastern portion of this skeet range. The western portion of the range appears to have had a layer of gravel emplaced across the surface and obvious grading work conducted. The extent of the gravel is visible in Figure 5-30.3. The concrete walkways visible in the historic aerial photographs are still in place where the firing points were located.

5.30.6.2 Geophysical Survey Results

No geophysical surveys were conducted at TS775.

5.30.6.3 Visual Survey

No visual survey was conducted at TS775.

5.30.6.4 Ground Truthing

No ground truthing was conducted at TS775.

5.30.6.5 Media Sampling Results

Soil samples were collected from the eastern portion of the suspected physical range of TS775. The western portion of the range was not assessed because of the gravel layer on the surface. Sample locations were placed across the skeet range because the depth of the gravel layer was unknown. When sampling activities were conducted, attempts to get below the gravel layer were not successful because it extended beyond a depth of 6 inches. The eastern portion of the site has visible evidence of the skeet range and sampling was conducted to determine if contamination was present to satisfy the requirements of the CSE Phase II.

The XRF results are listed in Table 5-30.1. None of the XRF results exceeded the NMED and USEPA Region 6 screening levels for lead. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 11 locations. The results ranged from 39.3 ppm to 140.1 ppm, which are slightly above background. In all ten samples analyzed for PAHs, at least one analyte exceeded one or both screening levels. In Table 5.30-2, the shaded results exceeded the USEPA Region 6 screening levels and the bold results exceeded the NMED screening levels (Appendix H).

5.30.6.6 Background Determination

In addition to the NMED and USEPA Region 6 screening levels, metals results were also compared to background levels developed for specific areas of Kirtland AFB. TS775 falls within the North Super Group background values.

5.30.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for TS775 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.30.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. TS775 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.30.7.2 Buildings Near/Within MRA

There are no buildings within the physical range of TS775. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.30.7.3 Utilities On/Near MRA

There are no visible utilities within the physical range of TS775; however, due to its proximity to airport operations there may be underground utilities.

5.30.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising TS775.

5.30.9 Sensitive Environments

No sensitive environments are known to exist in or near TS775.

Table 5-30.1. TS775 Airfield Skeet Range XRF Results

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
1	44.3	26.8						
2	58.4	28.8	TS775-001	34.1	21.7	21.9	25.9	27.4
3	49.7	28.3						
4	< 36.2							
5	86.4	32.4	TS775-002	92.4	155.6	172.3	140.1	30.1
6	40.2	25.1						
7	46.2	26.4	TS775-004					
8	< 33.3							
9	Roadway							
10	< 41.3							
11-12	Gravel							
13	33.8	22						
14	Roadway							
15	< 31.8							
16	46.4	24.5	TS775-005					
17	Roadway							
18	39.3	22.7	TS775-006					
19-22	Gravel							
23	56.2	27.3	TS775-007	<64.3	<39.3	<34.2	<45.9	35.1
24	Roadway							
25	56	26.9	TS775-003	109.9	105.3	64.8	93.3	26.6
26	Concrete							
27	33.1	21.4	TS775-008					
28	Roadway							
29	< 30.5							
30	< 33							
31	38	25.2	TS775-009					
32	< 30.3							
33-40	Gravel							
41	< 44.2			<46.9	<18.5	<12.9	<26.1	69.9
42	< 37.4		TS775-011	<30.4	<47.1	<34.5	<37.3	23.3
43	Concrete							
44	50.6	27.6	TS775-010					
45	Roadway							
46	52.2	31.2						

Table 5-30.1. TS775 Airfield Skeet Range XRF Results (Concluded, Page 2 of 2)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
47	< 39.1							
48	< 39.9							
49	< 33.5							
50-65	Gravel							
66-67	Taxiway							
68	< 35.4			<45.8	<40.8	<51.5	<46.0	11.6
69				<49.4	<58.1	<61.1	<56.2	10.8
70	Taxiway							

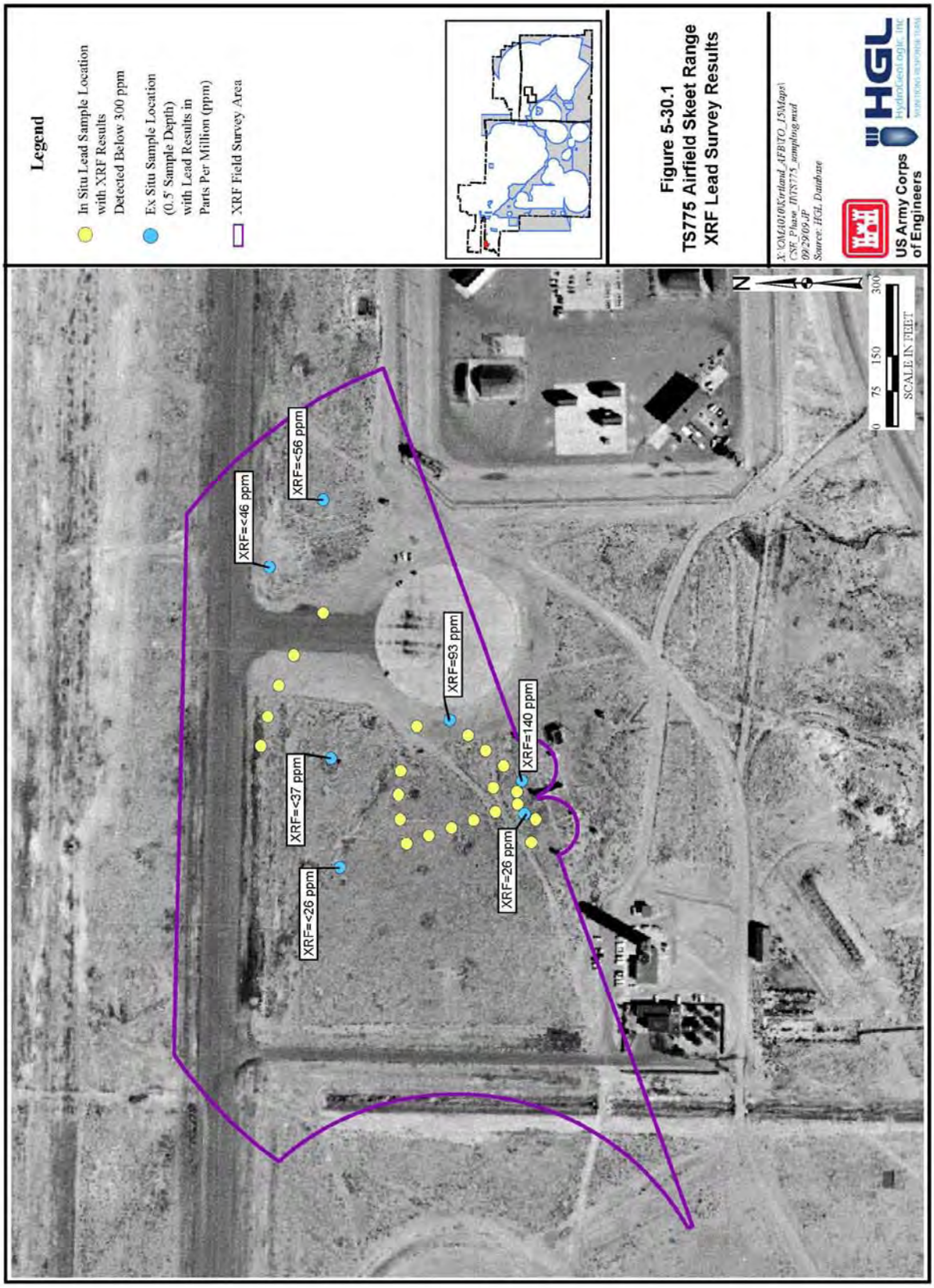

Legend
In Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-30.1
TS775 Airfield Skeet Range
XRF Lead Survey Results
X:\OM&O\Kirtland_AFB\TO_15\Maps\
CSE Phase II\TS775_sampling.mxd
09/29/09 JP
Source: HGL Database
US Army Corps of Engineers
HydroGeologic, Inc
SCALE IN FEET
0 75 150 300
N
XRF=<46 ppm
XRF=<56 ppm
XRF=93 ppm
XRF=140 ppm
XRF=<37 ppm
XRF=<26 ppm
XRF=26 ppm

Figure 5-30.2
TS775 Airfield Skeet Range
PAH Results
Legend
One or More PAHs Exceeding EPA Region 6 Screening Levels
One or More PAHs Exceeding both NMED and EPA Region 6 Screening Levels
Sample Location ID
XRF Field Survey Area
0
80
160
320
Feet
N
X:\OMA010\Kirtland_AFB\TO_15\
Mayo\CSE_Phase_II\
TS775_PAH_results.mxd
08/28/09 JP
Source: HGL database
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc.
44
27
25
16
7
5
2
31
23
18

Legend
MRA Boundary
Figure 5-30.3
TS775 Airfield Skeet Range
Current Land Use
X:\OM4101\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\TS775_sampling.mxd
08/11/09 JP
Source: HGL Database
US Army Corps
of Engineers
HGL
HydroGeologic, Inc.
0 75 150 300
SCALE IN FEET
N

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5.31 TS776 Skeet Range

5.31.1 Site Description

TS776 is a former 29-acre trap and skeet range located in the northwest corner of Kirtland AFB (Figure 5-31.1). The terrain is predominantly flat grassland.

5.31.2 History of MEC Activities

TS776 was used as a trap and skeet range from WWII until the late 1960s. From the late 1960s through May 1998, the skeet range was used as a recreational facility for clay pigeon shooting practice. The shotgun gauges specifically used at this site are unknown; however, according to historical information regarding Air Force skeet ranges, it is likely that 10- and 12- gauge shotguns were used (Kirtland AFB, 1954).

5.31.3 Current Land Use

According to the Kirtland AFB General Plan, the current land-use scenario for TS776 is open space. Open space includes all developable sites, all areas used to buffer base facilities, and areas preserved because of environmental sensitivity (US Aire Force, 2002). Currently, the site is undeveloped open space (Figure 5-31.3).

5.31.4 Access Controls

There are no access controls for TS776.

5.31.5 Restrictions

Once access onto Kirtland AFB is obtained, entry onto TS776 is not restricted.

5.31.6 Field Investigation Results

CSE Phase II activities at TS776 included media sampling.

5.31.6.1 Site Reconnaissance Observations

Clay targets were observed on the surface of TS776. The area is flat grassland and no munitions-related items were observed.

5.31.6.2 Geophysical Survey Results

No geophysical surveys were conducted at TS776.

5.31.6.3 Visual Survey

No visual survey was conducted at TS776.

5.31.6.4 Ground Truthing

No ground truthing was conducted at TS776.

5.31.6.5 Media Sampling Results

Soil samples were collected from the susupected physical range of TS776. XRF sample locations are presented in Figure 5-31.1. PAH samples locations are presented in Figure 5-31.2.

The XRF results are listed in Table 5-31.1. One of the ex situ XRF results, Point 57 with an average of 821.4 ppm, exceeded the NMED and USEPA Region 6 screening levels for lead. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 88 locations, ranging from 41.3 ppm to 1,120 ppm. All but three samples analyzed for PAHs had benzo(a)pyrene above the USEPA Region 6 screening level of 0.015 mg/kg. Samples TS776-001, TS776-002, TS776-008, TS776-009, TS776-014, and TS776-015 had multiple PAHs that exceeded one or both screening levels. In Table 5-31.2, the shaded results show those that exceeded the USEPA Region 6 screening levels and the bold results exceeded the NMED screening levels (Appendix H).

5.31.6.6 Background Determination

In addition to the NMED and USEPA Region 6 screening levels, metals results also were compared to background levels developed for specific areas of Kirtland AFB. TS776 falls within the North Super Group background values.

5.31.7 Identification of Potential Receptors

Based on the ICSM, current potential receptors for TS776 include authorized personnel, trespassers, possible future residents (should land use change), and ecological receptors.

5.31.7.1 Nearby Population

Kirtland AFB is located just outside of the City of Albuquerque. TS776 is located in Bernalillo County, which has a population density of more than 500 persons per square mile. A residential area is located up to 2 miles from the boundary of the MRA.

5.31.7.2 Buildings Near/Within MRA

There is one numbered building within TS776. The Population Near Hazard data indicate there are 26 or more inhabited structures located up to 2 miles from the boundary of the MRA.

5.31.7.3 Utilities On/Near MRA

There are electric, gas, water, and sewer utilities located in or near this MRA for service for the building on the MRA.

5.31.8 Natural Resources

No threatened or endangered animal or plant species are known to exist in the areas comprising TS776.

5.31.9 Sensitive Environments

Portions of TS776 either contain or are in proximity to cultural resources (i.e., archeo-paleo areas) (Renner, 2008).

Table 5-31.1. TS776 Skeet Range XRF Results

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
1	374	51.9	TS776-001	357.4	365.5	373.9	365.6	2.3
1 6"-12"	215.9	42						
2	92.9	32						
3	135.8	36	TS776-008					
4	55.5	28.7						
5	105	31.3	TS776-009					
6	51.3	25.7						
7	41.3	26.5						
8	52.9	25		<38.5	<56	<42.4	<45.6	20.1
9	49.7	26.9						
10	162.8	42.1	TS776-002	221.4	213.2	206.7	213.5	3.5
11	74.4	31.8	TS776-015					
12	62.8	27.1						
13	65.6	23.8						
14	59.2	24.7	TS776-014					
15	<36.1							
16	52	28.5						
17	79.6	31.4	TS776-013					
18	64	30.2						
19	58.1	26	TS776-012					
20	58.3	29.2		<49.4	<41	<40.6	<43.7	11.4
21	<37.5		TS776-011					
22	<40.8							
23	62.9	30.5	TS776-010					
24	<42.4							
25	100.3	36.5						
26	42.7	24.7						
27	44.2	27.7	TS776-018					
28	<39.7							
29	96.6	33.9	TS776-016					
30	38.7	24.5						
31	47	27.2	TS776-017					
32	69.2	30.2						
33	119.9	35.1	TS776-019					
34	67.2	30.9						
35	<36.8		TS776-020					
36	55	28.7						
37	67	30.6						
38	<44.8							
39	213.7	47.5	TS776-003	73.2	82.5	64.8	73.5	12.1
40	42.6	27.1						

Table 5-31.1. TS776 Skeet Range XRF Results (Continued, Page 2 of 4)

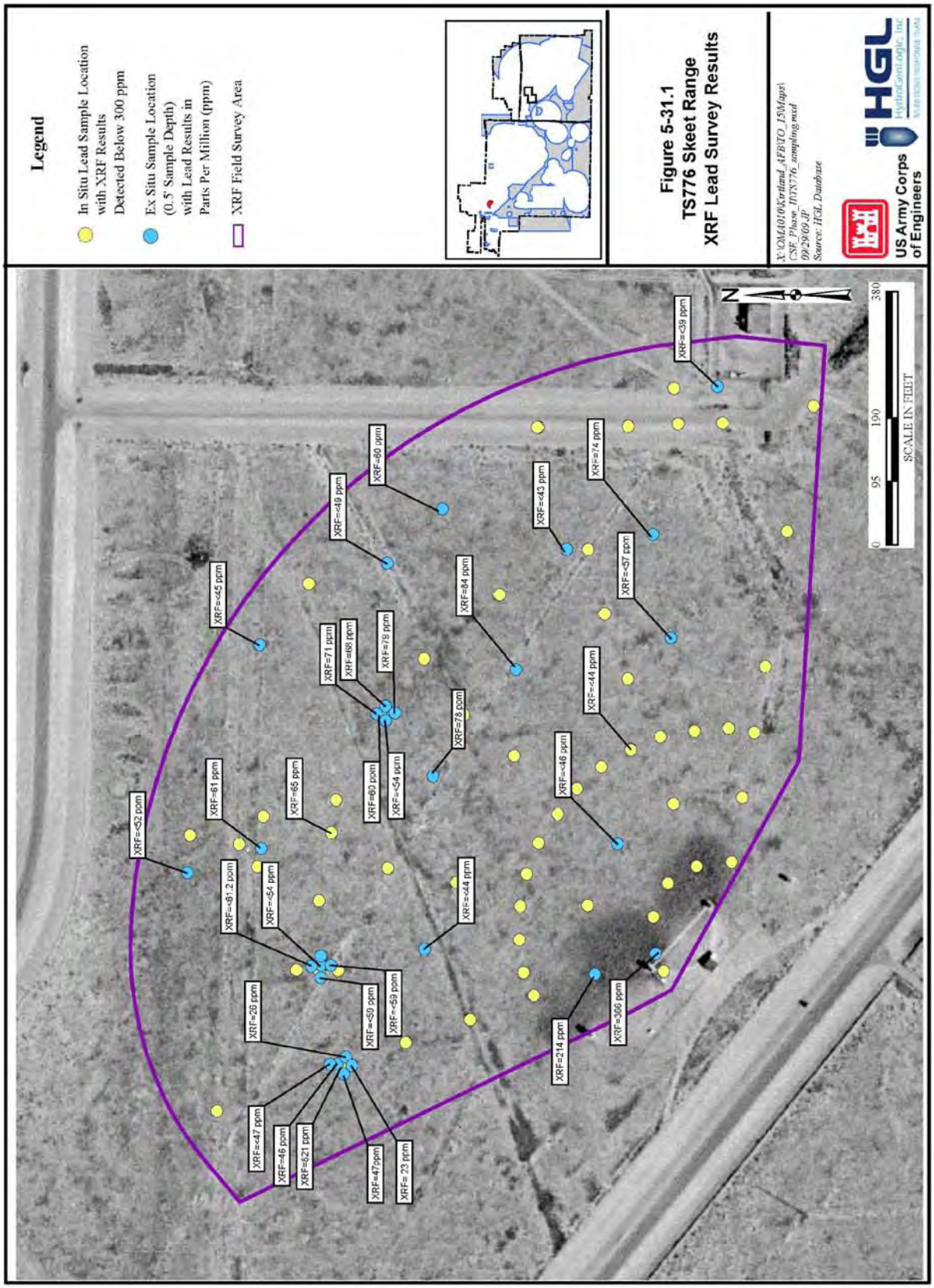
Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
41	59.2	28.4	TS776-021					
42	71.9	33.2		<31.1	<55.2	<41.8	<42.7	28.3
43	67.7	29.3						
44	58.8	28.2	TS776-022					
45	75.4	31.1						
46	93.7	32.9						
47	573.5	70.5	TS776-004	42.5	54.6	<33.2	43.4	24.7
48	63.4	29.9						
49	146.8	38.5	TS776-005	47.3	75.5	58.3	60.4	23.5
49A				<60.7	<64.2	88.1	71	21.0
49B				<45.3	<61.9	<63.6	<68.1	17.8
49C				<47.5	106.4	83.2	78.9	37.5
49D				<62.4	<43.4	<55	<53.6	17.9
50	113.7	34.2						
51	88.3	29.8						
52	136.7	39.1	TS776-023					
53	76.9	31.9		<62.1	<64.5	68.1	64.9	4.7
54	71.7	31.7						
55	74	33.1	TS776-024					
56	59.8	29.7						
57	278.1	48.7	TS776-006	898.4	1121	444.9	821.4	42.0
57 6"-12"	<29.8							
57J				36.7	48.3	47.7	44.2	14.7
57K				40.5	52.7	48	45.8	13.1
57L				71.2	31.2	39	47.1	45
57M				25.8	23.8	<20.1	23.2	12.5
57N				<22.3	<19.6	37.3	26.4	36.1
58	68.5	29.5						
59	90.3	31.9						
60	100.3	32.4	TS776-025					
60A			TS776-035	210	71.2	1118	466.4	
60A 6”-12”				<54.9	<49.3	<58.2	<54.1	
60B				<59.2	<65.2	<59.1	<61.2	
60C				<56	<59.9	<60.9	<58.9	
60D				<59.2	<60.5	<56.4	<58.7	
60E				<32.9	<55.9	<51.8	<46.8	

Table 5-31.1. TS776 Skeet Range XRF Results (Continued, Page 3 of 4)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
61	99.5	31.3						
62	609	70.1	TS776-007	70.1	51	63.1	61.4	17.4
63	63.6	23.6						
64	70.5	30.4						
65	<38.2							
66	57.5	31.2	TS776-030					
67	<36.6		TS776-029	<36	<39.8	<48.8	<41.5	15.8
68	<42.8		TS776-028					
69	75	29.7	TS776-027					
70	42.9	26.8	TS776-026					
71	77.2	30.8						
72	82.8	30.8						
73	52.4	26.7						
74	194.4	42.1						
75	99.8	30.3						
76	<38.7							
77	48.8	25.6						
78	73.3	30.1						
79	66.5	27.8						
80	39							
81	54.8	22.9						
82	88.6	30.5	TS776-031	46.3	66.2	121	77.8	17.8
83	57.9	28.4						
84	95.8	29	TS776-032	95.4	79.9	76.5	83.9	16.4
85	61	22						
86	43.3	21.8	TS776-034	<48.1	<48	<63.2	<53.1	16.5
87	49.8	22						
88	Roadway							
89	Roadway							
90	<50.7							
91	48	29						
92	<30.9							
93	137	37.2	TS776-033	52	69	60.3	60.4	15.4
94	64	29.7						
95	62.3	24.3						
96	<37							
97	45.6	27.3						
98	42.3	27.4						
99	43.3	26.7						
100	41.8	26.5						
101	<35.4							

Table 5-31.1. TS776 Skeet Range XRF Results (Concluded, Page 4 of 4)

Point	In Situ XRF Lead Result	XRF Variance +/-	Sample Number	Ex Situ XRF Lead Result 1	Ex Situ XRF Lead Result 2	Ex Situ XRF Lead Result 3	XRF Avg	XRF Lead %RSD
102	<35.9							
103	60.1	29.2						
104	<43.5			<44	<31.7	<40	<38.6	16.3
105	<38.1			<48	<43.1	<42.4	<44.5	6.9
106	<27.6							
107	44.9	28						
108	<37.3							
109	<34.5							
110				<46.7	<51.6	<47.5	<48.6	5.4
111				<45.6	<56	<53.2	<51.6	10.4
112								
113				<50.1	<56.6	<64.8	<57.2	12.9


Legend
In Situ Lead Sample Location with XRF Results Detected Below 300 ppm
Ex Situ Sample Location (0.5' Sample Depth) with Lead Results in Parts Per Million (ppm)
XRF Field Survey Area
Figure 5-31.1
TS776 Skeet Range
XRF Lead Survey Results
X:\OM&O\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\TS776_sampling.mxd
09/29/09 JP
Source: HGL Database
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc.
SCALE IN FEET
0
95
190
380
N
XRF=<52 ppm
XRF=<61 ppm
XRF=<45 ppm
XRF=<49 ppm
XRF=<60 ppm
XRF=<43 ppm
XRF=<74 ppm
XRF=<39 ppm
XRF=<57 ppm
XRF=<84 ppm
XRF=<71 ppm
XRF=<68 ppm
XRF=<79 ppm
XRF=<44 ppm
XRF=<78 ppm
XRF=<65 ppm
XRF=<60 ppm
XRF=<54 ppm
XRF=<48 ppm
XRF=<31.2 ppm
XRF=<54 ppm
XRF=<44 ppm
XRF=<28 ppm
XRF=<59 ppm
XRF=<59 ppm
XRF=214 ppm
XRF=366 ppm
XRF=<47 ppm
XRF=<46 ppm
XRF=<21 ppm
XRF=47ppm
XRF=<23 ppm

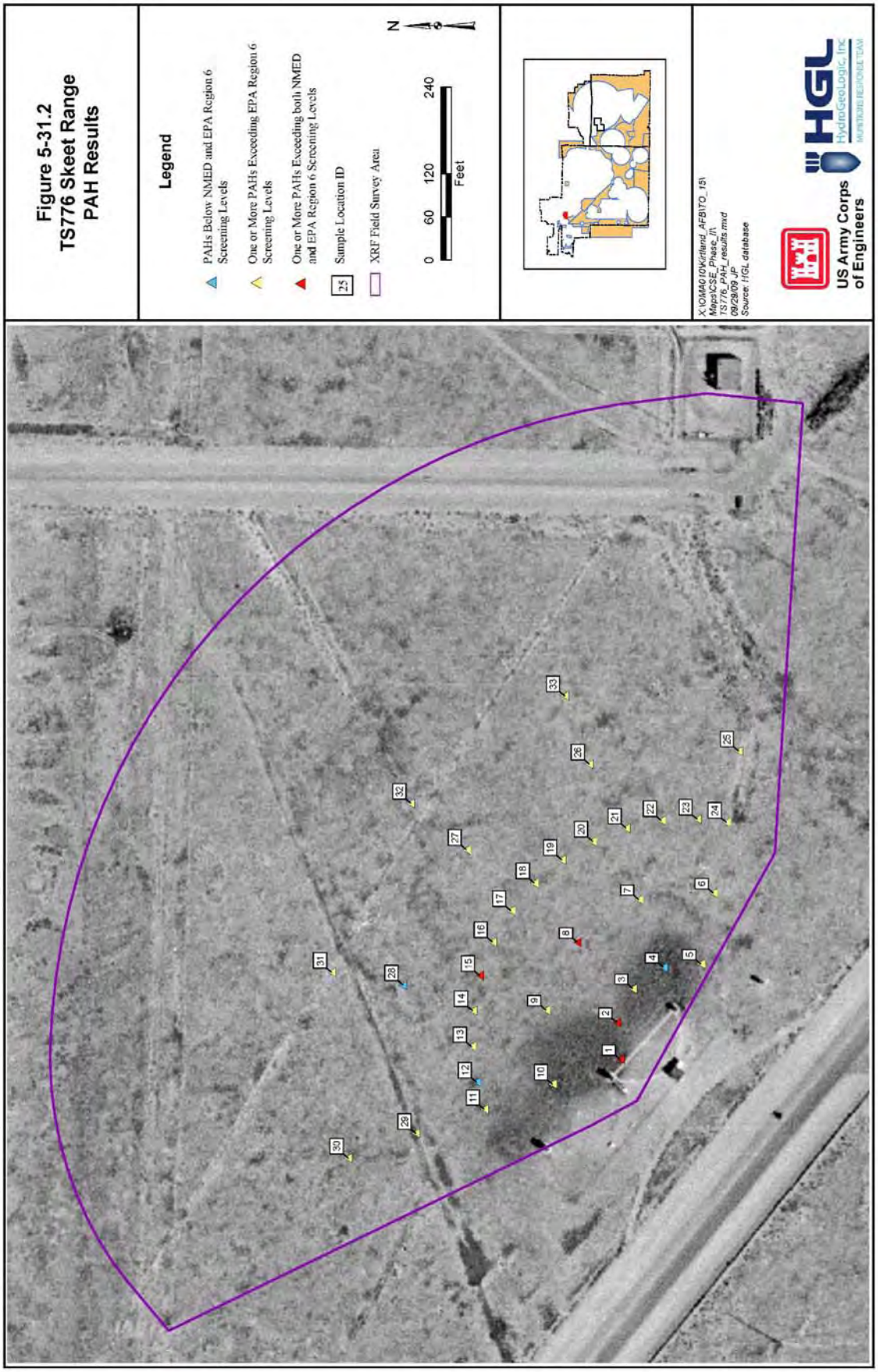


Figure 5-31.2
TS776 Skeet Range
PAH Results
Legend
PAHs Below NMED and EPA Region 6 Screening Levels
One or More PAHs Exceeding EPA Region 6 Screening Levels
One or More PAHs Exceeding both NMED and EPA Region 6 Screening Levels
Sample Location ID
XRF Field Survey Area
0 60 120 240
Feet
N
X:\KIMA010\Kirtland_AFB\TO_15\
Maps\CSE_Phase_II\
TS776_PAH_results.mxd
09/29/09 JP
Source: HGL database
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc
MUNITIONS RESPONSE TEAM

Legend
MRA Boundary
Figure 5-31.3
TS776 Skeet Range
Current Land Use
X:\OM4010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\TS776_landuse.mxd
03/13/09 JP
Source: HGL Database
US Army Corps
of Engineers
HGL
Hydrogeologic, Inc.
N
0
95
190
380
SCALE IN FEET

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5.32 MRA/MRS Divisions

Recommendations for division of MRAs and MRSs are presented in accordance with CSE Phase II Guidance. To facilitate presentation of the report, MRS divisions presented in Section 14 are utilized throughout the remainder of this report. Section 14.3 summarizes the MRA/MRS divisions.

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6. EVALUATION OF KNOWN/SUSPECTED MEC

6.1 MEC Technical Data

Table 6-1 summarizes the munitions use at each MRA based on physical evidence from previous UXO surveys and the CSE Phase II visual survey results as described in Section 5.

Table 6-1. Observed Munitions at MRAs

MRA ID	MRA Name	Observed Munitions (Based on Physical Data)
AL120	Proximity Fuze Range	3” projectiles, 5” projectiles, 5” rockets, 57mm projectiles, 75mm projectiles (empty and concrete-filled), 76mm projectiles, VT Fuzes and components, smoke grenade
AL769	Ordnance Drop Zone	No munition items found
AL771	Old Cable Site	40mm rifle grenade (riot control), smoke grenade, 5” projectiles, 90mm projectiles (concrete-filled), 5” rockets, 2.75” rockets, rocket propellant (Ballistite), small arms
DA130	Arroyo del Coyote Demolition Area	Unknown munitions-related items (light case fragmentation), 5” projectile, smoke grenade, small arms
DA782	Explosive Disposal Area	One piece of suspected bomb frag
ED770	Experimental Range	100-lb bomb frag (AN-M30), 3.5″ and 5″ rockets, 75mm projectile, unknown munition-related items (frag), smoke grenades, flares/signal devices, small arms
ML125	Field Firing Range	3” projectiles, 5” projectiles, 57mm projectiles, 75mm projectiles, 90mm projectiles, 105mm projectiles, 120mm projectile, 3.5” rockets, 5” rockets, 60mm mortars, projectile and rocket fuzes, smoke grenades
ML200	Howitzer Range	75mm projectiles (inert), proximity nose fuze (projo), .50 cal projectiles, missile nose cone
ML201	Howitzer Range Buffer	No munition items found
ML760 (OB-7)	Gun Fan Site	No munition items found
ML762	McCormick Ranch Buffer	No munition items found
ML774	Gun Site Fan	Unknown munitions-related items (frag)
ML781	Firing In-Abutment	20mm projectile
ML784	40mm Test and Training Range	No munition items found
MU772	H-25 Site	Multiple pieces of 5″ projectile fragmentation, ground burst simulator
PT123	Tijeras Small Arms Range	Smoke grenades, 40mm practice rifle grenades, flares/signal devices, small arms
PT761	Tijeras Small Arms and Training Range	No munition items found
PT773	Coyote Canyon Tech Site	57mm projectile fragmentation (M307A1), small arms
PT783	Bazooka Training Range	Signal device (slap flares)
SR763	Rifle Range	No munition items found
SR764	Rifle Range	No munition items found
SR765	WWII Pistol Range	No munition items found
SR766	Sub Machine Gun Range	No munition items found
SR767	Rifle Range	No munition items found

Table 6-1. Observed Munitions at MRAs (Concluded)

MRA ID	MRA Name	Observed Munitions (Based on Physical Data)
SR768	Close Combat Infiltration Course	155mm base ejection projectile, 40mm rifle grenade, signal device (slap flares)
SR777	Rifle Range	No munition items found
SR778	Airfield Pistol Range	No munition items found
SR780	Impact Area	155mm base ejection projectile
TG100	Bomb Target	M38A2 100 lb practice bombs
TS775	Airfield Skeet Range	No munition items found
TS776	Skeet Range	No munition items found

6.2 Primary Sources and Release Mechanisms

The munitions-related activities that have occurred at Kirtland AFB are the primary source and release mechanisms of MEC and MC at the MRAs.

6.3 MEC Locations (Secondary Sources)

Munitions-related activities may have resulted in the presence of MEC and MC on the ground surface and below ground. MEC in the surface and subsurface soil may release MC into the site soils through impact and detonation, corrosion, or leakage.

6.4 MEC Penetration Estimates

The depth at which MEC is located is a primary factor for determining both potential human exposure and associated cleanup. In addition, the DoD Ammunition and Safety Standards require that an estimate of expected depth of MEC be included in the site-specific analysis for determining response depth. A wide variety of factors may affect penetration depth including size and shape of ordnance, propellant charge used, and soil characteristics.

There are several methods for estimating the ground penetration depths of ordnance. These methods vary in the level of detail required for data input (e.g., ordnance weight, geometry, and angle of entry), the time and level of effort needed to conduct analysis, and the assumptions used to obtain results. Some of the specific soil characteristics that affect ordnance penetration depth include soil type (e.g., sand, loam, and clay), whether vegetation is present, and soil moisture. Other factors affecting penetration depth include munitions geometry, striking velocity and angle, relative location of firing point and striking point, topography between firing point and striking point, and angle of entry.

Table 6-2 provides examples of the potential effects that different soil characteristics can have on penetration depth. These depths do not reflect the variety of other factors (e.g., different striking velocities and angles) that affect the actual depth at which the munitions may be found. The depths provided in Table 6-2 are taken from a controlled study to determine munitions penetration into earth (Crull, 1999). They are presented here to give the reader an understanding of the wide variability in the depths at which individual munitions may be found, based on soil characteristics alone.

While Table 6-2 provides examples of penetration depths, it does not illustrate the dramatic differences possible within ordnance categories. For example, rockets can penetrate sand to depths between 0.4 ft and 8.1 ft, and clay to depths between 0.8 ft and 16.3 ft, depending on the type of rocket and site-specific conditions.

Table 6-2. Examples of Munitions Penetration Depths

Type of Munition	Ordnance Item	Depth of Penetration (ft)[a]			
		Limestone	Sand	Soil Containing Vegetation	Clay
Projectile	57mm, M306A1	Not Indicated	2.7	3.6	5.5
Projectile	75mm, M48	0.7	4.9	6.5	9.8
Projectile	81mm, M43A1	Not Indicated	2.7	3.5	5.4
Projectile	105mm M1	1.1	7.7	10.1	15.4
Projectile	40mm M822	0.5	3.2	4.2	6.4
Rocket	3.5" Rocket	Not Indicated	0.8	1.1	1.7

[a] Munitions depth of penetration information sources are: the USACE, *Ordnance and Explosives Response: Engineering and Design,* Engineer Manual 11101-14; 4009, June 23, 2000; Ordata II, NAVEODTECHDIV, Version 1.0; and Crull, Michelle et al; *Estimating Ordnance Penetration Into Earth,* paper presented at UXO Forum 1999, May 1999.

6.5 Special Consideration MEC

In addition to conventional ordnance contamination, the Historical Records Review also examined the Kirtland AFB MRAs for the presence of special consideration MEC (e.g., CWM, DU, etc.). Based upon evidence collected from archives research performed to date, special consideration munitions-related MEC was not used by US Air Force at the Kirtland AFB MRAs/MRSs investigated during the CSE Phase I or II.

Events involving non-DoD non munitions at test events on Kirtland AFB involving DU have occurred, the most documented of which is the "Moonlight Shot" (SNL, 1996). Multiple tests occurred during this series from 1956 through 1961 to simulate accident situations to study plutonium fallout associated with nuclear weapons accidents during assembly or transport. All tests used DU in place of plutonium.

In July 2007, Mr. Carl Lanz (former Kirtland AFB Restoration Section Chief) identified the location of a piece of metal located at ML125 identified as depleted uranium (DU) (Appendix D, Photograph 30). This item was located directly in line with a mine shaft that may have been involved in a non munitions-related DOE test with DU. Subsequent to the CSE Phase II field work, the DU item has been removed.

6.6 Known/Suspected MCs

MCs associated with the MEC can dissipate through the soil through infiltration and percolation. In addition to being transported, contaminants in the environment may also transfer from one medium to another, such as from soil to groundwater or surface water. Two main factors affect the mobility of a compound and thus its ability to spread: the availability of the chemical to be released to the environment from its original matrix, and its propensity to react to equilibrium conditions in the environment and transfer between media. Based on this investigation, the following MCs could be present at Kirtland AFB:

- Bombs: metals (antimony, iron, copper, lead, and zinc) and explosives (TNT, red phosphorus, potassium nitrate, ammonium nitrate, and tetryl).
- Rockets: metals (antimony, iron, copper, lead, and zinc), explosives (nitroglycerin, nitrostarch, and potassium nitrate), and semivolatile organic compounds (SVOCs) (diphenylamine and diazodinitrophenol).
- Grenades: metals (antimony, iron, copper, lead, and zinc), explosives (potassium nitrate), and SVOCs (hexachloroethane).
- Projectiles: metals (antimony, iron, copper, lead, and zinc) and explosives (RDX).

- Other Munitions: metals (antimony, iron, copper, lead, and zinc) and explosives (potassium nitrate and photoflash powder).
- Small Arms: metals (antimony, iron, copper, lead, and zinc).
- Skeet Range: metals from shot (antimony, iron, copper, lead, and zinc), PAHs from clay pigeons.

The known/suspected MCs listed above can be grouped in four categories: explosives, metals, SVOCs, and PAHs (which are a semivolatile-type compound but specifically found in targets used at skeet ranges and not as part of the munitions themselves). Based on the type of munitions used at Kirtland AFB and their composition as described in Table 6-3, explosives and metals are the main components of the munitions used. Although SVOCs are used in small amounts in propellants and fuzes, these compounds are expected to have been burned off at the time of detonation. If the projectiles containing these SVOCs did not explode, it is likely that the main hazard posed by the particular munitions is from explosion, rather than exposure to the SVOCs. In addition to SVOCs, PAHs (a subgroup of SVOCs) are present in the clay matrix of training targets (i.e., clay pigeons).

Table 6-3 provides technical data on MEC identified at the Kirtland AFB MRAs (e.g., component, and propellants, explosives, and pyrotechnics [PEP]). This information is based on historical information, the Munitions Items Disposition Action System (MIDAS) Database, and the technical munitions data sheets included in Appendix F.

Table 6-3. Potential MC

MEC	Component	PEP	Quantity
20mm	Primer: M36A1 Percussion Primer	Priming composition FA-#90: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (12%) • Pentaerthyrite Tetranitrate (PETN) (10%)	2.1 grains
	Propellant, Improved Military Rifle	IMR 4895 (Nitrocellulose smokeless powder): • Nitrocellulose (91.18%) • Dinitrotoluene (7.0%) • Diphenylamine (.87%) • Potassium sulfate (.55%) • Graphite (.4%)	.072 lbs (one reference lists 490 grains)
	HEI: Fuze, Percussion, Delay Action, No 253, MK III	Detonator: Mercury fulminate Relay charge: Mercury Fulminate Booster: Tetryl	[unknown]
	AP-T: Fuze [none]	—	—
	HEI: Projectile	Main charge: Tetryl ***OR***	107.75 grains
		Main charge: Composition A: • RDX (91%) • Wax (9%)	100.3 grains
		Incendiary composition (most likely IM-11: • Magnesium-aluminum alloy, 50/50 (50%) • Barium nitrate (50%)	66.5 grains

Table 6-3. Potential MC
(Continued, Page 2 of 13)

MEC	Component	PEP	Quantity
57mm	Primer, percussion, M1B1A2	Priming composition FA-#70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT (5%)	1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	100 grains
	Propellant	M1 Flashless Non-hygroscopic (FNH) [approximate %]: • Nitrocellulose (85%) • Dinitrotoluene (10%) • Dibutylphthalate (5%) • Diphenylamine (1%)	2.25 – 2.43 pounds
	Tracer element	Red tracer mix: [most likely] • Strontium peroxide • Magnesium powder • Zinc stearate	73 grains
		Ignition composition: [most likely] • Barium ***OR*** Strontium peroxide • Calcium resinate	20 grains
	Fuze [none]	—	—
	Projectile	—	—
58mm	No technical munitions data was located regarding the 58mm; however, for purposes of this report, it is assumed that the technical munitions data is similar to the 57mm		
75mm	Percussion Primer, M1B1A2 ***OR***	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	100 grains
	Percussion Primer, M22A1 ***OR***	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	65-75 grains

Table 6-3. Potential MC
(Continued, Page 3 of 13)

MEC	Component	PEP	Quantity
75mm, continued	Percussion Primer, M31	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	150 grains
	Propellant	Flashless nonhygroscopic smokeless powder: • Nitrocellulose (60%) • Nitroglycerine (39%) • Diphenylamine (.75%) • Graphite (.25%) ***OR***	2 lbs
		Propellant, M1: • Nitrocellulose (85%) • Dinitrotoluene (9%) • Dibutylphthalate (5%) • Diphenylamine (1%)	(up to) 2.6 lbs
	Fuze, Point detonating (PD), M48 ***[one of many fuzes that can be fitted]***	Detonator, M24: Primer mix: • Potassium chlorate (33.4%) • Antimony sulfide (33.3%) • Lead azide (28.3%) • Carborundum (5%)	.86 grains
		Lower charge: Lead azide	2.77 grains
		Primer, percussion M54 assembly: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	.17 grains
		Delay holder assembly. Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	.32 grains
		Relay Assembly, M7: Intermediate charge, Lead azide	1.43 grains
	Projectile	TNT ***OR***	1.37 to1.49 lbs
		50/50 Amatol: • TNT (50%) Ammonium nitrate (50%)	1.4 lbs
	Booster, M20 & M20A1 ***[if used]*** ***OR***	Detonator, Lead azide	Approx. 4 grains
		Intermediate charge, Tetryl	Approx. 5 grains
		Booster charge, Tetryl	Approx. 300 grains
	Booster, M21 ***[if used]***	Detonator, Lead azide	4.08 grains
		Intermediate charge, Tetryl	5.01 grains
		Booster charge, Tetryl	351 grains
	Supplementary charge ***[if used]***	TNT (98.5%) % Barium stearate (1.5%)	4.8 ounces (oz)

Table 6-3. Potential MC
(Continued, Page 4 of 13)

MEC	Component	PEP	Quantity
75mm, (continued)	Percussion Primer, M28 ***OR***	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	300 grains
	Percussion Primer, M40	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	Approx. 1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	270 grains
	Propellant	Flashless non-hygroscopic smokeless powder: • Nitrocellulose (60%) • Nitroglycerine (39%) • Diphenylamine (.75%) • Graphite (.25%) ***OR***	3.75 lbs
		Propellant, M1: • Nitrocellulose (85%) • Dinitrotoluene (9%) • Dibutylphthalate (5%) • Diphenylamine (<1%)	3.75 lbs
	Fuze, Point detonating (PD), M48 ***[one of many fuzes that can be fitted]***	Detonator, M24: Primer mix: • Potassium chlorate (33.4%) • Antimony sulfide (33.3%) • Lead azide (28.3%) • Carborundum (5%)	.86 grains
		Lower charge: Lead azide	2.77 grains
		Primer, percussion M54 assembly: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	.17 grains
		Delay holder assembly. Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	.32 grains
		Relay Assembly, M7: Intermediate charge, Lead azide	1.43 grains
	Projectile	TNT	.86 lbs
	Booster, M20 & M20A1 ***[if used]*** ***OR***	Detonator, Lead azide	Approx. 4 grains
		Intermediate charge, Tetryl	Approx. 5 grains
		Booster charge, Tetryl	Approx. 300 grains

Table 6-3. Potential MC
(Continued, Page 5 of 13)

MEC	Component	PEP	Quantity
75mm (continued)	Booster, M24 ***[if used]***	Detonator, Lead azide	Approx. 4 grains
		Intermediate charge, Tetryl	Approx. 5 grains
		Booster charge, Tetryl	340 grains
90mm	Primer: Percussion Primer, 300-grain, M28A2	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	1 grain
	M7A1 (1950 – present): Projectile with Tracer	Lower charge: Lead azide	2.77 grains
		Primer, percussion M54 assembly: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	.17 grains
		Delay holder assembly. Black Powder (BP): • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	.32 grains
		Relay Assembly, M7: Intermediate charge, Lead azide	1.43 grains
		Booster, M125A1, Pellet booster: • Tetryl (98%) • Calcium stearate (.75%) • Barium stearate (.75%) • Graphite (.5%)	351 grains
		Detonator, M17: • Lead azide • Tetryl	4.08 grains
		Detonator, M24: same as above Primer: same as above Delay holder assembly: same as above Relay Assembly: same as above	1.23 grains
		TNT ***OR***	2.04 lbs or 1.6 (deep cavity)
		Ammonal: • TNT (67%) • Ammonium nitrate (22%) • Aluminum (11%) ***OR***	1.95 lbs
		Composition B: • RDX (59.5%) • TNT (39.5%) • Wax (1%) ***OR***	2.15 lbs or 1.68 (deep cavity)
		50/50 Amatol: • TNT (50%) • Ammonium nitrate (50%)	Approx. 2 lbs

Table 6-3. Potential MC
(Continued, Page 6 of 13)

MEC	Component	PEP	Quantity
90mm (continued)	**M7A1 (1950 – present):** Projectile with Tracer	TNT: same as above ***OR***	2.06 lbs
		Ammonal: same as above ***OR***	1.95 lbs
		Composition B: same as above	2.15 lbs
		Tracer ignition composition K029: • Barium peroxide (80.5%) • Magnesium powder (16.5%) • Calcium resinate (2%) • Graphite (1%)	30 grains
		Tracer R-45: • Strontium nitrate (56%) • Magnesium powder (18.5%) • Aluminum powder (18.5%) • Polyvinylchloride (7%)	35 grains
	Booster, M20 & M20A1 ***[if used]***	Detonator, Lead azide	Approx. 2 grains
		Detonator lead pellet, Lead azide	Approx. 1 grain
		Booster charge, Tetryl	Approx. 300 grains
	M71 (c 1940 – 1949): Supplementary charge ***[if used]***	TNT (98.5%) % Barium stearate (1.5%)	4.8 oz
	M7A1 (1950 – present): Supplementary charge ***[if used]***	TNT	4.8 oz
105mm	Primer: Percussion Primer, 100-grain, M1 & M1B1	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	**1940 – 1949:** [less than 1 grain]* **1950 – present:** 1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	**1940 – 1949:** 100 grains **1950 – present:** 300 grains
	1940 – 1949: Propellant	Flashless nonhygroscopic smokeless powder: • Nitrocellulose (60%) • Nitroglycerine (39%) • Diphenylamine (.75%) • Graphite (.25%)	Base charge: 11.94 oz
			Zones 2 & 3: 1.69 ounces each Zone 4: 2.63 oz Zone 5: 5.00 oz Zone 6: 8.25 oz Zone 7: 13.13 oz [2 lbs 12.32 ounces total]
			Base charge: 8.6 oz

Table 6-3. Potential MC
(Continued, Page 7 of 13)

MEC	Component	PEP	**Quantity**
105mm (continued)	**1950 – present:** Propellant charge, M67	Propellant, M1: • Nitrocellulose (85%) • Dinitrotoluene (9%) • Dibutylphthalate (5%) • Diphenylamine (1%	Zone 2: 1.4 oz Zone 3: 2.5 oz Zone 4: 3.8 oz Zone 5: 5.8 oz Zone 6: 8.8 oz Zone 7: 14.3 oz [2 lbs 13.2 ounces total]
	1940 – 1949: Fuze, Point detonating, M48	Detonator, M24: Primer mix: • Potassium chlorate (33.4%) • Antimony sulfide (33.3%) • Lead azide (28.3%) • Carborundum (5%)	.86 grains
		Lower charge: Lead azide	2.77 grains
	1940 – 1949: Fuze, Point detonating, M48	Primer, percussion M54 assembly: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	.17 grains
		Delay holder assembly. Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	.32 grains
		Relay Assembly, M7: Intermediate charge, Lead azide	1.43 grains
	1950 – present: Fuze, Point detonating, M557	Booster, M125A1, Pellet booster: • Tetryl (98%) • Calcium stearate (.75%) • Barium stearate (.75%) • Graphite (.5%)	351 grains
		Detonator, M17: • Lead azide • Tetryl	4.08 grains 1.23 grains
		Detonator, M24: same as above Primer: same as above Delay holder assembly: same as above Relay Assembly: same as above	
		Relay Assembly, M7: Intermediate charge, Lead azide	1.43 grains

Table 6-3. Potential MC
(Continued, Page 8 of 13)

MEC	Component	PEP	Quantity
105mm (continued)	**1950 – present:** Fuze, Point detonating, M557	Booster, M125A1, Pellet booster: • Tetryl (98%) • Calcium stearate (.75%) • Barium stearate (.75%) • Graphite (.5%)	351 grains
		Detonator, M17: • Lead azide • Tetryl	4.08 grains 1.23 grains
		Detonator, M24: same as above • Primer: same as above • Delay holder assembly: same as above • Relay Assembly: same as above	
	1940 – 1949: Projectile	Cast TNT ***OR***	4.80 lbs
		50/50 Amatol: • TNT (50%) • Ammonium nitrate (50%)	4.84 pounds
	1950 – present: Projectile	Cast TNT ***OR***	4.80 lbs (normal cavity) or 4.25 lbs (deep cavity)
		Composition B: • RDX (60%) • TNT (39%) • Wax (1%)	5.08 lbs (normal cavity) or 4.60 lbs (deep cavity)
	1940 – 1949: Booster, M20 & M20A1	Detonator, Lead azide	Approx. 2 grains
		Detonator lead pellet, Lead azide	Approx. 1 grain
		Booster charge, Tetryl	Approx. 300 grains
	1950 – present: Supplementary charge	TNT	4.8 oz
120mm	Percussion Primer, M1B1A2 ***OR***	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	100 grains
	Percussion Primer, M40	Priming composition #70: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	Approx. 1 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	270 grains

Table 6-3. Potential MC
(Continued, Page 9 of 13)

MEC	Component	PEP	Quantity
120mm (continued)	Propellant	Igniter, black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	8 oz
		Flashless non-hygroscopic smokeless powder: • Nitrocellulose (60%) • Nitroglycerine (39%) • Diphenylamine (.75%) • Graphite (.25%) ***OR***	23.62 lbs
		Propellant, M1: • Nitrocellulose (85%) • Dinitrotoluene (9%) • Dibutylphthalate (5%) • Diphenylamine (<1%)	3.75 lbs
	Fuze, Mechanical Time, M61	Primer, percussion: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT, Grade III (5%)	Less than 1 grain*
		Black powder pellet: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	[unknown]
		Magazine charge, Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	[unknown]
	Projectile	TNT ***OR***	5.26 lbs
		50/50 Amatol + TNT booster ***OR***	4.8 lbs (Amatol) + .19 lbs TNT
		Trimonite: • Picric acid (88%) • Mononitronapthalene (12%)	5.42 lbs
	Booster, M20 & M20A1	Detonator, Lead azide	Approx. 2 grains
		Detonator lead pellet, Lead azide	Approx. 1 grain
	OR	Booster charge, Tetryl	Approx. 300 grains
	Booster, M21 (data is for M21A4)	Detonator, Lead azide	4.08 grains
		Intermediate charge, Tetryl	5.01 grains
		Booster charge, Tetryl	351 grains
		TNT	4.2 oz
3”/50	Primer, percussion, MK14	Priming composition: • Mercury fulminate (35%) • Potassium chlorate (35%) • Antimony sulfide (30%)	.4 grain
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	113.5 grains

Table 6-3. Potential MC
(Continued, Page 10 of 13)

MEC	Component	PEP	Quantity
3”/50 (continued)	Propellant	M1 FNH [approximate %]: • Nitrocellulose (85%) • Dinitrotoluene (10%) • Dibutylphthalate (5%) • Diphenylamine (1%)	4 lbs
	Fuze, VT, Mark 45 ***OR***	Electric squib [most likely containing]: • Potassium chlorate (60%) • Diazodinitrophenol (20%) • Charcoal (15%) • Nitrostarch (5%)	Approx. 2.5 grains
	Fuze, VT, Mark 58	Electric squib [most likely containing]: • Potassium chlorate (60%) • Diazodinitrophenol (20%) • Charcoal (15%) • Nitrostarch (5%)	Approx. 2.5 grains
	Auxiliary Detonating Fuze, Mark 44	Detonator: Lead azide & Tetryl	2.06 grains
		Booster lead-in: Tetryl	2.3 grains
		Booster: Tetryl	385 grains
	Projectile	Explosive charge: TNT ***OR***	.54 lbs
		Composition A: • RDX (91%) • Beeswax (9%)	.54 lbs
3”/70 (Vertical Recovery)	No HE/BP loaded projectiles		
3.7” British	Primer	lead styphnate, lead thiocyanate, barium nitrate, antimony sulfide, aluminum powder, PETN, tetryl, black powder	
	Propellant	nitrocellulose, nitroglycerine, ethylcentralite, cryolite	
	Projectile	TNT, black powder	—
	Fuze	iron, manganese, carbon, silicon, sulfur, phosphorous, chromium, nickel, lead, antimony, polyethylene, tin, copper, silver, nylon, magnesium, aluminum, hexavalent chromium, sodium, potassium, molybdenum bismuth, titanium, cadmium, polyamid plastic	

Table 6-3. Potential MC
(Continued, Page 11 of 13)

MEC	Component	PEP	Quantity
4.5” Rocket	Warhead	TNT	4.3 to 4.5 lbs
	Fuze, Point Detonating M4A2	No. 26 Primer: • Potassium chlorate (53%) • Lead thiocyanate (25%) • Antimony sulfide (17%) • TNT (5%)	Less than 1 grain*
		Relay charge: Lead azide	1.54 grains
		Delay charge: Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	1.23 grains
		Delay-relay assembly: Lead azide	.77 grains
		M17 Detonator: Intermediate charge, Lead azide + Tetryl	5.31 grains
		Booster, Tetryl	329 grains
	M1 Auxiliary Booster	TNT	.84 to .87 lbs
	Igniter	Percussion primer No. 28: • Potassium chlorate (50.5%) • Lead thiocyanate (23.8%) • PETN, Class B (14.2%) • Antimony sulfide (11.4%) • [remainder is gum solution]	1.9 grains
		Electric squib: Flash charge composition: • Potassium chlorate (40%) • Lead thiocyanate (32%) • Charcoal (18%) • Egyptian lacquer (10%)	3.5 grams
		Igniter charge, Black powder, Class 7: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	648 grains
	Rocket motor	Ballistite: • Nitrocellulose (60%) • Nitroglycerine (39%) • Diphenylamine (.75%) • Graphite (.25%)	4.65 pounds
5”/38	Primer, percussion, MK13	Priming composition: • Mercury fulminate (35%) • Potassium chlorate (35%) • Antimony sulfide (30%)	.4 grain*
		Black powder: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	4,081 grains (9.33 oz)
	Propellant	M1 FNH [approximate %]: • Nitrocellulose (85%) • Dinitrotoluene (10%) • Dibutylphthalate (5%) • Diphenylamine (1%)	15 lbs

Table 6-3. Potential MC
(Continued, Page 12 of 13)

MEC	Component	PEP	Quantity
5”/38 (continued)	Fuze, VT, Mark 32 ***OR*** Fuze, VT, Mark 40 ***OR*** Fuze, VT, Mark 53	Electric squib [most likely containing]: • Potassium chlorate (60%) • Diazodinitrophenol (20%) • Charcoal (15%) • Nitrostarch (5%)	Approx. 2.5 grains
		Electric squib [most likely containing]: • Potassium chlorate (60%) • Diazodinitrophenol (20%) • Charcoal (15%) • Nitrostarch (5%)	Approx. 2.5 grains
	Auxiliary Detonating Fuze, Mark 17 ***OR***	Primer cap, Mercury fulminate	[less than 1 grain*] [unknown]
		Detonator: Mercury fulminate & Tetryl	Approx. 15 grains
		Booster lead-in: Tetryl	Approx. 375 grains
		Booster: Tetryl	
	Auxiliary Detonating Fuze, Mark 44 ***OR***	Detonator: Lead azide & Tetryl	1.6/.46 grains
		Booster lead-in: Tetryl	2.3 grains
		Booster: Tetryl	385 grains
	Auxiliary Detonating Fuze, Mark 54	Primer mixture: • Lead styphnate (40%) • Lead azide (20%) • Barium nitrate (20%) • Antimony sulfide (15%) • Tetracene (5%)	1.15 grains
		Detonator: Lead azide & Tetryl	5.6/.46 grains
		Booster lead-in: Tetryl	1.04 grains
		Booster lead-out: Tetryl	.272 grains
		Booster: Tetryl	Approx. 467 grains
	Projectile	Explosive charge: Explosive D (Ammonium picrate) ***OR***	7.25 lbs
		Composition A: • RDX (91%) • Beeswax (9%)	7.25 lbs
5”/54	For purposes of this report, it is assumed that the technical munitions data is similar to the 5”/38 identified above.		
5” Rocket	Warhead	TNT	13.5 lbs
	Fuze, Point Detonating MK 30	Detonator	[unknown]
		Relay detonator	[unknown]
	Auxiliary Detonating Fuze, Mark 52	Detonator: Lead azide & Tetryl	Approx. 2.0 grains and .5 grains *
		Booster lead-in: Tetryl	Approx. 2.5 grains
		Booster: Tetryl	Approx. 385 grains
	Igniter	Electric squib: Flash charge composition: • Potassium chlorate (40%) • Lead thiocyanate (32%) • Charcoal (18%) • Egyptian lacquer (10%)	Approx. 3.5 grams

Table 6-3. Potential MC
(Concluded, Page 13 of 13)

MEC	Component	PEP	Quantity
5" Rocket (continued)	Igniter (continued)	Igniter charge, BP, Class 7: • Potassium nitrate (74%) • Charcoal (15.6%) • Sulfur (10.4%)	Approx. 600 grains
	Rocket motor	Ballistite: • Nitrocellulose (60%) • Nitroglycerine (39%) • Diphenylamine (.75%) • Graphite (.25%)	3.24 lbs
Navy 6 pounder	Primer	mercury fulminate, potassium chlorate, lead styphnate, BP	
	Propellant	nitrocellulose, nitroglycerine, carbamite, diphenylamine, BP	
	Projectile	Explosive D (ammonium picrate)	
	Fuze	iron, manganese, carbon, silicon, sulfur, phosphorous, chromium, nickel, lead, antimony, polyethylene, tin, copper, silver, nylon, magnesium, aluminum, hexavalent chromium, sodium, potassium, molybdenum bismuth, titanium, cadmium, polyamid plastic	
In addition to the above constituents, some metal parts contain aluminum, copper, cadmium, chromium and lead.			

6.7 Explosive Safety Submission Information

The Explosives Safety Submission (ESS) is used to provide munitions response action safety criteria for approval by an appropriate DoD element and is completed per Data Item Description MR-060, which incorporates requirements from Engineer Pamphlet (EP) 385-1-95b. An ESS must be completed for all munitions response actions, even if the recommended response action is either No DoD Action Indicated (NDAI) or Institutional/Engineering Controls. Typically, the ESS will be prepared during the design phase. An ESS currently is not required for the purpose of this investigation. The purpose of the ESS is to ensure that all applicable DoD and Department of the Army explosive safety standards are applied during any military munitions response action. The design elements of the ESS that pertain to Kirtland AFB are described in this section.

6.7.1 Munitions with the Greatest Fragmentation Distance

For quantity-distance purposes, the munitions with the greatest fragmentation distance (MGFD) shall be established for each MRA. The MGFD is the round with the greatest fragment distance that can reasonably be expected to exist at any particular MRS. The MGFD can be selected from historical or site investigation data; however, site investigation data is preferred. The MGFD for MRAs at Kirtland AFB is presented in Table 6-4.

Table 6-4. Munitions with the Greatest Fragmentation Distance

MRA ID	MRA Name	MGFD
AL120	Proximity Fuze Range	5″/54 MK 41 projectile
AL769	Ordnance Drop Zone	None – no suspected MGFD items
AL771	Old Cable Site	5″/54 MK 41 projectile
DA130	Arroyo del Coyote Demolition Area	5″/54 MK 41 projectile
DA782	Explosive Disposal Area	None – no suspected MGFD items
ED770	Experimental Range	5″ Rocket (Possibly MK 7 or MK 10)
ML125	Field Firing Range	5″/54 MK 41 projectile
ML200	Howitzer Range	75mm projectile
ML201	Howitzer Range Buffer	None – no suspected MGFD items

Table 6-4 Munitions with the Greatest Fragmentation Distance (Concluded)

MRA ID	MRA Name	MGFD
ML760	Gun Fan Site	None – no suspected MGFD items
ML762	McCormick Ranch Buffer	None – no suspected MGFD items
ML774	Gun Site Fan	None – no suspected MGFD items
ML784	40mm Test and Training Range	Site does not meet the definition of a defense site because it is within the explosive safety limit (i.e., operational boundary) of the Electro-Explosive Facility and is not eligible for munitions response under the MMRP
ML781	Firing In-Abutment	20mm M56A4
MU772	H-25 Site	5″/54 MK 41 projectile
PT123	Tijeras Small Arms Range	40mm Smoke, M713/M715/716
PT761	Tijeras Small Arms and Training Range	None – no suspected MGFD items
PT773	Coyote Canyon Tech Site	57mm HEAT, M307A1
PT783	Bazooka Training Range	Slap Flare
SR763	Rifle Range	None – MGFD are not associated with SARs.
SR764	Rifle Range	None – MGFD are not associated with SARs.
SR765	WWII Pistol Range	None – MGFD are not associated with SARs.
SR766	Sub-Machine Gun Range	None – MGFD are not associated with SARs.
SR767	Rifle Range	None – MGFD are not associated with SARs.
SR768	Close Combat Infiltration Course	155mm Base Ejection Projectile (Nomenclature Unk)
SR777	Rifle Range	None – MGFD are not associated with SARs.
SR778	Airfield Pistol Range	None – MGFD are not associated with SARs.
SR780	Impact Area	155mm Base Ejection Projectile (Nomenclature Unk)
TG100	Bomb Target	M1A1 Spotting Charge
TS775	Airfield Skeet Range	None – MGFD are not associated with SARs.
TS776	Skeet Range	None – MGFD are not associated with SARs.

6.7.2 Maximum Credible Event

For explosives contaminated soil, a Maximum Credible Event (MCE) shall be established. For soil, the MCE is the concentration of explosives times the weight of the mix. When the concentration varies within the area, weighted averages or any other valid mathematical technique can be used, as long as the technique is explained and technically supported in the ESS.

Based on analytical data collected as part of the CSE Phase II presented in Section 5, MCEs cannot be established because significant quantities of explosives in soil were not detected.

6.7.3 Frost Line

The depth of the frost line for the area is 18 inches, per Unified Facilities Criteria 3-310-01, dated 25 May 2005. The frost line is the depth to which frost penetrates the earth and, where soil moisture is available, the depth to which frost heave is potentially a factor in the migration of MEC during seasons when freeze/thaw cycles are active. Specific properties of soils on Kirtland AFB are discussed in Section 3.4.

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7. EVALUATION OF HAZARDOUS WASTE/SUBSTANCES

The information in this section has been compiled from the findings of the CSE Phase II, the Kirtland AFB *Management Action Plan* (Kirtland AFB, 2005a) and current Administrative Record (AR), and from the SNL Long-term environmental stewardship (LTES) website (http://ltes.sandia.gov/).

7.1 ERP/ECP Hazardous Waste Activities

As a result of investigations at Kirtland AFB, ERP and Environmental Compliance Program (ERP/ECP) sites have been identified. The ERP was initiated at Kirtland AFB in response to federal and state environmental requirements to identify, characterize, and clean up areas where chemical releases occurred. The Kirtland ERP, a component of the Defense Environmental Restoration Program (DERP), addresses the identification, investigation, and cleanup of releases of potentially hazardous substances and pollutants associated with past activities. In coordination with ERP activities, Kirtland AFB manages the ECP sites in a manner to meet environmental restoration goals.

Table 7-1 below summarizes Kirtland AFB MRAs containing portions of ERP/ECP sites that currently have an active investigation status and the types of materials that have been used or stored at the site, indicative of past and/or present hazardous waste activities. The ERP/ECP sites are categorized as Solid Waste Management Units (SWMU) on the Kirtland AFB Resource Conservation and Recovery Act (RCRA) permit and are under the regulatory jurisdiction of the NMED. Status of the sites is based on the most current information available from the Kirtland AFB AR. Figure 7-1 depicts all known ERP/ECP sites on Kirtland AFB, based on the most recent Kirtland AFB *Map of Record*, updated January 14, 2008, and their location relative to CSE Phase II MRA boundaries

Table 7-1. Kirtland AFB ERP/ECP Site Summary

MRA ID	MRA Name	ERP/ECP Site Within MRA	ERP/ECP Description	Material Stored, Managed, Used at ERP/ECP Site	Dates of Operation	Status
ED770	Experimental Range	OT-029	EOD Range	Magnesium flares, percussion grenades, explosive waste, ammunition boxes, fire arms, gas cylinders, and chemical wastes	1972-Present	Investigation in Progress
		ST-073	CERF Drain	Heavy metals, hydrocarbons, gas cylinders	Unknown-1996	Corrective Measures Study
		ST-267	Building 57007 Oil/Water Seperator	Oil, antifreeze, petroleum hydrocarbons, heavy metals, vehicle wash water	1972-2006	Investigation in Progress
		ST-316	Building 57003/57012 Septic System	Explosives, heavy metals, solvents, petroleum hydrocarbons, chemical wastes, air compressor	Shock-tube testing facility 1964-1986; Welding shop 1986-2002	Investigation in Progress

Table 7-1. Kirtland AFB ERP/ECP Site Summary (Concluded, page 2 of 2)

MRA ID	MRA Name	ERP/ECP Site Within MRA	ERP/ECP Description	Material Stored, Managed, Used at ERP/ECP Site	Dates of Operation	Status
ML125	Field Firing Range	ST-343	Building 66000/66008 Septic System	Mechanical Plant; solvents, petroleum hydrocarbons, degreasers. Machine shop; cutting oils, heavy metals, chemical wastes	1971-Present	Investigation in Progress
		ST-344	Building 66042 Septic System	Petroleum hydrocarbons, heavy metals; chemical wastes	1970-Present	Investigation in Progress
		ST-333	Building 66001 Septic System	High-Energy Laser Research and Development Facility; chemical wastes	1970-2003	Investigation in Progress
ML200	Sandia Base Howitzer Range	LF-002	Landfill No. 2	General refuse, chemical wastes, plastics, 55-gallon drums, etc.	1943-1967	Long Term Monitoring
		DP-88	Trestle Site Disposal Area	Dielectric oil, anti-freeze, isopropyl alcohol, polychlorinated biphenyls, pesticides, solid waste	1980s	Investigation in Progress

ERP/ECP sites that have been granted NFA status by the NMED and that lie within the CSE Phase II MRA boundaries are not included in the table above.

7.2 Hazardous Waste Characteristics

The ERP/ECP sites identified at Kirtland AFB summarized in the above table are currently being investigated.

7.3 Identification of Source Areas

As indicated in Table 7-1 and illustrated in Figure 7-1, several MRAs overlap or exist within ERP sites at Kirtland AFB.

7.4 Characterization of Potential Contaminants of Concern and Known/Suspected Releases

Various phases of investigation have occurred and are ongoing at Kirtland AFB ERP/ECP sites. Two sites that were summarized in Table 7-1 in the CSE Phase I Report, ST-296, Building 702 Septic System and ST-346, Trestle Site Septic Tank, have been granted NFA status since publication of the CSE Phase I Report and have therefore been removed from Table 7-1 above.

An ERP site within ML125, SWMU DP-67 Three Mine Shafts, had undergone a RCRA Facility Investigation (RFI) in 1996 and was granted NFA status in 2005 by NMED. A 2007 field survey of the SWMU area identified a former mine shaft where MD/MPPEH were concentrated and the site was reopened by the NMED to address the munitions issue. Munitions items were also observed near several other mine shafts and tailings piles in the area. As a result of a 2008 SWMU assessment report, SWMU DP-67 mine shaft sites will undergo a sweep for munitions debris, including UXO (Kirtland AFB, 2008).

A review of 1950s era aerial photographs by Kirtland AFB revealed several SARs that, in subsequent aerial photographs, had been demolished by 1983, including the removal of several berms. These ranges in the northwest portion of Kirtland AFB were declared SWMU OT-86, Former Small Arms Range, in 1997. According to the *Map of Record* (Figure 7-1) the four separate areas comprising the OT-86 SWMU are coincident with CSE Phase II SAR MRAs SR763, SR764, SR765 and SR767. One of the ranges shown as part of OT-86 on the *Map of Record*, the 1000-Inch Range, became a sewage lagoon after its removal and is now designated as SWMU WP-026.

OT-86 has undergone three phases of investigation including a SWMU assessment report (Kirtland AFB, 1999), Phase I RFI (Kirtland AFB, 2001), and Phase 2 RFI (Kirtland AFB, 2003). Through all three phases of site investigation, whereupon surface and subsurface soil samples were analyzed for heavy metals, no constituents were detected above the NMED residential SSLs. SWMU OT-86 was granted NFA status in 2005.

The aforementioned SARs were sampled during the CSE Phase II and again, none of these samples results exceeded the NMED residential or EPA Region 6 SSLs.

7.5 DOE/SNL Sites

Table 7-2 below summarizes Kirtland AFB MRAs containing portions of DOE/SNL sites that currently have an active investigation status and the types of materials that have been used or stored at the site, indicative of past and/or present hazardous waste activities. The sites are categorized as SWMU's on the DOE/SNL RCRA permit and are under the regulatory jurisdiction of the NMED. Status of the sites is based on the most current information available from the LTES website. Figure 7-2 depicts all known DOE/SNL sites on Kirtland AFB, based on information provided by DOE, and their location relative to CSE Phase II MRA boundaries.

Table 7-2. DOE/SNL Site Summary

MRA ID	MRA Name	DOE/SNL Site Within MRA	DOE/SNL Site Description	Material Stored, Managed, Used at DOE/SNL Site	Dates of Operation	Status
ML201	Sandia Base Howitzer Range	ER Site 4	Liquid Waste Disposal System Surface Impoundments	N/A	N/A	Corrective Action Required
ML125	Field Firing Range	ER Site 28-2	Mine shaft	Mine waste, explosives	1940s	Corrective Action Required
ED770	Experimental Range	ER Site 147	Building 9925 Septic Systems	Solvents, explosives, possibly DU	1959-Late 1980s	Corrective Action Required
		ER Site 150	Building 9939/9939A Septic Systems	Metals, DU, acids, bases, xylene, hexane, methanol, ethanol, grease, PCBs	1977-Present	Corrective Action Required

DOE/SNL sites that have been granted NFA status by the NMED and that lie within the CSE Phase II MRA boundaries are not included in the table above. Two of the DOE/SNL sites listed above, ER Site 4 and ER Site 28-2, have regulatory (NMED) land use, or institutional controls (ICs) imposed to prevent inappropriate uses of the sites. At site ER 28-2, ICs are in place for environmental, health and safety purposes whereas ICs at most DOE/SNL sites are imposed to require permission prior to any land disturbance.

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8. CONCEPTUAL SITE MODEL (CSM)

The CSM guides the planning of SIs, interpreting site data, developing remediation plans, and communicating site risks and characteristics to interested parties, including decisionmakers and stakeholders. Development of an accurate CSM is critical in identifying data gaps that must be addressed to meet project objectives and in scoping the data collection efforts/field objectives to fill those gaps. The CSM is a dynamic tool that is updated and revised as appropriate to reflect new information as it becomes available and communicate the most current information to the project team. Interim CSMs were prepared as part of Kirtland AFB CSE Phase I and have been updated to CSMs based on findings of the CSE Phase II.

An exposure pathway is the sequence of interactions through which a receptor may come into contact with a given hazard. The hazard may be related to either the chemical (for MC) or explosive (for MEC) attributes of the source threat and may involve multiple media (land, air, water). For any given site, the CSM reflects all components of the exposure pathway, from source identification through the full range of environmental/receptor interactions that could potentially lead to an exposure event. A CSM is a qualitative model, typically expressed in graphical format, that shows actual and potential relationships among sources, pathways, and receptors for both explosive and chemical hazards. A complete exposure pathway consists of (1) a source, (2) a mechanism of contaminant release, (3) a receiving or contact medium, (4) a potential receptor population, and (5) an exposure route (NMED, 2006; USACE, 2003). Each of the five elements listed must be present concurrently to complete the exposure pathway. The absence of any one element means that the pathway is incomplete and there is no exposure.

There are fundamental differences between chemical or contaminant-related risks from MC and the explosive hazards associated with MEC. An explosion may be immediately fatal or cause injury while exposure to contaminant-related hazards may not be immediately apparent and health effects and environmental impacts may not be manifested for some years. In addition, the severity of the impact from contaminant-related hazards is directly related to the duration and magnitude of the exposure(s); therefore it is possible to estimate exposure scenarios where the risk to human health or the environment is acceptable. In contrast, the immediacy and potential for fatality or severe injury associated with the explosion hazard precludes establishing a level below which the explosive hazard is considered acceptable. CSMs for MEC hazards present an evaluation approach that leads to only two possible outcomes: either the potential for exposure/encounter exists or it does not. If the potential for an encounter exists, then a potential for injury or death also exists.

Another fundamental difference between MC- and MEC-related risks is that a completed exposure pathway with respect to MEC requires the receptor to be physically near the MEC source location – within range of the explosion's impact. MEC generally have low migration potentials. Exposure routes for MC hazards may be completed through various environmental media and transport processes to affect receptors at great distance even in the absence of an unusual event at the MC source. MCs, for example, may leach through soils to the underlying groundwater and enter the drinking water supply of receptors at considerable distance from the MC source area. Consequently, separate CSMs for MEC and MC hazards were developed for each site to better communicate the exposure pathways and risk potential.

8.1 MEC

Because the migration potential for MEC explosive hazards is low, the exposure pathway is typically limited to the area in the immediate vicinity of the source. The receptor must be physically present within or near the source area to complete the exposure pathway; however, proximity alone is not sufficient to

result in exposure. Some external stimulus must also be applied to the MEC to trigger an explosion; possible stimuli include:

- Heat
- Shock
- Movement
- Friction

Human activities and natural phenomena that could trigger an explosive event include digging (hand or mechanical excavation, manual or equipment grading, drilling activity); treading on, striking, kicking or picking up an item; displacement by frost heave, erosion, or water (i.e., flooding); and fire. Possible MEC exposure pathways, resulting from both human activities and natural phenomena, are described below.

8.1.1 Transport Processes

MEC on the surface or in the subsurface may be displaced as a result of human activity or from natural processes. The most common transport process at Kirtland AFB is through erosion of soil from rain, flood, and wind events. For example, flooding may dislodge MEC items and transport them to other locations as part of the material carried along with flood-induced runoff. Flash floods typical of arid environments like that at Kirtland AFB are especially noted for their ability to erode away surface soils and transport debris over considerable distance. A MEC source may move from the subsurface to the surface or vice versa under flood conditions. The result of subsurface to surface MEC migration is the increased potential for human exposure to MEC. The arid climate and moderate temperatures at Kirtland AFB make it unlikely that frost heaving would occur often enough to result in significant migration of MEC.

Human activities that could result in migration of MEC from the source area includes manual collection and transport (e.g., artifact hunting), as well as construction-related ground disturbances (i.e, grading, excavation, and filling).

8.1.2 Exposure Media and Accessibility

The primary exposure medium for explosive hazards are the MEC items themselves. It also is possible that MC may be released from the MEC item and thereby accumulates in sufficiently high concentrations in soil to pose an explosive hazard. As noted previously, exposure to an explosive hazard requires that the receptor be physically near the explosive event. Thus, the exposure pathway is dependent upon the receptor gaining access to the MEC source area.

8.1.3 MEC Exposure Receptors

Because of the need for physical proximity to the MEC source to complete an exposure pathway, there are only two categories of receptors for explosive hazards at the MRAs associated with Kirtland AFB: (1) Authorized Personnel and (2) Trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions (inspection or regulatory staff, for example, under military escort). Activities conducted by authorized personnel may include handling, striking, burning, or digging within MEC source areas in surface or subsurface. Any individual who has gained access to an MRA without proper authorization is, by definition, trespassing and is assigned to the latter category. Although some sites are partially fenced, none of the sites included in the CSE Phase II effort are completely secured. Consequently, trespassers are considered to be potential receptors at all MRAs and MRSs. Activities conducted by trespassers may include handling, striking, or burning within MEC source areas on the surface only.

8.1.4 MEC Exposure Conclusions

The Interim CSMs prepared during the Phase I CSE (USAE, 2007) have been updated to reflect the data obtained from the CSE Phase II field investigations (described in Section 5 of this document) and the evaluation of those data (presented in Sections 6 and 7 of this document). The CSE Phase II field investigation results show that the hazard potential related to MEC at a given MRA falls into one of two categories:

Case 1) MEC was observed at the site on the ground surface and the potential for an explosive event exists and/or evidence of munitions-related site use was observed (DMM, MD, or fragments) (Figure 8.1)

Case 2) Neither MEC nor evidence of munitions-related site use was observed (Figure 8.2)

Section 14.3 describes how each MRA was evaluated based on findings of the CSE Phase I and II investigations and, as necessary, further divided into MRSs. For the purposes of compiling accurate CSMs, MRSs were utilized based on CSE Phase II findings.

CSMs were developed to represent each of the MEC cases defined above and are presented in Figures 8-1 and 8-2, respectively. Table 8-1 provides an index that indicates the corresponding CSM for each MRA investigated. The CSE Phase II field surveys documented that a MEC explosive hazard was present or that evidence of munitions-related activities (DMM, MD, fragments, etc.) was present but did not pose an explosive hazard. These sites represent the highest hazard level found during the CSE Phase II investigations and are represented by the Case 1 CSM shown in Figure 8-1.

8.1.5 Individual MRS CSM

Sources of MEC hazards for each MRA/MRS are identified on Table 6-1. The associated interactions and receptors are summarized on Table 8-1. The corresponding exposure pathway analyses are shown on Figure 8-1 for Case 1 MRA/MRSs and Figure 8-2 for Case 2 MRA/MRSs.

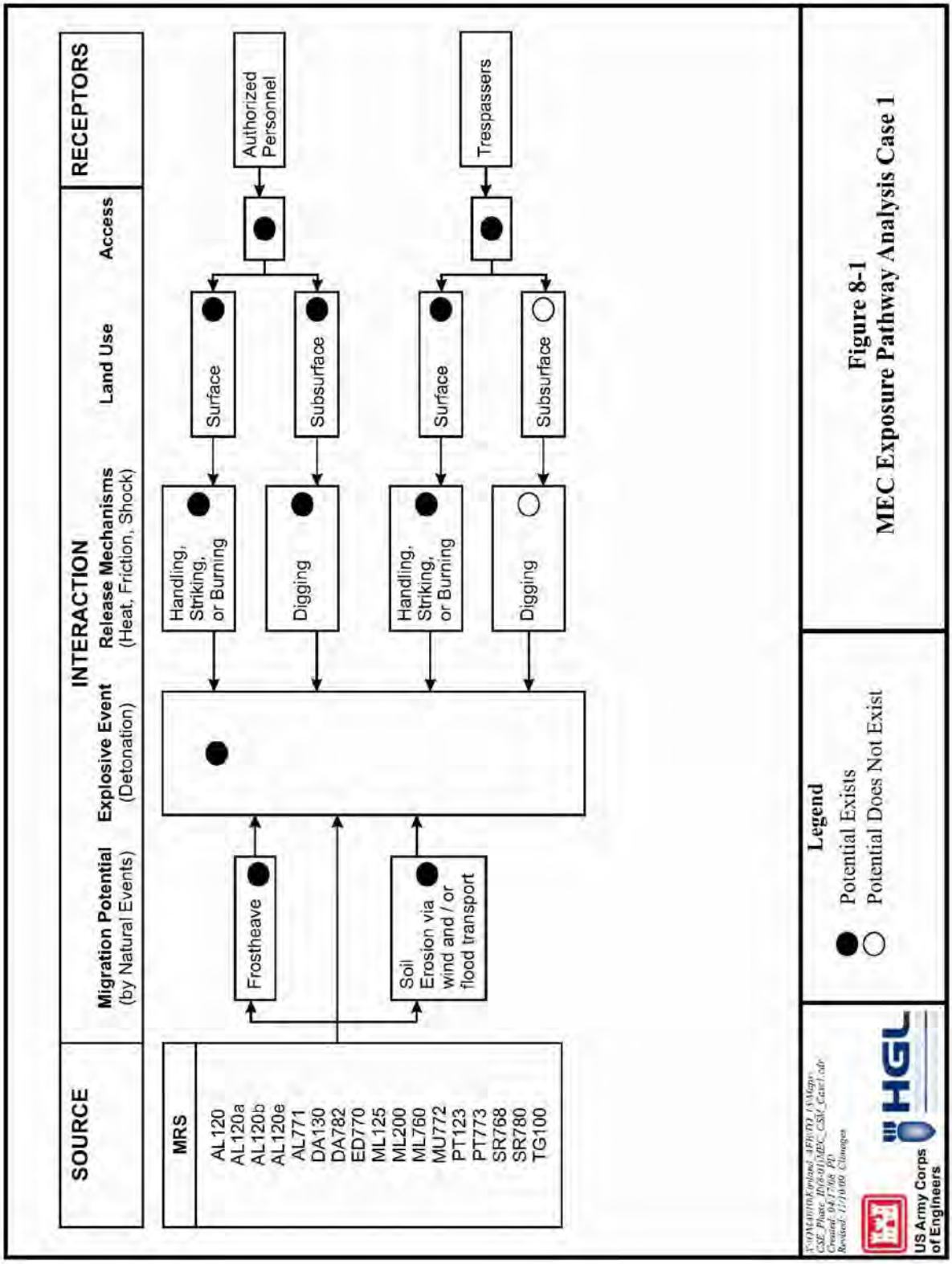

Figure 8-1
MEC Exposure Pathway Analysis Case 1

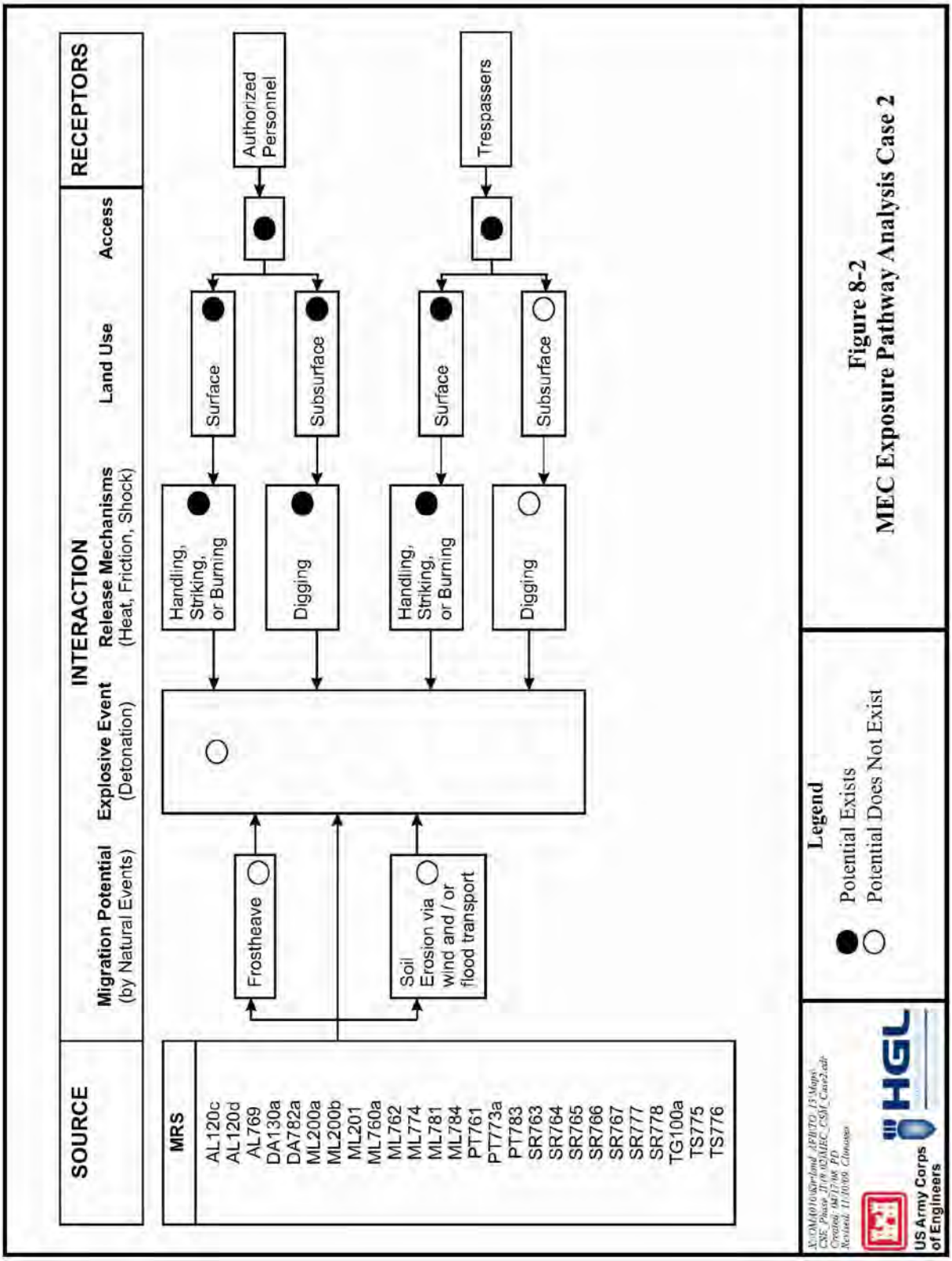

Figure 8-2
MEC Exposure Pathway Analysis Case 2

Table 8-1. Conceptual Site Model Index for Kirtland AFB CSE Phase II MRAs and MRSs

MRA/ MRS ID	MRA/MRS Name	ORDNANCE			MEC CSM Figure	MC CSM Figure
		Evidence Found	TYPE(S)	Explosive Hazard Potential		
AL120	Proximity Fuze Range MRS AL120	Yes	MD, MEC	**Yes**	8.1	8.3
	Propellant Dispersal Site MRS AL120A	Yes	MEC	**Yes**	8.1	8.3
	McCormick UXO MRS AL120B	Yes	MEC	**Yes**	8.1	8.3
	MRS AL120C NFA	No	--	No	8.2	8.4
	MRS AL120D	No	---	No	8.2	8.4
	MRS AL120E	Yes	MD, MEC	**Yes**	8.1	8.3
AL769	Ordnance Drop Zone MRS AL769	No	--	No	8.2	8.4
AL771	Old Cable Site MRS AL771	Yes	MD, MEC, DMM	**Yes**	8.1	8.3
DA130	Arroyo del Coyote Demolition Area					
	MRS DA130	Yes	MD	**Yes**	8.1	8.3
	MRS DA130A	No	--	No	8.2	8.4
DA782	Explosive Disposal Area MRS DA782	Yes	MD	**Yes**	8.1	8.3
	Explosive Disposal Area MRS DA782A	No	--	No	8.2	8.4
ED770	Experimental Range MRS ED770	Yes	MD	**Yes**	8.1	8.3
ML125	Field Firing Range MRS ML125	Yes	MD, DMM, MEC, Other	**Yes**	8.1	8.3
ML200	Sandia Base Howitzer Range					
	MRS ML200	Yes	MD	**Yes**	8.1	8.3
	MRS ML200A	No	--	No	8.2	8.4
	MRS ML200B	No	--	No	8.2	8.4
ML201	Sandia Base Howitzer Range Buffer	No	--	No	8.2	8.4
ML760	Gun Fan Site MRS ML760	Yes	MD	**Yes**	8.1	8.3
	MRS ML760A (FUDS)	No	--	No	8.2	8.4
ML762	McCormick Ranch Buffer MRS ML762	No	--	No	8.2	8.4
ML774	Gun Site Fan MRS ML774	No	--	No	8.2	8.4
ML781	Firing In-Abutment MRS ML781	No	--	No	8.2	8.3
ML784	40mm Test and Training Range MRS ML784	No	--	No	8.2	8.4
MU772	H-25 Site MRS MU772	Yes	MD, MEC	**Yes**	8.1	8.3
PT123	Tijeras Small Arms Range MRS PT123	Yes	MD	**Yes**	8.1	8.3
PT761	Tijeras Small Arms and Training Range MRS PT761	No	--	No	8.2	8.3
PT773	Coyote Canyon Tech Site					
	MRS PT773	Yes	MD	**Yes**	8.1	8.3
	MRS PT773A	No	--	No	8.2	8.4
PT783	Bazooka Training Range MRS PT783	Yes	MD	No	8.2	8.3
SR763	Rifle Range MRS SR763	No	--	No	8.2	8.3
SR764	Rifle Range MRS SR764	No	--	No	8.2	8.3
SR765	WWII Pistol Range MRS SR765	No	--	No	8.2	8.3

Table 8-1. Conceptual Site Model Index for Kirtland AFB CSE Phase II MRAs and MRSs (Concluded, page 2 of 2)

MRA MRS ID	MRS Name	ORDNANCE			MEC CSM Figure	MC CSM Figure
		Evidence Found	TYPE(S)	Explosive Hazard Potential		
SR766	Sub-Machine Gun Range MRS SR766A	No	--	No	8.2	8.3
SR767	Rifle Range MRS SR767	No	--	No	8.2	8.3
SR768	Close Combat Infiltration Course MRS SR768	Yes	MD	**Yes**	8.1	8.3
SR777	Rifle Range MRS SR777	No	--	No	8.2	8.3
SR778	Airfield Pistol Range MRS SR778	No	--	No	8.2	8.3
SR780	Impact Area MRS SR780	Yes	MD	**Yes**	8.1	8.3
TG100	Bomb Target					
	MRS TG100	Yes	MD	**Yes**	8.1	8.3
	MRS TG100A	No	--	No	8.2	8.4
TS775	Airfield Skeet Range MRS TS775	No	--	No	8.2	8.3
TS776	Skeet Range MRS TS776	No	--	No	8.2	8.3
--- - No data available						

8.2 Fate and Transport of MC, Hazardous Substances, Pollutants and Contaminants, and Other Constituents

In contrast to the low potential for MEC migration, a variety of natural processes may enable MC to migrate away from the source area. Migration of MC may contaminate a larger area within the original medium (at Kirtland AFB, the terrestrial soil environment is the original medium) and/or extend contamination to other media (such as groundwater). Degradation of the initial MC chemical makeup may also occur, resulting in additional contaminants and exposure pathways.

Contaminant fate is used to indicate the expected end point for a given element or compound after release to the environment. Contaminant "transport" refers to the processes/mechanisms that act to move a given contaminant from one location and/or medium to another and to the rate of movement (i.e., migration) away from the source area. The significance of fate and transport of MC depends on a wide variety of chemical and environmental factors. Possible migration routes include air, water, soil, and phase changes of the contaminant (i.e., solid, liquid, or gas and the transition zone between phases). The fate and transport of contaminants can occur in all three environmental media: terrestrial, aquatic, and atmospheric. Because groundwater migrates within the soil pore structure, terrestrial environments are defined to include both soil and groundwater. Conversely, soil sediments may be transported by surface runoff; the aquatic environment is therefore defined to include both surface water and sediment transported in the arroyo drainage systems, incidental ponds, and wetlands. The air environment includes possible vapor transport of volatile MC components released to the atmosphere directly from soils or indirectly from contaminated groundwater and/or wind-borne transport of dust particles that may have absorbed MC that leached into the soil.

8.2.1 Transport Pathways

For contaminants released to soil, a variety of transport paths are possible. The contaminant may:

- volatilize to the atmosphere and/or the soil vadose zone,

- adhere to the soil by sorption,
- migrate with soil particles that have been mobilized as dust,
- migrate overland with eroded soil or dissolved in stormwater runoff,
- leach into the groundwater via infiltration or vapor transport, and
- be taken up by biota.

The arid climate and seasonally elevated temperatures characteristic of Kirtland AFB are conducive to volatilization from the terrestrial environment. If volatilization occurs, the compound is typically released to the atmosphere; this is particularly true for contaminants found at or near the soil surface. In the subsurface environment, volatilization may transport contaminated vapor to previously uncontaminated soil or groundwater. Contaminants within the migrating vapor may dissolve in groundwater and/or sorb onto previously uncontaminated soil particles. Based on historical use of the sites, the primary contaminants are metals, explosives, and PAHs (skeet ranges). None of these compounds are considered to be volatile.

Some contaminants, particularly metals and hydrophobic organic compounds (e.g., PAHs), will sorb or associate with the soil particles. If sorbed to surface soil or near surface soil, the contaminants may migrate with soil eroded during storm events. Even though Kirtland AFB receives little precipitation each year, the storms that do occur are often intense and have the potential to cause substantial overland transport of eroded soil. Via this process, site contaminants can be transported to streams or drainages. In addition, contaminants associated with the soil can be entrained in dust generated by wind or soil-disturbing activities. In the atmosphere, contaminant transport is dependent primarily on wind currents. Dust-borne contaminants are re-deposited into the terrestrial or aquatic environments whenever the wind currents decrease to the point that the particulates are no longer airborne or until a sufficient precipitation event transports the particulates to the earth surface. Chemical reactions within the atmosphere may degrade organic compounds through direct photolysis, reaction with other chemicals in the atmosphere, or reaction with photochemically-generated hydroxyl radicals.

Some contaminants show a greater tendency to dissolve in solution than to sorb to a soil particle. Contaminants could dissolve into stormwater and migrate with the stormwater runoff or leach with infiltrating precipitation to the underlying subsurface soil. If sufficient leaching occurs, the contaminants may reach the underlying groundwater.

Contaminants dissolved in groundwater will migrate with the groundwater and may be transported to the aquatic environment if the groundwater discharges to a surface stream or body of water. Based on the depth to groundwater, 200 ft, and the limited presence of surface water at the sites, it is unlikely that groundwater contamination at these sites would discharge to surface water. It is likely that the dissolved contaminants would remain in groundwater until/unless the groundwater is extracted for use. As contaminated groundwater migrates into areas beneath “clean” soils, it is possible that volatilization of the dissolved contaminants may lead to contamination of soil via sorption onto soil particles in the vadose zone. Soil particles in the saturated zone may also adsorb contaminants from groundwater.

Based on historical use of the sites, it is unlikely that direct release of contaminants to surface water occurred. As described above, it is possible for contaminants associated with the soil to be transported to surface water via erosion. Once transported to the stream or drainage, the contaminant can either volatilize to the atmosphere or remain in the aquatic environment. That portion of the contaminant that remains in the aquatic environment may dissolve in the surface water or remain sorbed to sediment. Contaminants that remain sorbed to sediment may be transported downstream during flood events. This downstream transport will attenuate sediment contaminant concentrations. Contaminants which dissolve into the surface water will be transported downstream with the surface water flow. This transport process also attenuates the concentrations. In addition, if the surface water is a “losing” stream or water body

(i.e., some or all of the surface water infiltrates into the subsurface), the contaminated surface water becomes contaminated groundwater in the area where infiltration occurs. At the sites, surface water flow is absent except during brief, intermittent periods of precipitation runoff that occur primarily during the summer monsoon season. While these precipitation events may result in the transport of contaminated sediment over considerable distances, the mixing of the contaminated sediment with uncontaminated sediment will result in substantial attenuation of contaminant concentrations. Due to the depth to groundwater, it is unlikely that there is a hydraulic connection between the surface water and groundwater. Finally, because of the limited presence of surface water, it is expected that minimal transport of dissolved contaminants will occur.

Finally, contaminants released to the environment may be taken up by plants and animals and become part of the food chain. Because of the lack of aquatic habitat, uptake by benthic invertebrates and fish are not identified as a potential transport pathway. Soil contaminants may be taken up by plants and terrestrial invertebrates, which are then consumed by birds and mammals.

8.2.2 Fate Processes

Organic contaminants released to the environment may degrade chemically (abiotically) through processes such as hydrolysis and photolysis, or through biologically-based processes (biological process may include microbial-induced chemical transformations or internal biochemical processes specific to the receptor). Metals do not degrade, but are transformed. Transformation of a metal from one valence state to another may affect whether the metal remains dissolved in solution or is removed from solution through precipitation, complexation, or adsorption. Some metals, such as lead, can form organometallic compounds under certain conditions.

In summary, the concentration of a contaminant is subject to change as the contaminant migrates through the host media. The physical transport processes described above typically act to decrease peak concentrations over time within the overall boundary of the affected area and to increase the concentration in previously unaffected media as that boundary expands. In each case, the fate and transport of contaminants are governed by the combination of physical and chemical properties for the contaminants themselves and the environmental characteristics of the transport medium (soil, water, air). Contaminants may be present in the dissolved and/or sorbed states depending on a variety of physical and chemical factors. Factors such as soil pH and organic carbon content, groundwater flow rates, the presence of aerobic or anaerobic conditions, water quality conditions (alkalinity, hardness, etc.), along with others, can affect the concentration of a given contaminant and thereby impact the availability of a given contaminant to receptor organisms.

<u>Explosives</u>

MC of interest for the MRAs associated with Kirtland AFB includes explosive-related organic compounds, PAHs, and metals previously described in Section 6.6. Pertinent properties of these primary compounds were summarized in the CSE Phase I report (USAE, 2007).

Explosives include predominately nitrogen containing organic compounds, such as HMX, PETN, RDX, Tetryl, and TNT. Under ambient environmental conditions, explosives exhibit a resistance to naturally occurring volatilization, degradation, and hydrolysis; consequently they are persistent if present in soils and groundwater. Where decomposition does occur, explosives degradation products include intermediates of the parent explosive, acids, aldehydes, ketones, nitric oxide, nitrogen dioxide, water, and nitrogen gas.

TNT and tetryl are the least mobile of the explosives MCs. RDX and HMX are the most mobile explosives and generally present the greatest groundwater contamination concern. As noted in Section 4.3, TNT was not detected in any of the soil samples collected during the CSE Phase II. RDX and HMX were each detected in one sample but at low concentrations. Based on the limited occurrence of these compounds, it is not expected that their daughter products would be present at substantial concentrations.

PAHs

PAHs are characterized by low vapor pressure, low aqueous solubility, and high K_{oc}. Their low affinity for water and high affinity for organic carbon cause PAHs to sorb to organic matter in soil. For this reason, transport of PAHs by groundwater is generally limited. In addition, based on their K_h, volatilization is an insignificant transport mechanism. Typically, they would be transported and sorbed on soil that is eroded or sorbed on sediment particles that are suspended in flowing surface water.

PAHs do not contain functional groups that are susceptible to hydrolytic reactions. Therefore, hydrolysis is not a significant degradation process for this compound. While PAHs can be degraded microbially, the degradation rates are low.

PAH contamination may have resulted from the clay pigeons used as training targets, as discussed in Section 6.6.

PAHs are considered to be bioaccumulative compounds.

Metals

Lead, antimony, iron, copper and zinc contamination may have resulted from historical use of the MRAs. Adsorption, complexation, ion exchange and precipitation are ways in which metal contaminants in soils can be immobilized. Immobilization of metal contaminants prevents their dissolution into infiltrating precipitation or surface water. Metal mobility in soil also can change with changes in soil conditions. For example, degradation of organic matrices and changes in pH, redox potential or soil solution composition may release previously immobilized metals. Remediation efforts or occurrence of natural weathering processes may also change soil conditions.

Metals are found primarily as cations in aqueous form, with their form dependent on the oxygenated state of the water. Metal cations can complex with organic matter. If this occurs, the organic-metal complexes usually have low solubility. Precipitation removes the metal from the aqueous phase through incorporation of the metal into a solid phase. Soil particles with adsorbed metals can be transported by stormwater runoff, facilitating migration. In soil and sediment, metal sorption tends to increase with increasing pH. Important sorbents of metals are organic matter, clay minerals and oxides of manganese and iron.

Lead

The dominant species of lead in an aqueous solution is Pb(+2) under acidic conditions and Pb(+2)-carbonate complexes under alkaline conditions. Adsorption and precipitation increase with increasing pH, with most lead precipitating out at pH greater than 6. In oxidizing systems, the least soluble common forms of lead are the carbonate, hydroxide, and hydroxycarbonate forms. In reducing conditions where sulfur is present, lead sulfide is the stable solid.

Lead is an extremely stable metal, although it dissolves in acid. Due to its low vapor pressure, volatilization of lead from the soil and water is negligible, although benthic microbes may convert

methylated lead to tetramethyl lead, which tends to volatilize to the atmosphere. Lead complexes with organic matter and clay minerals that limit its mobility. Only a small fraction of lead in soil will be in a water-soluble form. Lead is effectively transferred from water to sediment by adsorption to organic matter and clay minerals, precipitation as insoluble salt (especially as lead sulfide), and reaction with hydrous iron and manganese oxide. Under most circumstances, adsorption predominates as the process for removing lead from solution. If released into the water, metallic lead will sink into the sediment.

Lead may bioconcentrate in fish or other biota.

Copper

In the natural environment, copper typically has a valence state of +2 but also can exist in the metallic +1 or +3 valence states. Copper is found naturally in a wide variety of mineral salts, organic compounds, and in the metallic form. Copper has a low solubility in water.

In soils, copper may be present as soluble compounds including nitrates, sulfates, and chlorides, and insoluble compounds such as oxides, hydroxides, carbonates, and sulfides. Soluble copper compounds strongly sorb to particles of organic matter, clay, soil, or sand, and demonstrate low mobility in soils.

Several processes influence the fate of copper in the aqueous environment. These include complex formation, sorption to hydrous metal oxides, clays and organic materials and bioaccumulation. Copper has a tendency to precipitate, sorb, and form complexes that tend to remain dissolved in solution.

Copper is bioaccumulated by plants, invertebrates, and fish.

Iron

Iron is the second most abundant metallic element in the Earth's outer crust, but concentrations present in water are generally small. Iron occurs in soil as either divalent or trivalent states most commonly as oxides. Ferrous iron (Fe^{2+}) presence depends on oxidation reduction potential (ORP) and may also be present as ferric iron (Fe^{3+}). Fe^{2+} is more soluble and bioavailable to plants than Fe^{3+}. The divalent state, or ferrous iron, can be oxidized to the trivalent state, where it may form oxide or hydroxide precipitates, and become unavailable to plants as a micronutrient, resulting in movement only through erosion (USEPA, 2003). The chemical behavior of iron and its solubility in water depend strongly on the oxidation intensity in the system in which it occurs, but can be predicted as a function of the solution's pH, oxidation potential, and activity of other ions.

Iron is an essential element in the metabolism of animals and plants, and is not a bioaccumulative metal.

Zinc

Most zinc ore found naturally in the environment is in the form of zinc sulfide. The level of dissolved zinc in water may increase as the acidity of water increases. Most of the zinc in soil is bound to the soil and does not dissolve in water. Zinc is typically not a mobile compound, and the predominant mode of transport is via erosion or as a suspended sediment in surface water; therefore, zinc does not typically reach groundwater.

Zinc is considered to be a bioaccumulative metal.

Antimony

Antimony is a metallic element that occurs at low concentrations in most rocks and soils and its chemical traits are similar to those of arsenic.

Antimony exists in soils in valences of 0, -3, +3, and +5. The tri- and pentavalent forms are the most stable forms of antimony and are of the most interest in biological systems with the trivalent form considered to be more toxic (USEPA, 2005). Antimony uptake generally comes directly from incidental ingestion. That, along with studies conducted on antimony, has indicated that antimony has typically low bioavailability in the environment.

Once antimony released from natural or anthropogenic sources enters groundwater or surface water, a variety of processes affect its fate and transport. These include oxidation reduction reactions, chemical transformations, ligands exchange, and bio-transformations. The factors that affect these reactions include the oxidation state, ORP (Eh), pH, concentrations of iron, metal sulfides and sulfides, temperature, salinity, and the distribution and composition of biota.

8.3 Conceptual Site Model for Potential MC Releases

8.3.1 Potential Sources

The results of the field surveys were evaluated to assess the potential for each MRA/MRS to have contained material that could have been a potential source for contaminant release to the site. The results for each site are summarized below.

- AL120: Evidence of ordnance was present at AL120, AL120A, AL120B, and AL120E, but not at AL120C and AL120D. Accordingly, a potential MC source term was identified for AL120, AL120A, AL120B, and AL120E but not for AL120C and AL120D.
- AL769: No munitions were found at this site and no potential source term was identified.
- AL771: There was evidence of ordnance at this site. A potential MC source term was identified for this site.
- DA130: No evidence of munitions was found at DA130A. No source term was identified for this portion of the site. A limited amount of MD was found at DA130. While a potential source term is identified for the site, it is noted that the potential for contaminant release is much lower for this site as compared to sites with greater evidence of MEC/MD.
- DA782: One piece of suspected bomb fragment was found at this site. This limited occurrence of MD suggests limited potential for a chemical release to have occurred. While a potential source term is identified for the site, it is noted that the potential for contaminant release is much lower for this site as compared to sites with greater evidence of MEC/MD. DA782A is still part of an active range so a potential MC source was not identified for this site.
- ED770: MD was found at this site. A potential source term was identified for this site.
- ML125: MD, DMM, and MEC were found at this site. A potential source term was identified for this site.
- ML200: MD was found at ML200, and 0.50-caliber projectiles were found at ML200B. There was no evidence of ordnance at ML200A. No potential source term was identified for ML200A. Soil samples were collected from ML200B to assess whether the 0.50-caliber projectiles had released contamination. Metals concentrations in the soil samples were consistent with background conditions, indicating that a chemical release had not resulted from the projectiles. No potential source term is identified for ML200B. The majority of the MD found at ML200 consisted of inert 75mm projectiles. While a potential source term was identified for the site, it is noted that the potential for contaminant release is much lower for this site as compared to sites with greater evidence of MEC/MD.

- ML201: No munitions items were found. No potential source term was identified for this site.
- ML760: No munitions items were found. No potential source term was identified for this site.
- ML762: No munitions items were found. No potential source term was identified for this site.
- ML774: No munitions items were found. No potential source term was identified for this site.
- ML781: A limited amount of MD was found at this site. While a potential source term was identified for the site, it is noted that the potential for contaminant release is much lower for this site as compared to sites with greater evidence of MEC/MD.
- ML784: No munitions items were found. No source term was identified for this site.
- MU772: MD and MEC were found at this site. A potential source term was identified for this site.
- PT123: MD and evidence of small arms were found at this site. A potential source term was identified for this site.
- PT761: No munitions items were found at this SAR. Historical use of the range could have resulted in the deposition of bullets or fragments that could release metals to the soil over time. A potential source term was identified for this range.
- PT773: No munitions items were found at PT773A. Accordingly, a potential source term was not identified for PT773A. MD was found at PT773. A potential source term was identified for PT773.
- PT783: One slap flare was found at this site. The field evidence suggests limited potential for contaminant release at this site.
- SARs SR763, SR764, SR765, SR766, SR767, SR777, and SR778: No munitions items were found at these ranges. Historical use of the ranges could have resulted in the deposition of bullets or fragments that could release metals to the soil over time. This hypothesis is supported by the XRF data collected for sites SR763, SR764, SR765, SR766, and SR767. These data showed low levels of lead contamination at the sites.
- SR768: MD was found at this site. In addition, the site was used historically as a SAR. A potential source term was identified for this site.
- SR780: A limited amount of MD was found at this site. While a potential source term is identified for the site, it is noted that the potential for contaminant release is much lower for this site as compared to sites with greater evidence of MEC/MD.
- TG100: No evidence of munitions was found at TG100A. No potential source term was identified for this portion of the site. MD was found at TG100. A potential source term was identified for TG100.
- Skeet ranges (TS775 and TS776): No munitions items were found at these ranges. Historical use of the ranges could have resulted in the deposition of lead pellets and clay pigeon fragments that could release contaminants to the soil over time. Samples collected from these two sites indicated elevated lead concentrations. A potential source term was identified for these two sites.

As identified above, the field evidence indicates that a release did not occur at AL120C, AL120D, AL769, DA130A, ML200A, ML200B, ML201, ML760A, ML762, ML774, ML784, PT773A, and TG100A. In the absence of a release, there is no complete exposure pathway for these sites.

At the remaining sites, there was potential for a contaminant release to have occurred. Based on the amount of MEC/MD found, the non-SAR sites with the greatest potential for contaminant release were AL120, AL120A, AL120B, AL120E, AL771, and ML125. Sites DA130, DA782, ML200, ML760, ML781, PT783, and SR780 appear to have limited potential for a contaminant release to have occurred. For sites identified as having a potential source term present, the potential receptors and potentially complete exposure pathways are described below.

8.3.2 Potential MC Exposure Receptors

As described in Section 8.1.3, potential receptors include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions (inspection or regulatory staff, for example, under military escort). Although future use of the sites for residential purposes is unlikely, the future resident was identified as a potential receptor because of the potential for MC to migrate to residential receptors. Biota (plants, earthworms, birds, mammals, etc.) may also be exposed to site contaminants.

Migration Pathway Analysis

Based on the data, MRAs were classified as either sites with the potential for MC to be present, and sites without the potential for MC to be present. For the sites with potential MC, the CSM is presented in Figure 8.3. This figure identifies five potential exposure media for MC. However, not all exposure media were associated with complete exposure pathways.

As described above, surface water is present only during storm events. Based on the limited duration during which surface water is present, there is limited potential for a receptor to contact this medium. Receptors may contact contaminated sediment within the drainages during non-flood events. Because of the intermittent nature of precipitation, it is likely that the sediment is dry the majority of the time. In this situation, the sediment acts more like soil, from an exposure perspective, than sediment.

For there to be complete food chain exposure pathway for human receptors, then people must hunt, fish, or gather fruit from the sites. Due to the intermittent nature of the surface water, it is unlikely that the sites support habitat for fish. No hunting or fruit gathering currently occurs at any of the sites. Based on the arid environment, there is limited potential for the gathering of fruit from the sites. In addition, it is expected that there is limited potential for hunting in the future, even if land use changes. Accordingly, the food chain route was not identified as a potentially complete exposure pathway for authorized personnel, trespassers, and future residents.

Groundwater at the sites is not currently used as a potable water source and there are no plans to use the groundwater in the future. Additionally, the depth to groundwater and low migration potential of MC minimize the possibility that the soil contaminants would leach to the underlying groundwater. Therefore, exposure to groundwater was identified as an incomplete exposure pathway.

For sites without the potential for MC to be present, no complete exposure pathways were identified because there is no source of contamination.

8.3.3 Soil Exposure Conclusions

The pathway analysis indicates that the CSM representing MC for any given site will fall within one of the following categories:

Case 1) Contaminant release may have occurred, and it is possible for human and ecological receptors to be exposed to contaminants present in the site soil (Figure 8.3).

Case 2) No potential release was identified. There are no complete exposure pathways by which a human or ecological receptor could be exposed to site contaminants (Figure 8.4).

The CSMs representing the MC exposure pathways defined above are presented in Figures 8-3 and 8-4. Table 8-1 provides an index that indicates the corresponding CSM for each of the MRA/MRSs that were

investigated. Based on the field investigation, soil exposure pathways are potentially complete at the following sites: AL120, AL120A, AL120B, AL120E, AL771, DA130, DA782, ED770, ML125, ML200, ML760, ML781, MU772, PT123, PT761, PT773, PT783, SR763, SR764, SR765, SR766, SR767, SR768, SR777, SR778, SR780, TG100, TS775, and TS776.

For the non-SAR sites, the greatest MEC/MD occurrence was observed at sites AL120, AL771, and ML125. Thus, these sites should represent the upper bound for potential contaminant releases at the non-SAR sites.

8.3.4 Surface Water/Sediment Exposure Conclusions

Because of the contaminant transport linkage between surface water and sediment, these media are discussed together. With the exception of a few isolated springs that supply small pools in the immediate vicinity of such locations (e.g., Coyote Springs), there are no perennial surface waters within the CSE Phase II study area. Therefore, exposure to surface water is not identified as a complete pathway.

As described above, the sediment in the drainages will be dry most of the time and, from an exposure perspective, act more like soil. Because of the climate, sediment as a saturated medium is not identified as a potential exposure medium. While contaminated soil could reach the drainages, attenuation by transport processes would cause the contaminant concentrations in the drainages to be substantially lower than those identified in the soil closer to where the MEC/MD was found or released. Exposure to soil will bound any potential exposure to the dry sediment in the drainages. For these reasons, contact with sediment is identified as a negligible exposure pathway.

8.3.5 Groundwater Exposure Conclusions

The semi-arid climate with low precipitation rates, high evapotranspiration rates, and significant depths to groundwater (200 ft or more) minimize the potential for infiltrating precipitation to actually reach the underlying groundwater. Therefore, groundwater exposure pathways are identified as incomplete for all receptors at all MRAs.

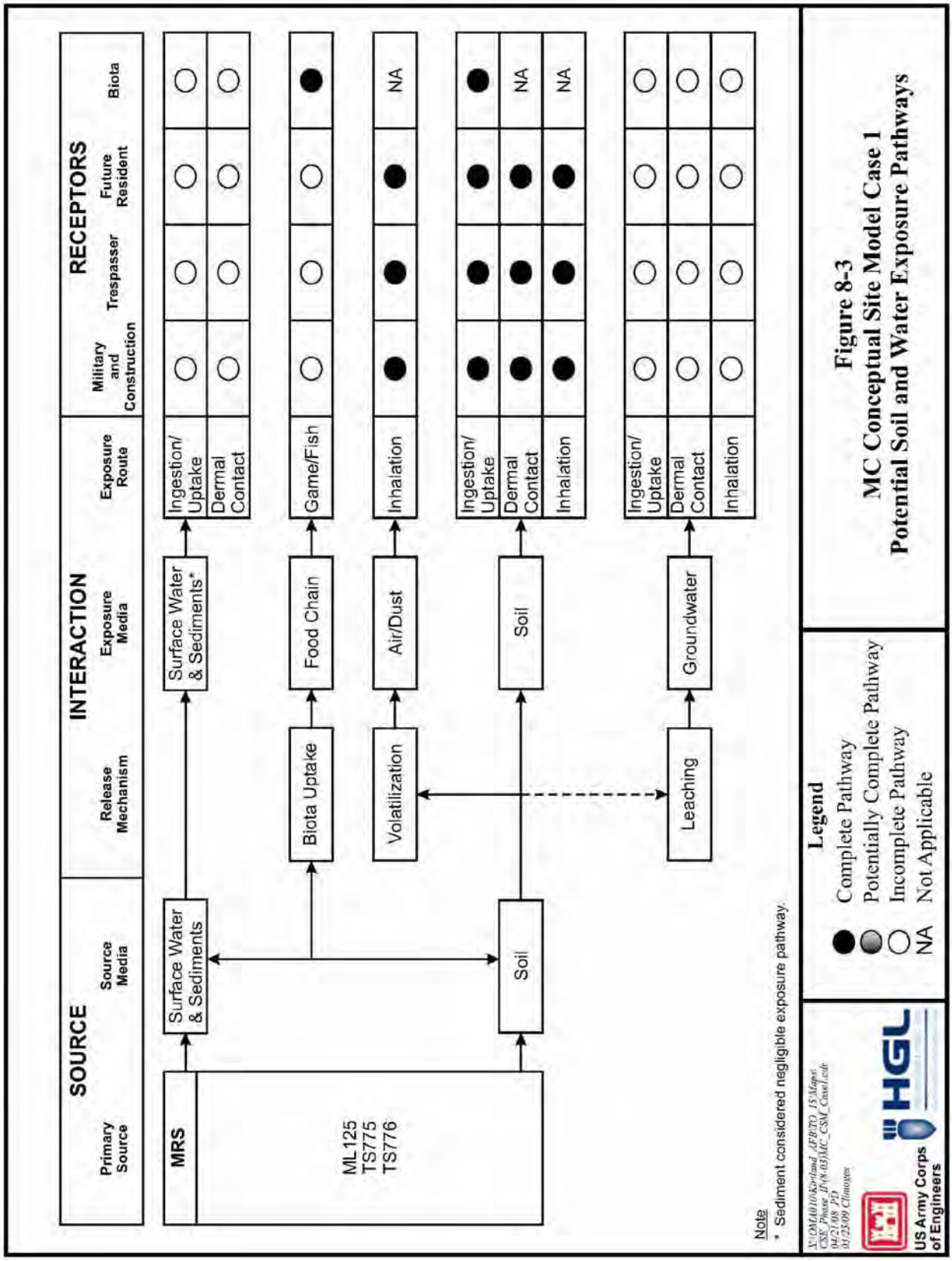

Figure 8-3
MC Conceptual Site Model Case 1
Potential Soil and Water Exposure Pathways

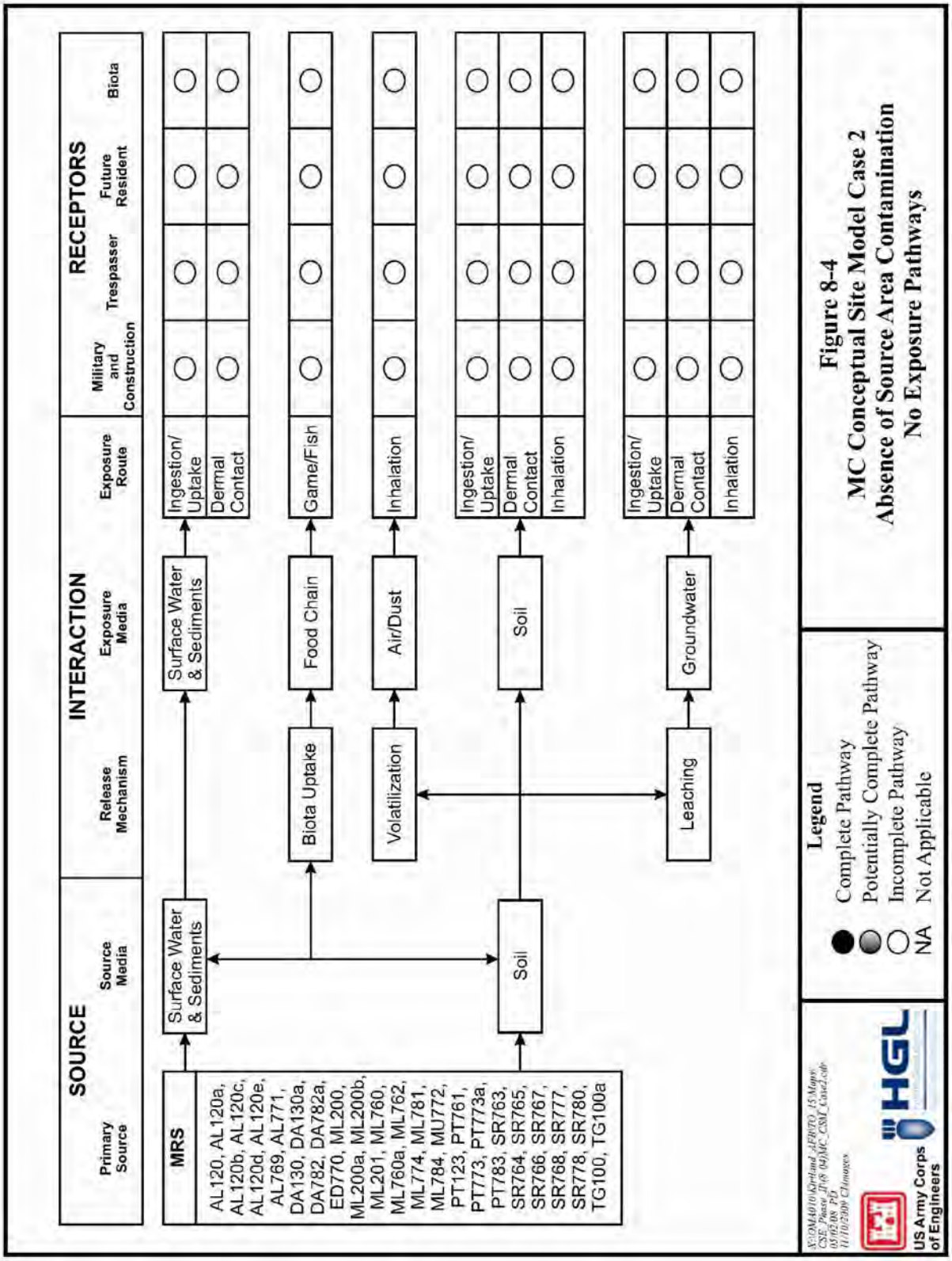

Figure 8-4
MC Conceptual Site Model Case 2
Absence of Source Area Contamination
No Exposure Pathways

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9. SCREENING LEVEL HUMAN HEALTH RISK ASSESSMENT

The CSMs described in the preceding section identified the MEC and MC contaminant sources, potential exposure pathways, and possible receptors for each MRA/MRS at Kirtland AFB. The CSE Phase II investigation included visual and geophysical surveys to identify evidence of MEC hazards at each MRA site and collection of soil samples at selected MRAs. A screening-level HHRA was performed at each MRA/MRS using the CSM and the results of the CSE Phase II field investigations.

Chemicals of potential concern (COPC) related to the MC exposure pathways included metals, explosives, and PAHs, as described in Table 6-3. Screening criteria used in the HHRA were selected after review of guidance from the NMED and USEPA Region 6 (NMED, 2006; USEPA, 2007). Selection of the specific constituents tested and the corresponding screening level was described in Section 4.6 of this report. The NMED and the USEPA Region 6 screening levels are presented in Table 4-7. In cases where both the USEPA and the NMED guidance provided a screening value, the lesser value (i.e., more protective) was used.

9.1 General Approach

To evaluate potential human health risks, the measured concentrations in environmental media (soil) were compared with background levels in nearby, uncontaminated soils. This comparison will determine how far the contaminant levels deviate from normal levels in the same area. The measured concentrations in the area suspected to be contaminated were then compared with the human health screening levels for MRAs/MRSs selected for MC sampling. All data are reported in Section 5 and Appendix H. Human health screening levels for the environmental media investigated for the CSE Phase II were discussed in Section 4.6 and presented in Table 4-7. MRAs/MRSs MEC and MC risk screening results are presented on Table 9-1.

9.2 Pathways and Receptors

The CSMs developed in Section 8 identified surface and subsurface soil as the exposure media and authorized personnel, trespassers, and future residents as potential receptors. For the purposes of this risk screening, surface soil is considered representative of subsurface conditions. Because of the tendency for contaminants to sorb to soil, generally concentrations in the subsurface soil are less than those observed in the surface soil. Although there are no current residents or plans to convert these MRAs and MRSs to residential use, the screening values corresponding to the residential receptor were used as the basis for the screening-level risk assessment. This approach provided more protective screening criteria for the authorized personnel and trespasser receptors and also provides more substantive support for NFA in cases where such recommendations are made.

9.3 Human Health Risk Via Soil Pathway

Table 9.1 summarizes the sampling program implemented during the CSE Phase II investigation and provides an overview of the laboratory results and relevant field observations. The results for the individual analytical tests are discussed below. Detailed summaries of analytical results are presented in Appendix H.

9.3.1 Metals

Soil samples were collected from ML125, ML200B, SR763, SR764, SR765, SR766, SR767, TS775, and TS776 and analyzed for select metals (see Appendix H for analytical laboratory results). At three sites, TS775, TS776, and ML125, analytical detections exceeded human health screening levels. Tables 5-30.2, 5-31.2, and 5-7.1, present analytical data for metals for TS775, TS776, and ML125, respectively.

At TS776, the XRF data showed a maximum lead concentration of 1,120 mg/kg. This concentration is greater than the residential soil screening level of 400 mg/kg and background concentration of 39 mg/kg. The maximum lead concentration detected in the soil samples submitted for laboratory analysis was 31,000 mg/kg. This result may reflect a small piece of lead shot or pellet that was mixed in with the sample. The maximum antimony concentration, 940 mg/kg, was detected in the sample (TS776-005) with the highest lead concentration. One other laboratory sample, TS776-006, had a lead result indicative of lead shot pieces. The associated antimony concentration was 450 mg/kg. All the other antimony results were less than the human health screening level. These data indicate that the antimony results greater than the screening levels may reflect a fragment of pellet or shot. Generally, people are not expected to ingest pieces of shot or pellets. Thus, use of the two highest antimony concentrations for human health risk screening may be overly conservative. Although the analysis of the sample with the pellet/shot pieces may provide information on what the soil conditions could be in the future if the pieces were to disintegrate, it is unlikely that significant weathering of the pellet/shot would occur in the site's arid environment.

In the samples collected from TS775, the maximum lead concentration detected with the XRF was 172 mg/kg. This concentration is less than the residential soil screening level, but greater than the background concentration. Samples collected from four locations were submitted for laboratory analysis (Appendix H). Sample TS775-003 had a lead concentration of 55,000 mg/kg and an antimony concentration of 760 mg/kg. These concentrations are greater than the human health screening values, but likely reflect a piece of pellet or shot. The antimony and lead concentrations of the other three samples are less than the human health screening levels. As noted above, it is unlikely that people would be directly exposed to the metals associated with the pieces of shot or pellets. In addition, it is unlikely that the pieces would weather completely, allowing all the associated metal to be incorporated into the soil. For this reason, use of the data for sample TS775-003 for risk screening may be overly conservative.

In the samples collected from ML125, the maximum copper concentration was 3,300 mg/kg. This concentration is greater than the background concentration and both the NMED and EPA Region 6 residential screening levels. Sample ML125A5-01-3 had a cadmium concentration of 43 J and sample ML125A5-03-4 had a cadmium concentration of 66 J. These concentrations are greater than the NMED and EPA Region 6 human health screening values, although they are less than the April 2009 regional screening levels for residential soil. The munitions found at the site may have contained copper in the rotating bands of projectiles and minor parts of the fuzing systems. It is unlikely that the munitions would have contained cadmium. Historically, cadmium was used as a pigment and for corrosion resistant plating. Because the munitions found at the site were not intended to be in long-term storage, they would not have needed the protection afforded by cadmium.

Based on the XRF data, only the lead contamination at TS776 may pose a risk. Based on the analytical laboratory data, antimony and lead at TS775 and TS776 may pose a risk. Because the laboratory results likely reflect piece of shot/pellets, use of these data may overestimate the risk potential.

9.3.2 PAHs

Soil samples collected from TS775 and TS776 were analyzed for PAHs. Tables 5-30.2 and 5-31.2 in Appendix H present analytical data for PAHs for TS775 and TS776, respectively.

In the samples collected from TS775, the following PAHs were detected at concentrations greater than the screening levels for direct contact of resident receptors to soil:

- The maximum benzo(a)anthracene concentration at TS775 was 29 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 6.21 mg/kg, respectively.
- The maximum detected benzo(a)pyrene concentration was 32 mg/kg that exceeded both the USEPA Region 6 and NMED screening values of 0.015 mg/kg and 0.621, respectively.
- Benzo(b)fluoranthene was detected at a concentration of 36 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 6.21 mg/kg, respectively.
- Dibenz(a,h)anthracene was detected at a concentration of 7.1 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 0.621 mg/kg, respectively.
- Indeno(1,2,3-c,d)pyrene was detected at a concentration of 18 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 6.21 mg/kg, respectively.

In samples collected from TS776, the following PAHs were detected at concentrations greater than the screening levels for direct contact of resident receptors to soil:

- The maximum benzo(a)anthracene concentration at TS776 was 95 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 6.21 mg/kg, respectively.
- The maximum detected benzo(a)pyrene concentration was 150 mg/kg that exceeded both the USEPA Region 6 and NMED screening values of 0.015 mg/kg and 0.621, respectively.
- Benzo(b)fluoranthene was detected at a concentration of 130 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 6.21 mg/kg, respectively.
- The maximum detected benzo(k)fluoranthene concentration was 97 mg/kg that exceeded both the USEPA Region 6 and NMED screening values of 1.5 mg/kg and 62.1, respectively.
- Dibenz(a,h)anthracene was detected at a concentration of 14 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 0.621 mg/kg, respectively.
- Indeno(1,2,3-c,d)pyrene was detected at a concentration of 83 mg/kg, exceeding both the USEPA Region 6 and NMED screening values of 0.15 mg/kg and 6.21 mg/kg, respectively.

These results indicate a potential risk to all receptors.

9.3.3 Explosives

Soil samples collected from AL120A, AL771, and ML125 were analyzed for explosives. TNT was detected in one sample from ML125 at a concentration of 0.15 mg/kg, which is below its screening level of 30.6 mg/kg. RDX was detected in ML125A5-01-3 and ML125A3-09-3 at concentrations of 0.088 J and 0.17 J, respectively, which also are below the RDX screening level of 44.2 mg/kg. No explosives were detected in the samples collected from AL120A and AL771. The analytical results are presented in Tables 5-1.1, 5-3.1, and 5-7.1 in Appendix H. The data indicate that there is no explosive constituent release that poses a potential risk to humans.

Table 9-1. Soil Sample Summary and Human Health Risk Screening Results

MRA/ MRS ID	Site Name/MRS ID	Size (Acre)	MEC		MC			CSM Figure No.		Human Health Risk Screening Results: Existing or Potential Hazard to Residential Receptor		Remarks
			Field Survey Results		Soil Sample Results							
			Munitions Evidence Found	TYPE(S)	Metals Screen[1] > Soil	PAHs Screen[1] > Soil	TNT, RDX, HMX[2]	MEC	MC	Explosion	Soil Pathway	
Non SAR Sites												
AL120	Proximity Fuze Range											
	MRS AL120	488.5	**Yes**	MD, MEC	-	-	-	8.1	8.3	**Yes**	No	MEC/MD Present
	MRS AL120a	7.5	**Yes**	MEC	-	-	40	8.1	8.3	**Yes**	No	MEC Present
	MRS AL120b	1.0	**Yes**	MEC	-	-	-	8.1	8.3	**Yes**	No	MEC Present
	MRS AL120c	1504.7	No	-	-	-	-	8.2	8.4	No	No	No release
	MRS AL120d	376.9	No	-	-	-	-	8.2	8.4	No	No	No release
	MRS AL120e	2060.3	**Yes**	MD, MEC	-	-	-	8.1	8.3	**Yes**	No	MEC/MD Present
AL769	Ordnance Drop Zone	164.7	No	-	-	-	-	8.2	8.4	No	No	No release
AL771	Old Cable Site	586.4	**Yes**	MD, MEC, DMM	-	-	41	8.1	8.3	**Yes**	No	MD/MEC/DMM Present
DA130	Arroyo del Coyote Demolition Area											
	MRS DA130	61.0	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD present
	MRS DA130a	325.5	No	-	-	-	-	8.2	8.4	No	No	No release
DA782	Explosive Disposal Area											
	MRS DA782	5.5	**Yes**	MD	-	-	-	8.1	8.4	**Yes**	No	No release
	MRS DA782a	20.3	No	-	-	-	-	8.2	8.4	No	No	No release
ED770	Experimental Range	1,479.7	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD Present

Table 9-1. Soil Sample Summary and Human Health Risk Screening Results (Continued, Page 2 of 4)

MRA/ MRS ID	Site Name/MRS ID	Size (Acre)	MEC		MC			CSM Figure No.		Human Health Risk Screening Results: Existing or Potential Hazard to Residential Receptor		Remarks
			Field Survey Results		Soil Sample Results							
			Munitions Evidence Found	TYPE(S)	Metals Screen[1] > Soil	PAHs Screen[1] > Soil	TNT, RDX, HMX[2]	MEC	MC	Explosion	Soil Pathway	
Non SAR Sites (continued)												
ML125	Field Firing Range	1,947.0	**Yes**	MD, MEC, DMM	01/ 60 (copper) 2/60 (cadmium)	-	84	8.1	8.3	**Yes**	**Yes**	MEC/MD/DMM Present
ML200	Sandia Base Howitzer Range	259.8	Yes	MD	-	-	-	8.1	8.3	**Yes**	No	MD Present
	MRSML200											
	MRS ML200a	704.1	No	-	-	-	-	8.2	8.4	No	No	No release
	MRS ML200b	3.7	No	-	0 / 51	-	-	8.2	8.4	No	No	No release
ML201	Sandia Base Howitzer Range Buffer	710.0	No	-	-	-	-	8.2	8.4	No	No	No release
ML760	Gun Fan Site	96.8	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD Present
	MRS ML760a (FUDS)	1,796.1	No	-	-	-	-	8.2	8.4	No	No	No release
ML762	McCormick Ranch Buffer	52.6	No	-	-	-	-	8.2	8.4	No	No	No release
SR768	Close Combat Infiltration Course	180.7	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD present
ML774	Gun Site Fan	622.6	No	-	-	-	-	8.2	8.4	No	No	No release
ML781	Firing In-Abutment	0.6	No	-	-	-	-	8.2	8.4	No	No	No release
ML784	40mm Test and Training Range	91.0	No	-	-	-	-	8.2	8.4	No	No	No release
MU772	H-25 Site	132.8	**Yes**	MD, MEC	-	-	-	8.1	8.3	**Yes**	No	MD/MEC Present

Table 9-1. Soil Sample Summary and Human Health Risk Screening Results (Continued, Page 3 of 4)

MRA/ MRS ID	Site Name/MRS ID	Size (Acre)	MEC Field Survey Results		MC Soil Sample Results			CSM Figure No.		Human Health Risk Screening Results: Existing or Potential Hazard to Residential Receptor		Remarks
			Munitions Evidence Found	TYPE(S)	Metals Screen[1] > Soil	PAHs Screen[1] > Soil	TNT, RDX, HMX[2]	MEC	MC	Explosion	Soil Pathway	
Non SAR Sites (continued)												
PT123	Tijeras Small Arms Range	434.2	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD Present
PT761	Tijeras Small Arms and Training Range	574.9	No	-	-	-	-	8.2	8.3	No	No	Small arms use
PT773	Coyote Canyon Tech Site											
	MRS PT773	24.8	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD Present
	MRS PT773a	52.4	No	-	-	-	-	8.2	8.4	No	No	No release
SR780	Impact Area	148.7	**Yes**	MD	-	-	-	8.2	8.3	No	No	MD Present
PT783	Bazooka Training Range	354.2	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD Present
TG100	Bomb Target											
	MRS TG100	14.8	**Yes**	MD	-	-	-	8.1	8.3	**Yes**	No	MD Present
	MRS TG100a	23.0	No	-	-	-	-	8.2	8.4	No	No	No release

Table 9-1. Soil Sample Summary and Human Health Risk Screening Results (Concluded, Page 4 of 4)

MRA/ MRS ID	Site Name/MRS ID	Size (Acre)	MEC		MC			CSM Figure No.		Human Health Risk Screening Results: Existing or Potential Hazard to Residential Receptor		Remarks
			Field Survey Results		Soil Sample Results							
			Munitions Evidence Found	TYPE(S)	Metals Screen[1] > Soil	PAHs Screen[1] > Soil	TNT, RDX, HMX[2]	MEC	MC	Explosion	Soil Pathway	
SARs												
SR763	Rifle Range	17.9	No	-	19/74	-	-	8.2	8.3	No	No	Small arms use
SR764	Rifle Range	6.6	No	-	24/143	-	-	8.2	8.3	No	No	Small arms use
SR765	WWII Pistol Range MRS SR765	111.1	No	-	14/54 (Lead) 2/5 (Copper)	-	-	8.2	8.3	No	No	Small arms use
SR766	Sub-Machine Gun Range MRS SR766	77.3	No	-	4/33	-	-	8.2	8.3	No	No	Small arms use
SR767	Rifle Range	2.7	No	-	20/63	-	-	8.2	8.3	No	No	Small arms use
SR777	Rifle Range	57.3	No	-	-	-	-	8.2	8.3	No	No	Small arms use
SR778	Airfield Pistol Range MRS SR778	2.0	No	-		-	-	8.2	8.3	No	No	Small arms use
TS775	Airfield Skeet Range MRS TS775	25.2	No	-	11/29 (Lead) 1 / 4 (Antimony)	10 / 10	-	8.2	8.3	No	**Yes**	Small arms use
TS776	Skeet Range MRS TS776	29.3	No	-	88/130 (Lead) 4/12 (Antimony)	31 / 33	-	8.2	8.3	No	**Yes**	Small arms use

1. Sample results listed as # /# where first entry is the number of sample results that exceeded the corresponding screening value and second entry is the total number of samples at location.
2. All sample results were non-detect. The number entered is the total number of samples analyzed.
- Not sampled

9.4 Surface Water

Medium not evaluated because the surface water pathways are incomplete.

9.5 Sediment

Medium not evaluated because the sediment pathways are negligible.

9.6 Groundwater Pathway

Medium not evaluated because the groundwater pathway is incomplete.

9.7 HHRA Conclusions and Recommendations

Table 9.1 summarizes the soil sampling and screening-level HHRA results.

Explosive Hazard

The following sites were identified as having an explosive hazard:

- AL120
- AL120A
- AL120B
- AL120E
- AL771
- DA130
- DA782
- ED770
- ML125
- ML200
- ML760
- MU772
- PT123
- PT773
- PT783
- SR768
- TG100

Munitions Constituent Releases

At AL120A, AL771, ML200B, SR763, SR764, SR765, SR766, and SR767, MC was not detected or was found at concentrations less than the screening levels for the direct soil exposure. Thus, historical use of these sites did not result in a MC release that poses a threat to human health.

A potential for MC release was identified for AL120, AL120B, DA130, ED770, ML200, ML760, MU772, PT123, PT761, PT773, PT783, SR768, SR777, SR778, SR780, and TG100, but no soil samples were collected from these sites. Based on the data collected at SR763, SR764, SR765, SR766, and SR767, historical small arms use did not result in the release of MC at concentrations that could pose a threat to human health. The greatest occurrence of MEC/MD/DMM, in terms of frequency and release potential, was observed at sites AL120A, AL771, and ML125. The more items found at a given site, the greater the potential for release of contaminants to the site. The data for AL120A and AL771 indicate that past site use did not cause sufficient MC release to pose a threat to human health. The data for ML125 indicate that at most of the locations sampled, there is no to minimal evidence of contamination. The highest metals concentrations were observed at samples collected from ML125A1-01, ML125A3-09, ML125A5-01, ML125A5-02, ML125A5-03, and ML125A6-01. These samples, which were collected near OB/OD areas and cleared or existing munitions piles, do not represent site conditions at the non SAR sites. The OB/OD and munitions pile areas would have greater potential for contaminant release than the scattered MEC/MD (primarily MD) found at the unsampled, non SAR

sites. Based on the data for AL120 and AL771, and the data for ML125 samples that reflect scattered MEC/MD, it is likely that the unsampled non-SAR sites do not pose a threat to human health. Metals and/or PAH concentrations in soil at TS775, TS776, and ML125 exceed the screening levels for direct contact with soil and consequently pose a potential risk to human health that merits further evaluation. Additional investigation is warranted at these three sites to assess potential human health risks. A summary of MRAs and MRSs recommended for further investigation is outlined below:

- AL120—Proximity Fuze Range
- AL120a—Propellant Dispersal Site
- AL120b—McCormick UXO
- DA130—Arroyo del Coyote Demolition Area
- ML125—Field Firing Range
- PT123—Tijeras Small Arms Range
- TG100—Bomb Target
- TS775—Airfield Skeet Range
- TS776—Skeet Range

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10. SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

The CSMs described in Section 8 identified the MEC and MC contaminant sources, potential exposure pathways, and possible receptors for each MRA/MRS at Kirtland AFB. A screening level ecological risk assessment (SLERA) was performed at each MRA/MRS using the CSM and the results of the CSE Phase II soil samples collected at selected MRAs.

Explosives, metals, and PAH concentrations in soil were compared with ecological screening concentrations on a site-by-site basis. This approach generally follows that recommended in the *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment* (NMED, 2008). This SLERA has been conducted in accordance with acceptable risk assessment practices and uses screening-level criteria and benchmarks presented in Section 4.6.

10.1 General Approach

Maximum analyte detections from samples collected basewide during the CSE Phase II are presented in Table 4-8 and screened against established ecological benchmarks. For those chemicals present at concentrations greater than the screening values, an evaluation was conducted to determine if concentrations represented background conditions. Only MRAs determined to have potentially complete ecological exposure pathways are assessed.

10.2 Habitat and Receptors

The following sections detail environmental resources and receptors expected to be found within the MRAs and the measures that will be taken to minimize effects on the resources.

10.2.1 Vegetation

The vegetation at Kirtland AFB consists of four main plant communities: grassland, pinion-juniper, ponderosa, and riparian/wetland/arroyo. These vegetative communities correspond closely with the USFS plant community descriptions. Transitional areas are found between these communities and contain a mixture of representative species from the bordering areas. The pinion-juniper and grassland are the dominant vegetative communities at Kirtland AFB. The riparian/wetland/arroyo plant community is confined to isolated areas inundated by surface water most of the year and is therefore not considered a primary vegetative plant community (Kirtland AFB, 2006c).

10.2.2 Threatened or Endangered Species

The gray vireo, a state-threatened species, as listed by the NMDGF, is the only federally or state-listed species known to occur on the Kirtland AFB (Kirtland AFB, 2007). No known threatened plant species listed exist within Kirtland AFB and neither the NMDGF nor the USFWS has designated or identified any critical habitat on Kirtland AFB (Kirtland AFB, 2007). Of the state-listed threatened or endangered species, no plant species currently listed by the NMFRC are known to occur on Kirtland AFB. The federally-listed Rio Grande silvery minnow and the southwestern willow flycatcher and their critical habitat occur along the Rio Grande and its riparian corridor, outside of Kirtland AFB (Kirtland AFB, 2006f).

10.2.3 Aquatic Habitats

Aquatic habitats are relatively uncommon at Kirtland AFB and do not occur within the MRAs.

10.2.4 Wetlands and Riparian Areas

Wetlands and riparian areas provide valuable environmental functions such as wildlife habitat, water retention, and soil protection. Not all wetlands and riparian areas are associated with permanent surface water; they can also develop in isolated low areas or drainages that retain adequate moisture. They often can be identified by moist or saturated soils, but this characteristic is not always present during the fall and late summer or when the ground is frozen. Riparian areas are distinguished by the shrubs and trees growing along the banks of streams or the margins of ponds.

Based on a USACE 1995 *Wetland Inventory Survey* (USACE, 1995) and a 2001 *Wetland Delineation Report* prepared for Kirtland AFB (Ogden, 2001), 13 wetland sites were documented on the Installation. One wetland site is associated with Coyote Springs in the northcentral portion of AL120. Figure 5-1.12 depicts the location of springs along the Arroyo del Coyote, including the Coyote Springs cluster and others in AL120, and two springs within PT783. The wetland located at the Coyote Springs is considered the lone, perennial surface water within the CSE Phase II study area.

10.2.5 Receptors

The risk evaluation procedure used for this CSE Phase II investigation is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process. It can be assumed that no aquatic habitat receptors will be defined for any future ecological risk assessments (ERAs) conducted at any of these sites since no aquatic habitats occur within the MRAs. Future ecological receptors for terrestrial habitats will be identified specifically for each site evaluated in future ERAs as recommended and approved on a site-specific basis.

10.3 Soil

Table 10.1 summarizes the sampling program implemented during the CSE Phase II investigation and provides an overview of the laboratory results and relevant field observations. The results for the individual analytical tests are discussed below. Detailed summaries of analytical results were presented in Section 5 and Appendix H.

Based on this SLERA, the following analytes are recommended for further ecological evaluation: antimony, cadmium, copper, lead, mercury, zinc, and high molecular weight PAHs (PAHs with 4 or more rings in their molecular structure). MRAs where these maximum values exceeded risk screening values are discussed below.

10.3.1 Metals

Soil samples collected at nine MRAs were analyzed for metals. These MRAs include SR763, SR764, SR765, SR766, SR767, .50 Caliber Target Range (ML200B), TS775, TS776 and ML125. As described in Section 8, the analytical data indicated that no chemical release occurred at ML200B; therefore, no further analysis of this site is required. The analytical results (XRF data where available for lead; analytical laboratory data otherwise) are compared to ecological screening levels in Table 10.1. Results greater than screening levels were compared to background levels to distinguish between site-related impacts and background conditions. The results of screening level analysis are described below.

ML125 Field Firing Range (sample results are included in Table 5-7.1 in Appendix H)

- The maximum antimony detection, 3.5 mg/kg, was greater than the screening level for mammals, but consistent with background conditions.

- Cadmium exceeded the screening level for plants in 2 samples. The concentrations in both samples were substantially higher than background levels. In 15 samples, the cadmium concentration was greater than background levels, the screening level for birds, and the screening level for mammals.
- Copper exceeded the screening level for plants in 5 samples; the screening level for terrestrial invertebrates in 3 samples; the screening level for birds in 11 samples; and the screening level for mammals in 5 samples. The copper concentration in all of these samples was greater than background levels.
- Lead exceeded the screening level for plants in 4 samples and the screening level for mammals in 6 samples. These exceedances were associated with concentrations greater than background levels. In 20 samples, the lead concentration was greater than the screening level for birds and the background concentration.
- Zinc exceeded the screening level for plants in 4 samples, the screening level for terrestrial invertebrates in 4 samples, and the screening level for mammals in 7 samples. All these exceedances were associated with detections greater than the background concentration. In 8 samples, the zinc concentration was greater than both the screening level for birds and the background concentration.

SR763 Rifle Range (sample results are included in Table 5-20.1 in Section 5.20 and Table 5-20.2 in Appendix H)

- At 10 locations, the XRF data showed lead concentrations greater than the screening level for mammals and the background concentration. At 22 locations, XRF results indicated the presence of lead at concentrations greater than both screening levels for birds and background values.
- Zinc exceeded the screening level for birds in three samples. All zinc detections were less than the background value, indicating that any potential risk is that associated with natural site conditions.

SR764 Rifle Range (sample results are included in Table 5-21.1 in Section 5.21 and Table 5-21.2 in Appendix H)

- At 13 locations, the XRF data indicated that lead concentrations were greater than both the screening level for mammals and the background concentration. At 30 locations, the XRF data indicated the presence of lead at concentrations greater than the screening level for birds and the background value.
- Zinc exceeded the screening level for birds in 1 sample. All zinc detections were less than the background value, indicating that any potential risk is that associated with natural site conditions.

SR765 WWII Pistol Range (sample results are included in Table 5-22.1 in Section 5.22 and Table 5-22.2 in Appendix H)

- At 8 locations, the XRF results for lead were greater than both the screening level for mammals and the background concentration. At 15 locations, the XRF data indicated the presence of lead at concentrations greater than the screening level for birds and the background concentration.
- Zinc exceeded the screening level for birds and the background concentration in 2 samples. The sample concentrations, 79 mg/kg and 78 mg/kg, were only slightly higher than the background concentration of 76 mg/kg. Thus, the potential risks to birds are expected to be similar to those associated with background conditions.

SR766 Sub-Machine Gun Range (sample results are included in Table 5-23.1 in Section 5.23 and Table 5-23.2 in Appendix H)

- The XRF data for 1 location indicated the presence of lead at a concentration greater than the screening level for mammals and the background concentration. At 6 locations, the XRF results were greater than the screening level for birds and the background lead concentration.

SR767 Rifle Range (sample results are included in Table 5-24.1 in Section 5.24 and Table 5-24.2 Appendix H)

- The XRF data for 3 locations suggested the presence of lead at concentrations greater than the mammal screening level and background concentration. At 11 locations, one or more XRF detections were greater than both the bird screening level and background concentration.

TS775 Airfield Skeet Range (sample results are included in Table 5-30.1 in Section 5.30 and Table 5-30.2 in Appendix H)

- The maximum antimony detection was greater than the screening levels for plants, terrestrial invertebrates, and mammals, and the background concentration. As described in Section 9, this detection appears to have been affected by fragments of lead shot/pellets. Thus, the antimony result may reflect the fragments and not actual soil conditions. All other results for antimony were consistent with background conditions. The data suggest that soil concentrations do not exceed ecological benchmark values.
- The sample apparently affected by lead shot/pellet pieces had a copper concentration greater than the screening level for birds and background levels. This copper result may reflect the fragments of shot/pellets. All other copper detections were less than the ecological screening levels.
- At one location, the XRF data indicated the presence of lead contamination at concentrations greater than the screening level for plants. At three locations, the XRF data indicated the presence of lead contamination at concentrations greater than the screening level for mammals. At 11 locations, one or more XRF samples had a lead concentration greater than the bird screening level and the background concentration.

TS776 Skeet Range (sample results are included in Table 5-31.1 in Section 5.31 and Table 5-31.2 in Appendix H)

- The 2 highest antimony detections were greater than the screening levels for terrestrial invertebrates, plants, and mammals. As described in Section 9, it is likely that the analytical results for these samples were affected by the presence of lead shot/pellets. Thus, these 2 antimony detections may reflect the fragments and not actual soil conditions. None of the other samples appeared to be affected by shot/pellet fragments. In 3 samples not affected by lead shot, antimony was detected at a concentration greater than the plant benchmark value, mammal screening value, and background concentration.
- At 12 locations, the XRF data indicated the presence of lead contamination at concentrations greater than the plant screening level. The XRF lead results exceeded background levels and the mammal screening level at 62 locations. At 87 locations, the XRF data indicated the presence of lead at concentrations greater than the bird screening level and the background concentration.
- Zinc exceeded screening levels for birds in 1 sample, but the result was less than the background concentration.

10.3.2 PAHs

Soil samples collected at two MRAs/MRSs were analyzed for PAHs. Tables 5-30.2 and 5-31.2 in Appendix H present analytical data for PAHs for TS775 and TS776, respectively. PAH screening values are based on molecular weight. PAHs with four or more rings are considered to be high molecular weight PAHs, and PAHs with fewer than four rings are low molecular weight PAHs.

TS775 Airfield Skeet Range (sample results are included in Table 5-30.2 in Appendix H)

- Low molecular weight PAHs exceeded the screening level for terrestrial invertebrates.
- High molecular weight PAHs exceeded the screening levels for terrestrial invertebrates and mammals.

TS776 Skeet Range (sample results are included in Table 5-31.2 in Appendix H)

- Low molecular weight PAHs exceeded the screening level for terrestrial invertebrates and mammals.
- High molecular weight PAHs exceeded the screening levels for terrestrial invertebrates and mammals.

10.3.3 Explosives

As presented in Section 5, a total of 40 soil samples were collected from AL120 (Table 5-1.1 in Appendix H) and 41 samples from AL771 (Table 5-3.1 in Appendix H) and analyzed for HMX, RDX, and TNT. These explosive compounds were not detected in the soil samples. All quantitation limits were less than ecological screening levels.

ML125 has the highest concentration of MEC and MD based on the CSE Phase II findings. From this MRA, 78 surface soil samples were collected and analyzed for explosives. As summarized in Table 5-7.1, TNT was detected in sample ML125A1-01-3 at a concentration of 0.15 mg/kg and RDX was detected in sample ML125A3-09-3 at a concentration of 0.17 mg/kg, both concentrations are less than the ecological benchmarks presented in Table 10-1. The remaining explosives results were non-detections.

Table 10.1. Soil Sample Summary and Ecological Risk Screening Results

Site ID	Chemical	Maximum Concentration	Detection Frequency	USEPA Ecological Soil Screening Levels				Other Screening Levels	Source
				Plants	Terrestrial Invertebrates	Mammals	Birds		
AL120 Proximity Fuze Range	TNT	ND	0/40	NSV	NSV	NSV	NSV	10	Talmage, et al., 1999
	RDX	ND	0/40	NSV	NSV	NSV	NSV	21.1	Kuperman, 2003
	HMX	ND	0/40	NSV	NSV	NSV	NSV	6.3	Kuperman, 2003
AL771 Old Cable Site	TNT	ND	0/41	NSV	NSV	NSV	NSV	10	Talmage, et al., 1999
	RDX	ND	0/41	NSV	NSV	NSV	NSV	21.1	Kuperman, 2003
	HMX	ND	0/41	NSV	NSV	NSV	NSV	6.3	Kuperman, 2003
ML125 Field Firing Range	TNT	0.15	1/78	NSV	NSV	NSV	NSV	10	Talmage, et al., 1999
	RDX	0.17	1/78	NSV	NSV	NSV	NSV	21.1	Kuperman, 2003
	HMX	ND	0/78	NSV	NSV	NSV	NSV	6.3	Kuperman, 2003
	Antimony	3.5	6/76	NSV	78	**0.27**	NSV	5	(plants) Efroymson, et al., 1997a
	Cadmium	66	76/76	**32**	140	**0.36**	**0.77**		
	Copper	3,300	76/76	**70**	**80**	**49**	**28**		
	Lead	160	76/76	**120**	1,700	**56**	**11**		
	Mercury	0.088	59/76	NSV	NSV	NSV	NSV	0.3 0.1	(plants) Efroymson, et al., 1997a (invertebrates) Efroymson, et al., 1997b
	Zinc	1,200	76/76	**160**	**120**	**79**	**46**		
SR763 Rifle Range	Antimony	1.6	1/8	NSV	78	**0.27**	NSV	5	(plants) Efroymson, et al., 1997a
	Barium	140	8/8	NSV	330	2,000	NSV	500	(plants) Efroymson, et al., 1997a
	Copper	15	8/8	70	80	49	28		
	Iron	10,000	8/8	NSV	NSV	NSV	NSV		
	Lead	114.6	19/74	**120**	1,700	**56**	**11**		
	Zinc	58	8/8	160	120	79	**46**		
SR764 Rifle Range	Antimony	1.1	7/15	NSV	78	**0.27**	NSV	5	(plants) Efroymson, et al., 1997a
	Barium	160	15/15	NSV	330	2,000	NSV	500	(plants) Efroymson, et al., 1997a
	Copper	17	15/15	70	80	49	28		
	Iron	12,000	15/15	NSV	NSV	NSV	NSV		
	Lead	72	29/143	120	1,700	**56**	**11**		
	Zinc	50	15/15	160	120	79	**46**		
SR765 WWII Pistol Range	Antimony	ND	0/5	NSV	78	0.27	NSV	5	(plants) Efroymson, et al., 1997a
	Barium	200	5/5	NSV	330	2,000	NSV	500	(plants) Efroymson, et al., 1997a
	Copper	23	5/5	70	80	49	28		
	Iron	15,000	5/5	NSV	NSV	NSV	NSV		
	Lead	92.4	5/5	120	1,700	56	**11**		
	Zinc	79	5/5	160	120	79	**46**		
SR766 Sub-Machine Gun Range	Antimony	ND	0/3	NSV	78	0.27	NSV	5	(plants) Efroymson, et al., 1997a
	Barium	78	3/3	NSV	330	2,000	NSV	500	(plants) Efroymson, et al., 1997a
	Copper	8.6	3/3	70	80	49	**28**		
	Iron	10,000	3/3	NSV	NSV	NSV	NS**V**		
	Lead	175.8	5/33	120	1,700	56	**11**		
	Zinc	29	3/3	160	120	79	**46**		

Table 10.1. Soil Sample Summary and Ecological Risk Screening Results (Continued, Page 2 of 3)

Site ID	Chemical	Maximum Concentration	Detection Frequency	Ecological Soil Screening Levels				Other Screening Levels	Source
				Plants	Terrestrial Invertebrates	Mammals	Birds		
SR767 Rifle Range	Antimony	0.62	3/7	NSV	78	0.27	NSV	5	(plants) Efroymson, et al., 1997a
	Barium	170	7/7	NSV	330	2,000	NSV	500	(plants) Efroymson, et al., 1997a
	Copper	13	7/7	70	80	49	**28**		
	Iron	11,000	7/7	NSV	NSV	NSV	NSV		
	Lead	71.6	26/60	120	1,700	56	**11**		
	Zinc	42	7/7	160	120	79	**46**		
TS775 Airfield Skeet Range	Antimony	760	2/4	NSV	**78**	**0.27**	NSV	**5**	(plants) Efroymson, et al., 1997a
	Barium	79	4/4	NSV	330	2,000	NSV	500	(plants) Efroymson, et al., 1997a
	Copper	34	4/4	70	80	49	**28**		
	Iron	9,400	4/4	NSV	NSV	NSV	NSV		
	Lead	140.1	14/29	**120**	1,700	**56**	**11**		
	Zinc	45	4/4	160	120	79	46		
	Acenaphthene	1.5	8/10	Based on sum of low molecular weight PAHs and high molecular weight PAHs					
	Acenaphthylene	ND	0/10						
	Anthracene	5.6	10/10						
	Benzo(a) anthracene	29	10/10						
	Benzo(a)pyrene	32	10/10						
	Benzo(b) fluoranthene	36	10/10						
	Benzo(g,h,i) perylene	21	10/10						
	Benzo(k) fluoranthene	21	10/10						
	Chrysene	33	10/10						
	Dibenz(a,h) anthracene	7.1	10/10						
	Fluoranthene	48	10/10						
	Fluorene	0.72	6/10						
	Indeno(1,2,3-c,d) pyrene	18	10/10	Based on sum of low molecular weight PAHs and high molecular weight PAHs					
	Naphthalene	0.6	4/10						
	Phenanthrene	21	10/10						
	Pyrene	39	10/10						
	Sum Low Molecular weight PAHs	77.4		NSV	**29**	NSV	100		
	Sum High Molecular Weight PAHs	236.1		NSV	**18**	NSV	**1.1**		

Table. 10.1. Soil Sample Summary and Ecological Risk Screening Results (Concluded, Page 3 of 3)

Site ID	Chemical	Maximum Concentration	Detection Frequency	Ecological Soil Screening Levels				Other Screening Levels	Source
				Plants	Terrestrial Invertebrates	Mammals	Birds		
TS776 Skeet Range	Antimony	940	8/12	NSV	**78**	**0.27**	NSV	**5**	(plants) Efroymson, et al., 1997a
	Barium	140	12/12	NSV	330	2,000	NSV	500	(plants) Efroymson, et al., 1997a
	Copper	18	12/12	70	80	49	28		
	Iron	13,000	12/12	NSV	NSV	NSV	NSV		
	Lead	1,120	95/130	**120**	1,700	**56**	**11**		
	Zinc	62	12/12	160	120	79	**46**		
	Acenaphthene	8.2	9/33	Based on sum of low molecular weight PAHs and high molecular weight PAHs					
	Acenaphthylene	0.011	1/33						
	Anthracene	13	7/33						
	Benzo(a) anthracene	95	33/33						
	Benzo(a)pyrene	150	33/33						
	Benzo(b) fluoranthene	130	33/33						
	Benzo(g,h,i) perylene	99	33/33						
	Benzo(k) fluoranthene	97	33/33						
	Chrysene	120	33/33						
	Dibenz(a,h) anthracene	14	11/33						
	Fluoranthene	140	33/33						
	Fluorene	4.1	12/33						
	Indeno(1,2,3-c,d) pyrene	83	23/33						
	Naphthalene	0.92	11/33						
	Phenanthrene	79	31/33						
	Pyrene	150	33/33						
	Sum Low Molecular weight PAHs	245.2		NSV	**29**	NSV	**100**		
	Sum High Molecular Weight PAHs	938		NSV	**18**	NSV	**1.1**		

NSV - no screening value
ND - not detected
Bolded value indicates maximum detection greater than screening value

10.4 Surface Water

Medium not evaluated because the surface water pathways are incomplete.

10.5 Sediment

Medium not evaluated because the sediment pathways are neglible.

10.6 SLERA Conclusions and Recommendations

The SLERA results are summarized below by site. Overall, the data indicate that explosives potentially present do not pose a threat to ecological receptors. Only a limited number of samples contained detectable concentrations of explosives, and these concentrations are less than screening values.

10.6.1 Conclusions

ML125

At this MRA, the data indicate the presence of cadmium, copper, lead, and zinc at concentrations greater than background levels and screening levels for ecological receptors.

ML200

There is no evidence of a chemical release at this site.

SR763

Lead contamination at this site exceeds screening levels for mammals and birds. The maximum XRF concentration, 117.8 mg/kg, is greater than the mammal screening level by a factor of 2. The mammal screening level is based on a mammal whose diet consists of worms. Screening levels calculated for herbivorous mammals (1,200 mg/kg) and carnivorous mammals (460 mg/kg) are higher than any of the lead detections for the site. The maximum lead detection was 11 times the screening level for birds. This screening level w also as based on a diet consisting of worms. The maximum detection was 2.6 times the screening level for herbivorous birds (46 mg/kg) and less than the screening level for carnivorous birds (510 mg/kg). Based on the semi-arid conditions for the site, it is likely that the natural site conditions would not support a substantial worm population. Therefore, use of screening values based on worm consumption is likely overly conservative. Based on the limited extent to which the maximum lead concentration exceeds the different wildlife screening levels and the conservatism associated with the screening levels, the lead contamination at SR763 appears to pose minimal risk to ecological receptors

SR764

Lead contamination at this site exceeds screening levels for mammals and birds. The maximum XRF detection was 72 mg/kg. This concentration exceeds the insectivorous mammal and bird screening levels by factors of 1.3 and 6.5, respectively. The maximum detection is less than the screening levels for the herbivorous mammal, carnivorous mammal, and carnivorous bird, and only 1.6 times the screening level for the herbivorous bird. As noted above, for SR763, it is unlikely that the site's natural conditions would support a substantial earthworm population. Based on the limited extent to which the maximum lead concentration exceeds the different wildlife screening levels and the conservatism associated with the screening levels, the lead contamination at SR764 appears to pose minimal risk to ecological receptors

SR765

The zinc detections that exceeded the bird screening level, 78 mg/kg and 79 mg/kg, were only slightly higher than the background concentration of 76 mg/kg. Based on this comparison, it is expected that exposure to zinc would be associated with ecological risks similar to those associated with background conditions.

The maximum XRF lead detection was 92.4 mg/kg. This concentration is 1.7 times the insectivorous mammal screening level and 8.4 times the insectivorous bird screening level. In addition, the maximum concentration is less than the herbivorous mammal screening level, carnivorous mammal screening level, and carnivorous bird screening level, and only twice the herbivorous bird screening level. As discussed above, the natural site conditions are unlikely to support a substantial worm population. Based on the limited extent to which the maximum lead concentration exceeds the different wildlife screening levels, and the conservatism associated with the screening levels, the lead contamination at SR765 appears to pose minimal risk to ecological receptors.

SR766

Two XRF samples collected at location 10 had a lead concentration 2.4 times and 3.1 times greater than the insectivorous mammal screening level. All other sample results were less than this screening level. The two highest lead detections were less than the screening levels for herbivorous mammals and carnivorous mammals. Based on the limited number of samples that exceeded the most conservative screening level, the low factor by which the results exceeded the screening level, and the conservatism associated with the screening level, the lead contamination at SR766 appears to pose minimal risk to mammals.

The two highest lead detections were an order of magnitude higher than the screening level for worm-eating birds, 3 to 4 times the herbivorous bird screening level, and less than the carnivorous bird screening level. At all other locations with lead detections, the concentrations were approximately equal to or less than the herbivorous bird screening level, and no more than 4.6 times the worm-eating bird screening level. Based on the limited occurrence of screening level exceedances and the conservatism associated with these screening levels, the lead contamination at SR766 appears to pose minimal risk to birds.

SR767

The maximum XRF concentration for this site was 71.6 mg/kg, similar to the maximum concentration of 72 mg/kg observed at SR764. As described for SR764, based on comparison of this maximum concentration to the different mammal and bird screening levels and the conservatism associated with development of these screening levels, the lead contamination at SR767 appears to pose minimal risk to ecological receptors.

TS775

Metals and PAH contamination exceed screening levels for one or more ecological receptors. The presence of pellet/shot fragments suggests the potential for risk to birds.

TS776

Metals and PAH contamination exceed screening levels for one or more ecological receptors. The presence of pellet/shot fragments suggests the potential for risk to birds.

Non SAR MRAs

At the majority of non SAR MRAs, soil samples were not collected for analysis. These MRAs were characterized by substantially lower concentrations of MEC/MD items as compared to AL120, AL771, and ML125. Thus, these three sites may be considered to provide an upper bounding assessment of the potential for there to have been a release of contaminants above ecological screening levels at the unsampled MRAs.

The data indicate no potential for explosives to have been released at concentrations greater than ecological benchmark values.

The data for ML125 indicate that at most of the locations sampled, there is no to minimal evidence of contamination. The highest metals concentrations were observed at samples collected from ML125A1-01, ML125A3-09, ML125A5-01, ML125A5-02, ML125A5-03, and ML125A6-01. Samples near OB/OD areas and cleared or existing munitions piles do not represent site conditions at the non SAR sites. These conditions would have greater potential for contaminant release than the scattered MEC/MD (primarily MD) found at the unsampled, non SAR sites.

Based on the findings for AL120, AL771, and the portions of ML125 that would be consistent with conditions at the unsampled, non SAR sites, it is expected that these sites have minimal potential to pose a threat to ecological receptors.

10.6.2 Recommendations

The following sites are recommended for further investigation to assess the potential for ecological risk:

- ML125,
- TS775, and
- TS776.

The following sites are not recommended for further investigation or risk evaluation:

- ML200,
- SR763,
- SR764,
- SR765,
- SR766,
- SR767, and
- Non SAR MRAs.

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11. MUNITIONS RESPONSE SITE PRIORITIZATION PROTOCOL

To ensure that available resources are directed to the most urgent MMRP-identified sites, DoD developed the MRSPP to assign a relative priority for response activities at defense sites containing military munitions. The National Defense Authorization Act (USC Title 10, Section 2710) requires application of the MSRPP to defense sites that are:

- Currently or previously owned by, leased to, or otherwise possessed or used by the DoD
- Known or suspected to contain UXO, DMM, or MC
- Included in the inventory of defense sites

The MRSPP assigns the highest priority to those sites posing the greatest hazard. The overall hazard includes the potential exposure to environmental receptors from explosives, CWM, and chemical contaminants. Each of these hazard components is evaluated as a separate module, and the overall site is prioritized based on the single highest hazard from three modules. The rationale for each score reflects the data collected at each MRA during the CSE Phase II investigation, as described in Section 5 and presented in Sections 6 and 7 of this report.

Recommended response activities are based on the results of the CSE Phase II investigation and the MRSPP evaluation of each site. The Kirtland AFB MRSPP tables, including the EHE, CHE, and HHE modules, are included in Appendix K. The results of each module also are summarized in the subsections below. The same rating criteria were followed for each module: a score of "A" is of highest priority and a score of "G" is the lowest priority. Because multiple MRAs were divided into MRSs in accordance with CSE Phase II guidance, MRSPP scoring was done by MRS. Section 14.3 presents the details and rationale for division of MRAs into MRSs.

11.1 Explosive Hazard Evaluation (EHE) Module

The presence of known or suspected explosive hazards is assessed by the EHE module. Specific conditions at each MRS are evaluated based on three factors, with two to four data elements, by the EHE module. The three factors are:

- Explosive Hazard, including data elements Munition Type and Source of Hazard
- Accessibility, including data elements Location of Munitions, Ease of Access, and Status of Property
- Receptors, including data elements Population Density, Population Near Hazard, Types of Activities/Structures, and Ecological and/or Cultural Resources

Each data element is assigned a numeric value based on site-specific information obtained during the CSE Phase II investigation. The sum of these values generates the EHE module score. The module score is then converted into a rating for the MRS. The data element scores for the EHE module are summarized for each MRS in Table 11-1.

Table 11-1. Summary and Total of the EHE Data Element Scores

Specific Data Element	AL120	AL120A	AL120B	AL120C	AL120D	AL120E	AL769	AL771	DA130	DA130A	DA782
Explosive Hazard											
Munitions Type	25	15	25	NA	NA	25	NA	NA	25	NA	25
Source of Hazard	10	10	10	NA	NA	10	NA	NA	8	NA	8
Accessibility											
Location of Munitions	10	25	25	NA	NA	25	NA	NA	25	NA	10
Ease of Access	10	10	10	NA	NA	10	NA	NA	10	NA	5
Status of Property	0	0	0	NA	NA	0	NA	NA	0	NA	0
Receptors											
Population Density	5	5	5	NA	NA	5	NA	NA	5	NA	5
Population Near Hazard	4	5	5	NA	NA	5	NA	NA	5	NA	5
Types of Activities/Structures	5	2	5	NA	NA	5	NA	NA	4	NA	5
Ecological and/or Cultural Resources	0	5	3	NA	NA	5	NA	NA	3	NA	3
Total EHE Module Score	69	77	88	NA	NA	90	NA	NA	85	NA	66
Total EHE Module Rating	D	C	B	NKS	PNR	B	NKS	PNR	B	NKS	D

Specific Data Element	DA782A	ED770	ML125	ML200	ML200A	ML200B	ML201	ML760	ML762	ML774	ML781	ML784
Explosive Hazard												
Munitions Type	NA	NA	25	NA	NA	NA	0	NA	NA	NA	5	NA
Source of Hazard	NA	NA	10	NA	NA	NA	10	NA	NA	NA	10	NA
Accessibility												
Location of Munitions	NA	NA	25	NA	NA	NA	0	NA	NA	NA	10	NA
Ease of Access	NA	NA	10	NA	NA	NA	10	NA	NA	NA	0	NA
Status of Property	NA	NA	0	NA	NA	NA	0	NA	NA	NA	0	NA
Receptors												
Population Density	NA	NA	5	NA	NA	NA	5	NA	NA	NA	5	NA
Population Near Hazard	NA	NA	4	NA	NA	NA	5	NA	NA	NA	5	NA
Types of Activities/Structures	NA	NA	2	NA	NA	NA	5	NA	NA	NA	5	NA
Ecological and/or Cultural Resources	NA	NA	5	NA	NA	NA	3	NA	NA	NA	3	NA
Total EHE Module Score	NA	NA	86	NA	NA	NA	38	NA	NA	NA	43	NA
Total EHE Module Rating	PNR	PNR	B	PNR	PNR	PNR	G	PNR	NKS	PNR	F	PNR

Table 11-1. Summary and Total of the EHE Data Element Scores (Concluded, Page 2 of 2)

Specific Data Element	MU772	PT123	PT761	PT773	PT773A	PT783	SR763	SR764	SR765	SR766	SR767	SR768
Explosive Hazard												
Munitions Type	NA	20	20	NA	NA	NA	2	2	2	NA	2	NA
Source of Hazard	NA	6	6	NA	NA	NA	1	1	1	NA	1	NA
Accessibility												
Location of Munitions	NA	25	5	NA	NA	NA	1	1	1	NA	1	NA
Ease of Access	NA	10	10	NA	NA	NA	0	10	0	NA	10	NA
Status of Property	NA	0	5	NA	NA	NA	0	0	0	NA	0	NA
Receptors												
Population Density	NA	5	5	NA	NA	NA	5	5	5	NA	5	NA
Population Near Hazard	NA	5	5	NA	NA	NA	5	5	5	NA	5	NA
Types of Activities/Structures	NA	5	5	NA	NA	NA	5	5	5	NA	5	NA
Ecological and/or Cultural Resources	NA	5	5	NA	NA	NA	0	0	0	NA	0	NA
Total EHE Module Score	NA	81	66	NA	NA	NA	19	29	19	NA	29	NA
Total EHE Module Rating	PNR	C	D	PNR	PNR	PNR	G	G	G	NKS	G	NKS

Specific Data Element	SR777	SR778	SR780	TG100	TG100A	TS775	TS776
Explosive Hazard							
Munitions Type	NA	2	NA	5	NA	2	2
Source of Hazard	NA	1	NA	6	NA	1	1
Accessibility							
Location of Munitions	NA	1	NA	10	NA	1	1
Ease of Access	NA	10	NA	8	NA	0	10
Status of Property	NA	0	NA	0	NA	0	0
Receptors							
Population Density	NA	5	NA	5	NA	5	5
Population Near Hazard	NA	5	NA	5	NA	5	5
Types of Activities/Structures	NA	5	NA	5	NA	5	5
Ecological and/or Cultural Resources	NA	0	NA	3	NA	0	3
Total EHE Module Score	NA	29	NA	47	NA	19	32
Total EHE Module Rating	NKS	G	PNR	F	NKS	G	G

NA – Not Applicable
NKS – No Known of Suspected Hazard
PNR – Prioritization No Longer Required

11.2 Chemical Warfare Materiel Hazard Evaluation (CHE) Module

No evidence of CWM was found in the MRAs investigated during CSE Phase II field investigations. Therefore, all CHE modules for the CSE Phase II MRAs/MRSs are designated "No Known or Suspected MC Hazard."

11.3 Health Hazard Evaluation (HHE) Module

The relative risk to human health and the environment from contamination found at an MRA is evaluated by the HHE module. The module was developed to provide a consistent approach for this evaluation. The module has the following three factors:

- Contamination Hazard Factor (CHF), which accounts for contaminants present. The options are "Significant," "Moderate," or "Minimal Contaminants Found," which then correlates to a value of High (H), Middle (M), or Low (L)
- Receptor Factor (RF), with the options of "Identified," "Potential" or "Limited," which also correlates to H, M, or L
- Migration Pathway Factor (MPF), which evaluates environmental migration pathways. The options are "Evident," "Potential," or "Confined," which again correlates to H, M, or L

Generally, surface water and sediment are evaluated from the human and ecological endpoints, and groundwater and surface soil also are evaluated without differentiation between human and ecological endpoints. Subsurface soils are not addressed as part of the HHE. At Kirtland AFB, soil samples were only collected at select MRAs/MRSs. For those sites where samples were collected, the H, M, and L levels are combined in a matrix to produce a three-letter combination that integrates the considerations of all three factors. For those sites where samples were not collected, no data were entered and the Data Management Tool (DMT) generated an NA designation. The three-letter combination results in a rating level for HHE. Those ratings are summarized in Table 11-2. Sites not listed are designated "No Known or Suspected MC Hazard."

11.4 MRSPP Score

An MRS Priority Score ranging from 1 to 8 is designated for each MRS. The highest potential hazard is associated with Priority 1 while Priority 8 is the lowest. Chemical warfare hazards are the only sites that can be ranked with a Priority 1, and, as previously stated, no CWM was identified during the CSE Phase II investigation. The highest rating from the three modules determines the MRS Priority Score. The MRS Priority Score is used to then determine further munitions response actions. Table 11-3 summarizes the MRS Priorities for the Kirtland AFB sites evaluated in the CSE Phase II investigation.

11.5 Public Notice

In accordance with 32 CFR Part 179, a Public Notice was posted by the Kirtland Air Force Base Public Affairs Office informing the local community of the opportunity to comment on the CSE Phase II. The public notice provided a brief overview of the MRSs, CSE process and the investigative approach used to complete the project. It also stated that the public had 30 days to review and provide comments. The comment period ran from Monday, May 9, 2010 through June 11, 2010. The comment period provided the public with the means to contribute to the decision-making process for each MRS including the recommendations for further or no further action. No public comments were provided during the 30-day public notice period. A copy of the Public Notice in both English and Spanish, is provided in Appendix N.

Table 11-2. Summary of the HHE Data Element Scores

Specific Data Element	AL120A	AL771	ML125	SR763	SR764	SR765	SR766	SR767	TS775	TS776
Contaminant Hazard Factor	NA	NA	L	L	L	L	L	L	H	H
Receptor Factor	NA	NA	M	L	L	L	L	L	M	M
Migration Pathway Factor	NA	NA	M	L	L	L	L	L	L	L
HHE Combination Level	NA	NA	MML	LLL	LLL	LLL	LLL	LLL	MML	MML
Total HHE Module Rating	NA	NA	E	G	G	G	G	G	E	E

NA – Not Applicable
H – High
M – Middle
L - Low

Table 11-3. Priority Ratings for Kirtland AFB MRSs

Specific Data Element	AL120	AL120A	AL120B	AL120C	AL120D	AL120E	AL769	AL771	DA130	DA130A	DA782	DA782A
EHE Module Rating	D	C	B	NKS	PNR	B	NKS	PNR	B	NKS	D	PNR
CHE Module Rating	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS
HHE Module Rating	NKS	NKS	NKS	NKS	PNR	NKS	NKS	PNR	NKS	NKS	NKS	PNR
Priority	5	4	3	NKS	PNR	3	NKS	PNR	3	NKS	5	PNR

Specific Data Element	ED770	ML125	ML200	ML200A	ML200B	ML201	ML760	ML762	ML774	ML781	ML784	MU772	PT123
EHE Module Rating	PNR	B	PNR	PNR	PNR	G	PNR	NKS	PNR	F	PNR	PNR	C
CHE Module Rating	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS
HHE Module Rating	PNR	E	PNR	PNR	PNR	NKS	PNR	NKS	PNR	NKS	PNR	PNR	NKS
Priority	PNR	3	PNR	PNR	PNR	8	PNR	NKS	PNR	7	PNR	PNR	4

Specific Data Element	PT761	PT773	PT773A	PT783	SR763	SR764	SR765	SR766	SR767	SR768	SR777	SR778	SR780
EHE Module Rating	D	PNR	PNR	PNR	G	G	G	NKS	G	NKS	NKS	G	PNR
CHE Module Rating	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS	NKS
HHE Module Rating	NKS	PNR	PNR	PNR	G	G	G	G	G	NKS	NKS	NKS	PNR
Priority	5	PNR	PNR	PNR	8	8	8	8	8	NKS	NKS	8	PNR

Specific Data Element	TG100	TG100A	TS775	TS776
EHE Module Rating	F	NKS	G	G
CHE Module Rating	NKS	NKS	NKS	NKS
HHE Module Rating	NKS	NKS	E	E
Priority	7	NKS	6	6
NKS – No Known or Suspected Hazard PNR – Prioritization No Longer Required				

12. PERCHLORATE SAMPLING

No perchlorate sampling was conducted for the CSE Phase II. Perchlorate sampling was conducted voluntarily by Kirtland AFB as part of basewide groundwater monitoring in 2006 and 2007. Results indicate perchlorate has been detected in concentrations ranging from ≤1.0 ug/L, typical of naturally occurring concentrations (Kirtland AFB, 2008), to higher levels that warrant further investigation to determine potential anthropogenic sources. Currently, there is no State of New Mexico regulatory standard for perchlorate. However, the NMED plans to require perchlorate analyses in future groundwater sampling under the new Kirtland AFB RCRA permit (currently in comment phase).

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13. SUMMARY AND CONCLUSIONS

This section summarizes activities and findings of the CSE Phase II investigation. Only the most significant findings are presented in this section.

13.1 Summary of CSE Phase II Activities

Various activities were conducted as part of the CSE Phase II investigation at Kirtland AFB. Site activities included a combination of HeliMag, towed-array, litter/cart, visual surveys, and ground truthing. Media samples were collected at those sites meeting the work plan criteria for non SAR sites, as well as most SAR sites, and trap and skeet ranges. The ICSMs developed prior to site work were updated to CSMs. Screening level risk assessments evaluating both human health and ecological factors were conducted. MRSPP, RACER, and AFRIMS forms were completed for each site. Information collected during CSE Phase II site evaluations was used to prioritize each site.

13.2 Summary of CSE Phase II Findings

A summary of the findings for the Kirtland AFB MRAs are provided below.

13.2.1 AL120 Proximity Fuze Range

The AL120 Proximity Fuze Range is a 4,440.0-acre large caliber range, and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompasses the firing points, firing fans, and main impact area for the NMPG/NMER, with the Manzanita Mountains serving as the backstop for much of the firing activities that took place primarily from 1942 through 1952. Two of the five AL120 areas, the southwest and southcentral portions, are located in mostly flat to gently rolling grassland. The northcentral area of AL120 is located in piñon-juniper studded foothills. The northeast and southeast portions of AL120, located along the eastern boundary of Kirtland AFB, are situated in steep, mountainous terrain. The vast majority of AL120 is undeveloped open space.

Once access onto Kirtland AFB is obtained, entry onto portions of AL120 is restricted to authorized personnel by signage. All of AL120 is openly accessible except for the following areas:

- The southwest portion of AL120 is bordered on the south and west by the Installation boundary chain-link fence. Part of the north side of the southwest portion of AL120 is bordered by a chain-link security fence.
- The southcentral portion of AL120 is bordered by the Installation boundary chain-link fence on the south side.
- The southeast and northeast portions of AL120 are bordered by severely rugged terrain. The eastern Installation boundary between Kirtland AFB and Cibola National Forest, in the far northeast portion of AL120 is not completely fenced. Several gates and natural barriers restrict vehicular access onto the Installation and AL120 from the eastern boundary. However, all-terrain vehicle riders, mountain bikers, and hikers can illegally gain access to these portions of AL120.
- The northcentral portion of AL120 is bordered by non-fenced operational areas of the Installation.

Geophysical surveys revealed the following densities for the five areas of AL120:

- The southwest portion of AL120 results showed a low anomaly density.
- The southcentral portion of AL120 results showed several areas of high anomaly density.
- The southeast and northeast portions of AL120 areas were not surveyed with DGM due to their rugged terrain.
- The northcentral portion of AL120 results showed three areas of high anomaly density.

Visual survey and ground truthing of AL120 acreage documented the following cultural surface features for each area:

- The southwest portion of AL120 had a large metal pipe, Kirtland AFB's auxiliary airfield, possible water lines, and fence posts.
- The southcentral portion of AL120 had metal stakes, soda cans and refuse, a parking lot and roads, power lines, buildings, fenced compounds, and communications wire.
- The southeast and northeast portions of AL120 are on the extremely remote eastern edge of the Installation, and all items found were related to refuse and discarded soda and beer cans and water bottles, etc., presumably discarded by persons who have illegally gained access to remote portions of the Installation.
- The northcentral portion of AL120 had fenced lines, a shallow survey/prospect pit, old telephone poles, fenced compounds, an observation tower, road intersections, and a DOE training facility.

The following munition items were observed by area:

- The southwest portion of AL120 contained a broken open fuze from a 2.75″ rocket, a 57mm HE projectile, and propellant
- The southcentral portion of AL120 had a 5″ projectile, an unfired rifle grenade, and a 5″ rocket.
- The southeast portion of AL120 had several 5″ projectiles
- The northeast portion of AL120 had no munition items found in its boundary.
- The northcentral portion of AL120 had an expended smoke grenade, bomb frag, expended 7.62mm casings, and a 155mm base ejection projectile.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. Soil samples were collected only in the southcentral area to characterize potential HE-related contamination. MC-related compounds, TNT, HMX, and RDX, were not detected in any samples. The analytical results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. No MC was detected in the soil and the other exposure pathways for all receptors are incomplete.

13.2.2 AL769 Ordnance Drop Zone

The AL769 Ordnance Drop Zone is a 174.4-acre air-to-ground range located in the northwest portion of Kirtland AFB. The history and use of AL769 is unknown. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted, but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of AL769 acreage documented only cultural surface features, including a large metal fence post and metal drone cable. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.3 AL771 Old Cable Site

The AL771 Old Cable Site is a 586.4-acre air-to-ground range located in the southcentral portion of Kirtland AFB. The site consists of rolling grassland hills bisected by arroyos transgressing into rocky, piñon-juniper studded foothills. The site was used as a test site and projectile impact area. Currently, the northeastern portion of AL771 is being used by DOE and the remainder of the site is used as a training and maneuver site. Access controls are in place.

Geophysical survey results indicated three areas of high anomaly density. The visual survey confirmed the presence of bulk propellant Ballistite, 3.5″ and 5″ rockets, 5″ projectiles, and a bunker. Ground

truthing confirmed the presence of 3.5″ and 5″ rockets, 5″ frag, 3.5″ rocket fuze, 5″ projectiles, slap fare, small arms ammunitions casings, and numerous non-munitions items. In addition, one bunker and five MEC locations were selected for soil sampling and laboratory analysis of suspected MC-related compounds. Explosives analysis included the compounds TNT, HMX, and RDX.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. MC-related compounds, TNT, HMX, and RDX, were not detected in any samples. The analytical results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. No MC was detected in the soil and the other exposure pathways for all receptors are incomplete.

13.2.4 DA130 Arroyo del Coyote Demolition Area

The DA130 Arroyo Del Coyote Demolition Area is a 386.5-acre OB/OD range located in the northwest portion of Kirtland AFB. Two Kirtland AFB ERP sites exist within the DA130 footprint. The first ERP site, OT-010, consists of four Radiation Training Sites (TS-5, TS-6, TS-7, and TS-8). These sites were used to train military personnel in alpha radiation monitoring and decontamination of simulated nuclear weapon accidents. The second ERP site, SS-069, consists of a 50-ft by 50-ft fenced area within TS-6, in a drainage area adjacent to Arroyo del Coyote. Site SS-069 was used to store thorium oxide-contaminated soil and sludge. Both of these ERP sites, OT-010 and SS-069, were approved for NFA by NMED. The topography is characterized by the large Arroyo del Coyote that transects the site and flows generally northwest. The flood plain of Arroyo del Coyote and the high-walled banks on either side are grassland and undeveloped open space. Access controls are in place and access is restricted. Portions of the MRA are monitored.

Geophysical surveys revealed three areas of high anomaly density across this MRA. Ground truthing of DA130 acreage documented surface features, including an empty 5″ projectile and fragmentation. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.5 DA782 Explosive Disposal Area

The DA782 Explosive Disposal Area is a 5.5-acre OB/OD range located in the northwest portion of Kirtland AFB. DA782 is believed to have been an EOD OB/OD range, but the dates of use are unknown and no evidence of craters, scarred ground, etc., has been located. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted, but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of DA782 acreage documented surface features, including a barbed wire fence and a large piece of bomb frag. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.6 ED770 Experimental Range

The ED770 Experimental Range is a 1,479.7-acre area that surrounds Kirtland’s active EOD range and is bordered on all sides by active ranges. The history and use of ED770 is unknown, but according to historical records from VT fuze testing, several munition items were placed in close proximity to aircraft and detonated to test effectiveness of fragments igniting aircraft fuel tanks. The terrain is relatively flat grassland. Currently, portions of ED770 are developed and used by multiple organizations; the remainder is open space. Access controls are in place for developed areas and access is restricted, but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ED770 acreage documented large numbers of cultural surface features, including power lines, pipelines, fences,

compounds, buildings, signs, etc. Multiple munitions-related items were observed. Although some could be attributed to VT fuze testing, the majority of munitions-related items seem to be a result of current military field training occurring in this area. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.7 ML125 Field Firing Range

The ML125 Field Firing Range is a 2,231.3-acre multi-use range located in the southern portion of Kirtland AFB. ML125 contains the impact area for the NMPG and was used for the development of the VT fuze program from 1942 to 1952. The terrain varies from rolling, grassy hills to steep, rocky foothills. Access controls are not in place and access is not restricted or monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of ML125 acreage documented several cultural surface features, including fenced compounds, target debris, steel cable, metal scrap, a metal culvert, a 55-gallon drum, barbed wire, and fence. Heavy concentrations of munitions, primarily projectiles with VT fuzing, were found in this MRA.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. MC-related compounds, TNT, HMX, and RDX, were not detected or below screening levels in all samples. Metals were detected above background levels, but below human health screening levels, in multiple samples. The analytical results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Based on the soil results, a threat to human health from a contaminant release does not appear to exist. The surface water and groundwater pathways are incomplete and the sediment pathway is negligible. The data indicate the presence of cadmium, copper, lead, and zinc at concentrations greater than screening levels for ecological receptors. Additional investigation of this MRA is recommended to assess the potential for ecological risk.

13.2.8 ML200 Sandia Base Howitzer Range

The ML125 Sandia Base Howitzer Range is a 960.2-acre medium/large caliber range and is located in the western portion of Kirtland AFB. ML200 was part of the Defense Training Areas used by Sandia Base for flat trajectory line of sight firing of 75mm projectiles as identified from the Sandia Base Range Regulations from the 1950s. In addition, an apparent .50-caliber target was found as evidenced by several 55-gallon drums, used as targets, and numerous fired .50-caliber projectiles. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is not restricted, but is monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of ML200 acreage documented cultural surface features, including barbed-wire fences, tires and drums used as targets, and several piles of debris. Multiple 75mm projectiles were found on the surface in this MRA. Additionally, one proximity nose fuze and a suspected missile cone were found.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of the laboratory sample results exceeded screening or background levels. The XRF results did not exceed screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Exposure pathways for all receptors are incomplete.

13.2.9 ML201 Sandia Base Howitzer Range Buffer

The ML201 Sandia Base Howitzer Range Buffer is a 710.0-acre medium/large caliber range and is located in the western portion of Kirtland AFB. ML201 was derived from the ML200 75mm Howitzer

Range identified in Sandia Base Range Regulations from the 1950s. The terrain is relatively flat grassland and undeveloped open space. Base access controls are in place and access is not restricted, but is monitored.

Geophysical surveys revealed three areas of medium anomaly density in this MRA. Visual survey and ground truthing of ML201 acreage documented cultural surface features, including power lines, fenced areas, debris piles, metal pipe, and a road. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.10 ML760 Gun Fan Site

The ML760 Gun Fan Site is a 8,845.5-acre large caliber range located outside the Kirtland AFB western boundary. A portion, 1,892.9 acres, of ML760 (OB-7) was investigated under the MMRP at the request of Mr. Carl Lanz, former Chief of the Restoration Section, Environmental Branch at Kirtland AFB. This request was based on the eastern portion of the site's location near the broken arrow site and also a buffer between Kirtland AFB and the private property owners. The complete historical use of ML760 (OB-7) is unknown. Identification of ML760 (OB-7) was based on the analysis of two maps and an interview with a former Kirtland AFB employee. The maps depict a possible firing point designated as "Gun Site" to the east of the MRA, and the former Kirtland AFB employee indicated that the MRA may have been part of the NMPG/NMER. USACE - Albuquerque released a final PA, *Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639*, which discusses the ML760 area. The report concluded OB-7 was never used. The terrain is relatively flat grassland and undeveloped open space. The ML760 (OB-7) Gun Fan Site is an off-site MRA, and access to this area by road is via locked gate located in the extreme southwest corner of Kirtland AFB. There are no access controls to this area from the west. Access from the base was granted by permission of the Kirtland AFB Environmental Office once a right-of-entry certificate was issued by the State of New Mexico.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ML760 (OB-7) acreage documented cultural surface features, including chain-link and barbed-wire fences, fenced compounds, a windmill, power lines, and a concrete pad. One possible munitions-related item was observed – a piece of aluminum debris. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.11 ML762 McCormick Ranch Buffer

The ML762 McCormick Ranch Buffer is a 141.4-acre large caliber range located in the southwest corner of Kirtland AFB. The complete historical use of ML762 is unknown. Based on the formation of ML762, discussed above as the confluence of ML760 (OB-7 Gun Fan Site) and the off-base ML126, the history and time of use for ML762 are associated with these ranges. USACE - Albuquerque released a final PA, *Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639*, which covered the ML760 (OB-7) areas (USACE, 2007). The report concluded OB-7 was never used. The terrain is flat grassland and undeveloped open space. Access controls are in place and access is restricted, but accessible after notification of DOE/SNL security

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ML762 acreage documented only cultural surface features, including chain-link and barbed-wire fencing. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.12 ML774 Gun Site Fan

The ML774 Gun Site Fan is a 622.6-acre large caliber range located in the western portion of Kirtland AFB. The history of ML774 is unknown. Although rumored to be within the firing fan of OB-7, the final PA, *Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639*, which covered the ML760 (OB-7) areas (USACE, 2007), concluded OB-7 was never used. The terrain is flat grassland, except for four large earthen target mounds, and is undeveloped open space. Access controls are in place and access is restricted, requiring notification of DOE/SNL security.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ML774 acreage documented only cultural surface features, including construction debris. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.13 ML781 Firing-In Abutment

The ML781 Firing-In Abutment is a 0.6-acre multi-use range located just south of the airport runway. ML781 was used to unload aircraft weapons misfires; however, this area has also been used for aircraft machine gun maintenance. The period of use is unknown. The terrain is flat grassland and undeveloped open space. Access controls are in place and access is restricted within the airport's security zone.

Geophysical surveys revealed an area of high anomaly density across this MRA. Ground truthing of ML781 acreage documented only cultural surface features, including the chain-link fence that surrounded the entire area . The only munitions-related item found at the site was one 20mm casing. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.14 ML784 40mm Test and Training Range

The ML784 40mm Test and Training Range is a 150.0-acre rifle grenade range located in the central portion of Kirtland AFB. ML784 was used from 1984 to 1994 for the "Peacekeeper Challenge" competition, which was held annually for security police units worldwide to enhance weapons proficiency, tactics, individual skills, and training programs. One of the marksmanship events was firing orange powder M781 40mm practice grenades from 12 different firing points at 12 different targets. The terrain is relatively flat grassland and undeveloped open space immediately surrounded by steep hillsides. Access controls are in place, but are not monitored. Access is limited by terrain and the Electro-Explosive Facility's security fencing.

Geophysical surveys were not conducted for this MRA because it is located entirely within the Electro-Explosive Facility's Operational Boundary and Exclusion Area. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.15 MU772 H-25 Site

The MU772 H-25 Site is a 132.8-acre multi-use range located in the east-central portion of Kirtland AFB. The history and use of MU772 is unknown. The terrain is piñon-juniper covered foothills and is undeveloped open space. Access controls are in place and access is restricted and monitored by frequent patrols.

Geophysical surveys revealed seven areas of high anomaly density across this MRA. Visual survey and ground truthing of MU772 acreage documented cultural surface features, including metal scrap, chain-link fence, high-voltage cables and fence posts. Munitions-related items observed included projectile

fragmentation, an expended ground-burst simulator, and an unfired 40mm smoke grenade. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.16 PT123 Tijeras Small Arms Range

The PT123 Tijeras Small Arms Range is a 434.2-acre multi-use range located in the northeast portion of Kirtland AFB. PT123 was used as a small combat training range. The period of use is unknown. The terrain is steep and mountainous undeveloped open space. Access controls are in place and access is unrestricted, but monitored by both US Air Force and DOE/SNL.

Geophysical surveys revealed multiple areas of high anomaly density across this MRA. Visual survey and ground truthing of PT123 acreage documented cultural surface features, including chain-link and barbed-wire fences, a wildlife-watering tank, a shallow prospect pit, and a metal drum. Munitions-related items observed included 40mm grenade casings, slap flare casings and expended small arms blanks. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.17 PT761 Tijeras Small Arms and Training Range

The PT761 Tijeras Small Arms and Training Range is a 574.9-acre multi-use range that extends beyond the northern property boundary of Kirtland AFB and is off-base. PT761 was a former small combat training range, but its period of use is unknown. The terrain is extremely steep and mountainous undeveloped open space. Access controls are in place and access is restricted, but not monitored.

Geophysical surveys revealed several areas of high anomaly density across this MRA. Visual survey and ground truthing of PT761 acreage documented cultural surface features, including chain-link and barbed-wire fence, and vehicle hulk. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.18 PT773 Coyote Canyon Tech Site

The PT773 Coyote Canyon Tech Site is a 77.2-acre pyrotechnics range located in the central portion of Kirtland AFB. PT773 was used in the 1950s for explosives testing. Live munitions and munitions debris (including white phosphorus canisters) associated with the Manzano Combat Range were removed from the nearby DOE/SNL Site 58 (Coyote Canyon Blast Area) in 1996. SNL ER sites 8, 58, and 92 are located within PT773. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is not restricted, but monitored by vehicle patrols.

Geophysical surveys revealed an area of high anomaly density in this MRA. Visual survey and ground truthing of PT773 acreage documented cultural surface features, including electrical-cable vaults, small buildings, and significant subsurface anomalies. Munitions-related items observed included heavy case HE fragments, 7.62mm cartridge casings and metal frag. The CSE Phase I also noted several munitions-related items as well. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.19 PT783 Bazooka Training Range

The PT783 Bazooka Training Range is a 116.6-acre multi-use/training and maneuver range. PT783 is a former bazooka training area and its period of use is unknown. The terrain is a combination of level grassland and hilly, piñon-juniper type vegetation, and is undeveloped open space. The MRA contains a portion of the SNL ER Site 8. Access controls are in place and access is not restricted, but is monitored.

Geophysical surveys revealed several areas of high anomaly density across this MRA. Visual survey and ground truthing of PT783 acreage documented cultural surface features, including power lines, construction debris, and a road. Munitions debris observed included a slap flare and fuze. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.20 SR763 Rifle Range

The SR763 Rifle Range is a 17.9-acre SAR located in the central portion of Kirtland AFB. SR763 was once used as a Sandia Base rifle range; however, the years of operation are unknown. The range is visible in aerial photographs from the 1950s. The terrain is flat grassland partially covered by Pad 5. This area is strictly controlled via use of signs, fencing, locked gates, vehicle patrols, guard posts, and electronic anti-intrusion devices.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of the XRF sample results exceeded screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Lead results exceeded the Kirtland AFB background level of 39 mg/kg n 19 locations. With the exception of the soil pathway, exposure pathways for all receptors are incomplete. The site does not pose a threat to human health and appears to pose a minimal risk to ecological receptors.

13.2.21 SR764 Rifle Range

The SR764 Rifle Range is a 6.6-acre SAR located in the northwest portion of Kirtland AFB. SR764 was once used as a Sandia Base rifle range; however, the years of operation are unknown. The range is visible in aerial photographs from the 1950s. The terrain is relatively flat grassland and undeveloped open space. Access controls are not in place and access is not restricted.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of XRF results exceeded screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 24 locations. With the exception of the soil pathway, exposure pathways for all receptors are incomplete. The site does not pose a threat to human health and appears to pose a minimal risk to ecological receptors.

13.2.22 SR765 WWII Pistol Range

The SR765 WWII Pistol Range is a 2.3-acre SAR located in the northwest portion of Kirtland AFB. SR765 was used as a pistol range around WWII. The years of operation are unknown; however, historical records and aerial photographs show SR765 during the 1950s. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted, but not monitored.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of the XRF sample results exceeded screening levels. Two laboratory samples exceeded the Kirtland AFB background level for copper. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 14 locations. With the exception of the soil

pathway, exposure pathways for all receptors are incomplete. The site does not pose a threat to human health and appears to pose a minimal risk to ecological receptors.

13.2.23 SR766 Sub-Machine Gun Range

The SR766 Sub-Machine Gun Range is a 64.0-acre SAR located in the northwest portion of Kirtland AFB. SR766 was reportedly a sub-machine gun range. Although included in a 1950s Sandia Base Range Regulation, no evidence of its existence could be found in historic base maps or aerial photographs. The terrain is flat grassland and undeveloped open space within the fenced area of the airport runway. Access controls are in place and monitored. Access requires permission from Kirtland Base Operations and the New Mexico Air National Guard. An escort to and from the site is mandatory.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of the XRF results exceeded screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in four locations. With the exception of the soil pathway, exposure pathways for all receptors are incomplete. The site does not pose a threat to human health and appears to pose a minimal risk to ecological receptors.

13.2.24 SR767 Rifle Range

The SR763 Rifle Range is a 2.7-acre SAR located in the northwest portion of Kirtland AFB. SR767 is a WWII-era rifle range visible in 1950s aerial photos. Reports indicate the range was used through the 1960s and 1970s. The terrain is flat grassland and undeveloped open space. Access controls are not in place and access is not restricted.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of the XRF results exceeded screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Lead results exceeded the Kirtland AFB background level of 39 mg/kg in 20 locations. With the exception of the soil pathway, exposure pathways for all receptors are incomplete. The site does not pose a threat to human health and appears to pose a minimal risk to ecological receptors.

13.2.25 SR768 Close Combat Infiltration Course

The SR768 Close Combat Infiltration Course is a 180.7-acre multi-use range located in the central portion of Kirtland AFB. The history and use for SR768 is currently unknown. The terrain is rocky, piñon-juniper studded foothills and undeveloped open space. Access controls are in place and access is restricted, but not monitored.

Geophysical surveys were not used to evaluate this MRA due to its rough terrain. Visual survey of SR768 acreage documented cultural surface features, including chain-link and barbed-wire fences and fence posts. Munitions-related items observed included a 155mm base ejection round. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.26 SR777 Rifle Range

The SR777 Rifle Range is a 50.8-acre SAR located in the northwest portion of Kirtland AFB.

Despite mention of the ranges in Kirtland AFB regulations, no evidence of this MRA was found in historical aerial photographs. The terrain is relatively flat grassland and undeveloped open space. Access controls are not in place and access is not restricted.

Geophysical surveys were not used to evaluate this MRA. Visual survey of SR777 acreage failed to locate any cultural surface features. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.27 SR778 Airfield Pistol Range

The SR778 Airfield Pistol Range is a 2.0-acre small arms range located in the northwest portion of Kirtland AFB. The site was a pistol range visible in 1950s aerial photographs; however, the years of operation are unknown. The terrain is flat grassland, but is now completely covered by asphalt and the Kirtland AFB Aircraft Fire Training area. Access controls are in place and access is restricted, but not monitored.

Geophysical surveys and ground truthing were not used to evaluate this MRA. Visual survey of the area revealed that all traces of the original pistol range are now covered by the Kirtland AFB Aircraft Fire Training Area. No munitions-related items were observed. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.28 SR780 Impact Area

Located in the central portion of Kirtland AFB, the SR780 Impact Area is a 139.3-acre site determined to be associated with the Madera Canyon Gun Site. The area formerly referred to as SR780 actually exists within AL120 northcentral; however, the original area thought to be SR780 was investigated as part of the CSE Phase II investigation. The operational period and purpose of the SR780 MRA are currently unknown. The steep mountainous terrain and the extremely rough roads provide physical barriers making access difficult.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of SR780 acreage documented cultural features including roadways, power lines and fencing. Two MD items were observed consisting of one 155mm base-eject round in the southcentral portion of the MRA and some large bomb fragments along the southeast MRA boundary.

13.2.29 TG100 Bomb Target

The TG100 Bomb Target is a 37.8-acre air-to-ground range located in the northwest corner of Kirtland AFB. TG100 was identified in a 1958 aerial photograph that showed the outline of a bomb target; however, years of use are unknown. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted, but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of TG100 acreage documented cultural surface features, including chain-link and barbed-wire fences, power lines, and security lights. Munitions-related items observed included multiple pieces of M38A2 100 pound practice bombs, as would be expected from a practice bomb target. No MC samples were collected and exposure pathways for all receptors are incomplete.

13.2.30 TS775 Airfield Skeet Range

The TS775 Airfield Skeet Range is a 25.2-acre trap and skeet range located in the northwest portion of Kirtland AFB. TS775 is suspected of being a WWII-era trap and skeet range; however, the years of operation are unknown. The range is visible in aerial photographs from the 1950s. The terrain is flat grassland and undeveloped open space located adjacent to an airport runway. Access controls are in place and access is restricted and monitored. Access required permission from Kirtland Base Operations. An escort to the site is mandatory.

Geophysical surveys and ground truthing were not used to evaluate this MRA. Visual survey of TS775 acreage documented only cultural surface features, including clay targets and spent pellets. The western portion of the range appears to have had a layer of gravel deposited across the surface with obvious grading work conducted. The concrete walkways visible in the historic aerial photographs are still in place where the firing points were located. The only munitions-related items observed were expended shotgun shells.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of the XRF results exceeded screening levels. Laboratory results for lead exceeded the Kirtland AFB background level of 39 mg/kg in 11 locations. Antimony was detected above both screening and background levels in one laboratory sample. In all 10 samples analyzed for PAHs, at least one analyte exceeded one or both screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Metals and/or PAH concentrations in soil at TS775 exceed the screening levels for direct contact with soil, and consequently pose a potential risk to human health that merits further evaluation. Metals and PAH contamination exceed screening levels for one or more ecological receptors. The presence of pellet/shot fragments suggests the potential for risk to birds. Additional investigation of this MRA is recommended to assess the potential for ecological risk.

13.2.31 TS776 Skeet Range

The TS776 Airfield Skeet Range is a 25.2-acre trap and skeet range located in the northwest corner of Kirtland AFB. TS776 was used as a trap and skeet range from WWII until the late 1960s. From the late 1960s through May 1998, TS776 was used as a recreational facility for clay pigeon shooting practice. The terrain is flat grassland and undeveloped open space. Access controls are not in place and access is not restricted.

Geophysical surveys and ground truthing were not used to evaluate this MRA. Visual survey of TS776 acreage documented one cultural surface feature, a small fenced compound with a brick building. No munitions-related items were observed.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. One XRF result exceeded the screening levels for lead. Laboratory results for lead exceeded the Kirtland AFB background level of 39 mg/kg in 88 locations. Antimony was detected above both screening levels and the background levels in three laboratory samples. All but three samples analyzed for PAHs had benzo(a)pyrene above the USEPA Region 6 screening level. Six samples had multiple PAHs that exceeded one or both screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Metals and/or PAH concentrations in soil at TS776 exceed the screening levels for direct contact with soil and consequently pose a potential risk to human health that merits further evaluation. Metals and PAH contamination exceed screening levels for one or more ecological receptors. The presence of pellet/shot fragments suggests the potential for risk to birds. Additional investigation of this MRA is recommended to assess the potential for ecological risk.

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14. RECOMMENDATIONS

14.1 Cohort Assignment

To comply with the Air Force Knowledge Driven/Performance-Based Management initiative, MRAs/MRSs are subdivided into seven "cohorts." The assignment of MRAs to different cohorts facilitates the streamlining of the restoration process, including the development and implementation of presumptive remedies for specific cohort types. The cohort type will be reflected in the site description in AFRIMS. The seven Air Force MMRP cohort types are shown in Table 14-1.

Table 14-1. Air Force MMRP Cohort Assignments

Cohort	Description
A	Small Arms Ranges
B	Boresight Ranges
C	Open Burn/Open Detonation (OB/OD) Sites/Explosive Ordnance Disposal (EOD) Ranges
D	Chemical Warfare Material (CWM) Sites
E	Pyrotechnic/Practice Sites
F	All Other Sites
G	Munitions Constituents Sites

As the Air Force MMRP evolves, the cohort assignments may be expanded or consolidated to reflect the most current information available. In implementing the CSE Phase II at Kirtland AFB, the cohort type was initially defined by the range-type described in the CSE Phase I. Reassignments of cohort or site descriptions may be required in the future based on the types of munitions found during any subsequent field work. The initial and recommended cohort reassignments for the investigated MRAs/MRSs are described in section 14.1.9.

14.1.1 Small Arms Ranges

Small arms ranges include those sites where ammunition of .50 caliber or less and no longer than 4 inches is fired from rifles, shotguns, pistols, and machine guns. Small arms ranges include the following:

- Pistol Ranges
- Rifle Ranges
- Trap and Skeet Ranges

The primary MEC items at small arms ranges are spent cartridges and clay target debris (in the case of trap and skeet ranges). The MC associated with small arms ranges are heavy metals, primarily lead, and PAHs, associated with the coal tar binding material in the clay targets used at skeet and trap ranges. As a result, small arms ranges are not anticipated to present explosive hazards (i.e., UXO, DMM, explosive soils) or MC associated with HE (i.e., TNT, RDX, HMX, etc.).

14.1.2 Boresight Ranges

Boresight ranges were used to align a fixed-machine gun or cannon on an airplane, so that the rounds would impact at a desired point in front of the aircraft. The specific types of MEC and MC likely to be encountered are a function of the types of aircraft and armaments tested at the ranges. If the range was used to align aircraft-mounted machine guns, it is anticipated that munitions of .50 caliber or less (i.e., small arms) would be present. If the range was used to align aerial cannon, it is anticipated that munitions of 20mm or larger would be present.

14.1.3 Open Burn/Open Detonation Sites/Explosive Ordnance Disposal Ranges

OB/OD operations are used to destroy excess, obsolete, or unserviceable munitions and energetic materials. In OB operations, munitions are destroyed by self-sustained combustion that is ignited by an external source, such as flame, heat, or a detonation wave. In OD operations, explosives and munitions are destroyed by the detonation of an energetic charge. MEC and MC encountered at OB/OD sites are a function of the past disposal practices during the operational lifecycle of the site. MC commonly detected at former OB/OD sites includes uncombusted explosives (i.e., TNT, RDX, HMX, and pentaerythritol tetranitrate) and metals.

EOD ranges are areas that were used for the training of EOD unit personnel and/or for the disposal of MEC items by EOD personnel. MEC and MC encountered at EOD ranges are a function of the training activities and/or disposal operations conducted during the operational life cycle of the ranges.

14.1.4 Chemical Warfare Materiel Sites

CWM sites present unique challenges not encountered at sites within other Air Force MMRP cohorts. In addition to the explosive hazards posed by conventional MEC, CWM presents significant acute toxicity risks to human health, due to its chemical or biological filler (i.e., mustard gas, VX nerve agent, etc.). When CWM is present or suspected to be present at an MRA, explosive hazards are addressed and mitigated first, followed by non-stockpile CWM hazards.

14.1.5 Pyrotechnic/Practice Sites

Pyrotechnics are used to send signals, illuminate areas, simulate weapons during training, and as ignition elements for some weapons. Pyrotechnics consist of a wide range of materials that, when combined, produce the desired effects of specific time delays, heat, noise, smoke, light or infrared radiation. Practice ordnance is used to simulate the weight and flight characteristics of an actual weapon. Practice ordnance usually carries a small spotting charge (i.e., black powder) to allow observers to assess the accuracy of impact. MEC and MC encountered at pyrotechnic/practice sites include, but are not limited to, practice bombs, various metals (aluminum, iron, and zinc), white phosphorous, and perchlorate.

14.1.6 MC Sites

This cohort includes MRAs where the presence of MC is likely, but MEC are not anticipated to be encountered. MC may include metals, explosives, propellants, pyrotechnic chemicals, and the intermediate compounds that result from environmental degradation of munitions fillers. The type of MC encountered at an MRA is a function of past munitions use, storage, and disposal practices. The likelihood of the potential presence or absence of munitions is confirmed during the CSE Phase I and II investigations through records review, visual surveys, interviews, and media sampling.

14.1.7 All Other Sites

This generic category was created due to the large number of sites within the Air Force MMRP that either cannot be placed under any of the other six cohort types, or for which sufficient information is not readily available to allow an accurate classification. After completing the CSE Phase I, the Air Force may be able to move certain MRAs from within this cohort type into one of the other six cohort types. Alternatively, the Air Force may seek to expand its MMRP cohorts to include the following types of MRAs:

- Bombing Ranges
- Air-to-Air Ranges

- Air-to-Ground Ranges
- Artillery Ranges
- Missile Ranges
- Medium Caliber Ranges
- Large Caliber Ranges
- Aerial Rocket Ranges
- Munitions Storage Facilities
- Multi-Use Range
- Rifle Grenade Range

With the exception of munitions storage facilities, the categories listed above primarily include those sites where ammunition of greater than .50 caliber and other ordnance types (i.e., bombs, missiles, rockets, projectiles, etc.) have been fired, launched, or dropped.

14.1.8 Propellants

Propellants are explosives that can be used to provide controlled propulsion for projectiles, including bullets, mortar rounds, artillery rounds, rockets, and missiles. The MC commonly found in propellants include, but are not limited to, 2-4 dinitrotoluene, 2-6 dinitrotoluene, nitrocellulose, nitroglycerine, and nitroguanidine. Propellants do not constitute a unique site type, as this class of explosives may be found at sites within all of the Air Force MMRP cohorts.

14.1.9 Kirtland AFB Cohort Assignment

The cohort types assigned to Kirtland AFB MRAs as a result of the CSE Phase II investigation are shown in Table 14-2. Those MRAs recommended for further division into MRSs are highlighted in Table 14-2 and discussed in Section 14.3.

Table 14-2. Cohort Assignments for Kirtland AFB MRAs/MRSs

MRA/MRS ID	MRA/MRS Name	CSE Phase II Recommended Cohort Reassignment
AL120	Proximity Fuze Range	F - Large Caliber Range
AL120a	Propellant Dispersal Site	F - Large Caliber Range
AL120b	McCormick UXO	F - Large Caliber Range
AL120c	Proximity Fuze Range	F - Large Caliber Range
AL120d	Proximity Fuze Range	F - Large Caliber Range
AL120e	Proximity Fuze Range	F - Large Caliber Range
AL769	Ordnance Drop Zone	F - Air-to-Ground Range
AL771	Old Cable Site	F - Large Caliber Range
DA130	Arroyo del Coyote Demolition Area	C - OB/OD Site
DA130a	DA130 NFA	C - OB/OD Site
DA782	Explosive Disposal Area	C - OB/OD Site
DA782a	QD Arc	C - OB/OD Site
ED770	Experimental Range	C - OB/OD Site
ML125	Field Firing Range	F - Large Caliber Range
ML200	Howitzer Range	F - Large Caliber Range
ML200a	ML200 NFA	F - Large Caliber Range
ML200b	.50 Caliber Target	A - Small Arms Range
ML201	Howitzer Range Buffer	F - Large Caliber Range
ML760	Gun Fan Site	F - Large Caliber Range
ML762	McCormick Ranch Buffer	F - Large Caliber Range
ML774	Gun Site Fan	F - Large Caliber Range
ML781	Firing-In Abutment	B - Boresight Range
ML784	40mm Test and Training Range	F - Large Caliber Range

Table 14-2. Cohort Assignments for Kirtland AFB MRAs/MRSs (Concluded)

MRA/MRS ID	MRA/MRS Name	Recommended Cohort Reassignment
MU772	H-25 Site	F - Large Caliber Range
PT123	Tijeras Small Arms Range	E - Pyrotechnic/Practice Sites
PT761	Tijeras Small Arms Training Range	E - Pyrotechnic/Practice Sites
PT773	Coyote Canyon Tech Site	E - Pyrotechnic/Practice Sites
PT773a	PT773 NFA	E - Pyrotechnic/Practice Sites
PT783	Bazooka Training Range	E - Pyrotechnic/Practice Sites
SR763	Rifle Range (Known Distance)	A - Small Arms Range
SR764	Rifle Range	A - Small Arms Range
SR765	WWII Pistol Range	A - Small Arms Range
SR766	Sub-Machine Gun Range	A - Small Arms Range
SR767	Rifle Range	A - Small Arms Range
SR768	Close Combat Infiltration Course	E - Pyrotechnic/Practice Sites
SR777	Rifle Range	A - Small Arms Range
SR778	Airfield Pistol Range	A - Small Arms Range
SR780	Impact Area	See AL120d
TG100	Bomb Target	F - Air-to-Ground Range
TG100a	TG100 NFA	F - Air-to-Ground Range
TS775	Airfield Skeet Range	A - Trap and Skeet Range
TS776	Skeet Range	A - Trap and Skeet Range
Shaded area –MRA divided into MRS See Table 14-1 for Cohort Assignment Definitions		

Cohort assignments were refined based on information gained during CSE Phase I and II investigations. Reassignments of cohort or site descriptions may be required in the future and will be based on the types of munitions found during future fieldwork.

14.2 Process Streamlining

This section provides recommendations for process streamlining opportunities and proposed splitting and consolidation of MRAs/MRSs associated with Kirtland AFB for subsequent munitions response actions. These recommendations include:

- Designation to a presumptive remedy (i.e., small arms/skeet ranges)
- Recommendation for Interim Removal Action (surface sweep) of munition items
- Recommendation for No Further Action (NFA) for Munitions Response
- Recommendation for distractive closure and removal from MMRP Site Inventory
- Administrative Closure

The recommendations provided in the following sections are based on historical and physical data collected during CSE Phase I and II investigations.

14.2.1 ED770 Experimental Range

Based on field surveys conducted during the CSE Phase II investigation, there is physical evidence that ED770 is currently used by Kirtland AFB units for training and operational use. Therefore, ED770 is recommended for administrative closure and removal from the MMRP Site Inventory because this range is actively being used by Kirtland AFB and, as such, is not eligible for the Air Force MMRP.

14.2.2 ML760 Gun Fan Site

ML760 (OB-7) is the 8,485.5-acre range fan which is located off Kirtland AFB property (Figure 14-10). A portion, 1,892.9 acres, was investigated during the CSE Phase II prior to the finding that ML760 (OB-7) was FUDS-eligible. The portion of ML760 (OB-7) was investigated under the direction of Mr. Carl Lanz, former Chief of the Restoration Section, Environmental Branch at Kirtland AFB, as it was the site of a former broken arrow and the buffer zone between Kirtland AFB and private property. ML760 (OB-7) is recommended for removal from the MMRP Site Inventory because it is FUDs-eligible. Ranges included in the FUDS Program are ineligible for the Air Force MMRP. It should be noted that the report concluded that the OB-7 range was never actually used (USACE, 2007).

14.2.3 ML784 40mm Test and Training Range

ML784 is recommended for administrative closure and removal from the MMRP Site Inventory because it is located entirely within the operational boundary/exclusion area of the Electro-Explosive Facility. Because of ML784's location within an active range, it is not eligible for munitions response actions under the Air Force MMRP.

14.2.4 SR780 Impact Area

SR780 is recommended for removal from the MMRP Site Inventory because it is within the operational boundary/exclusion area of the SNL Burn Site. The location of SR780 within an active area makes it ineligible for munitions response under the Air Force MMRP. Upon closure of the SNL Burn Site the area believed to be the true target location should be investigated (Figure 2-7). Due to its active status, the target area was not investigated as part of CSE Phase II activities, although field teams did cover 288 acres adjacent (directly west) of the active area looking for evidence of its existence. Additionally, SNL has defined the current target area as "Proposed ER Site 239," and so this target may receive NFA status from NMED before MMRP actually investigates this location.

14.2.5 MRSs to remain on the Kirtland AFB Operational Range Inventory

Under the direction of Kirtland AFB, AL771 Old Cable Site, ML200 Sandia Base Howitzer Range, ML200a Sandia Base Howitzer Range, ML200b Sandia Base Howitzer Range, ML774 Gun Fan Site, MU772 H-25 Site, PT773 Coyote Canyon Tech Site, PT773a Coyote Canyon Tech Site and PT783 Bazooka Training Range are to remain on the Kirtland Operational Range Inventory. Therefore these MRS's are no longer eligible for Air Force MMRP funding and will be administratively closed by Kirtland AFB.

14.3 Additional MRS (Splitting the MRA)

Based on information gathered during the CSE Phase I and Phase II investigations and depending on site-specific factors, each MRA may be designated as a single MRS, or it may be subdivided for the purposes of evaluation and response into multiple MRSs. Subdividing MRAs into multiple MRSs allows for more efficient characterization so that munitions responses specific to local conditions can be conducted.

A MRA must comprise at least one MRS, but may contain multiple MRSs. The total area of all MRSs contained within an MRA must equal the area of the MRA. General site-specific factors that were considered for subdividing MRAs into MRSs include:

- The prevalence of MEC or the extent of MC-contaminated media present within different areas of the MRA
- The type of MEC or MC present within the MRA

- Physical features (vegetation, topography, land areas versus water bodies, accessibility, and location of receptors that may be potentially exposed to MEC, etc.)
- Geological and hydrogeological characteristics

Areas within the MRA where the presence of MEC is not suspected or was not confirmed during the CSE can be aggregated into a single MRS. Recommendations for splitting certain MRAs are provided in the following subsections.

14.3.1 AL120 Proximity Fuze Range

It is recommended that AL120 be divided into six MRSs. AL120a has MC solid propellant requiring munitions response, AL120, AL120b and AL120e have MEC and MD requiring munitions response. AL120c is recommended for NFA status not requiring munitions response. AL120d is still an active area and recommended for administrative closure.

- AL120 (Proximity Fuze Range) totaling 488.5 acres
- AL120a (Propellant Dispersal Site) totaling 7.5 acres
- AL120b (McCormick UXO) totaling 1 acre
- AL120c (NFA Acreage) totaling 1504.7 acres
- AL120d (Administrative Closure) totaling 376.9 acres
- AL120e (Proximity Fuze Range) totaling 2060.3 acres

14.3.2 DA130 Arroyo del Coyote

It is recommended that DA130 be divided into two MRSs. DA130 has MPPEH/MD requiring munitions response. DA130a is recommended for NFA status not requiring munitions response.

- DA130 (Arroyo del Coyote) totaling 61.0 acres
- DA130a (NFA Acreage) totaling 325.5 acres

14.3.3 DA782 Explosives Disposal Area

It is recommended that DA782 be divided into two MRSs. DA782 is recommended for NFA status not requiring munitions response. DA782a is recommended for administrative closure because it is part of an active safety arc for a DOE storage area.

- DA782 (Explosives Disposal Area) totaling 5.5 acres
- DA782a (Administrative Closure) totaling 20.3 acres

14.3.4 ML200 Howitzer Range

It is recommended that ML200 be divided into three MRSs. ML200 has MPPEH/MD requiring munitions response. ML200a is recommended for NFA status not requiring munitions response. ML200b is a small arms target and is recommended for NFA status not requiring munitions response. Due to the direction of Kirtland AFB to keep ML200, ML200a and ML200b on the Kirtland AFB Operational Range Inventory these MRS's are no longer eligible for Air Force MMRP funding and will be administratively closed by Kirtland AFB. (Refer to section 14.2.5)

- ML200 (Howitzer Range) totaling 259.6 acres
- ML200a (NFA Acreage) totaling 696.9 acres
- ML200b (.50 Caliber Target) totaling 3.7 acres

14.3.5 PT773 Coyote Canyon Tech Site

It is recommended that PT773 be divided into two MRSs. PT773 has MPPEH/MD requiring munitions

response. PT773a is recommended for NFA status not requiring munitions response. Due to the direction of Kirtland AFB to keep PT773 and PT773a on the Kirtland AFB Operational Range Inventory these MRS's are no longer eligible for Air Force MMRP funding and will be administratively closed by Kirtland AFB. (Refer to section 14.2.5)

- PT773 (Coyote Canyon Tech Site) totaling 24.8 acres
- PT773a (NFA Acreage) totaling 105.7 acres

14.3.6 TG100 Bomb Target

It is recommended that TG100 be divided into two MRSs. TG100 has MPPEH/MD requiring munitions response. TG100a is recommended for NFA status not requiring munitions response.

- TG100 (Bomb Target) totaling 14.8 acres
- TG100a (NFA Acreage) totaling 23.0 acres.

14.4 Change to the MRA/MRS Footprint

As described above in Section 14.3, revisions to the footprints of MRAs are recommended as a result of the CSE Phase I and II effort and the findings of MEC data.

Table 14-3. Recommended MRA/MRS Footprint Changes

MRA/MRS	Description	Rationale
Change to AL120 MRA/MRS Footprint:	Update AFRIMS from 4086.4 acres to 4440.0 acres (Figure 14-1 through 14-1.4)	Increase in acreage due to SR780 acreage being added to AL120; correction of AFRIMS acreage discrepancy
Change to AL769 MRA/MRS Footprint:	Update AFRIMS from 336.5 acres to 174.4 acres (Figure 14-2)	Decrease in acreage due to change in MRA boundary. Original boundary included portions of what is now ML200 so a correction to AFRIMS acreage is appropriate to update the double counting of acres.
Change to AL771 MRA/MRS Footprint:	Update AFRIMS from 171.9 acres to 586.4 acres (Figure 14-3)	Increase in acreage due to change in MRA boundary
Change to DA130 MRA/MRS Footprint:	Update AFRIMS from 255.5 acres to 386.5 acres (Figure 14-4)	Increase in acreage due to correction of AFRIMS acreage discrepancy
Change to DA782 MRA/MRS Footprint:	None (Figure 14-5)	N/A
Change to ED770 MRA/MRS Footprint:	Update AFRIMS from 1847.9 acres to 1479.7 acres (Figure 14-6)	The field verified acreage for ED770 differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of ED770 is 1479.7 acres, not the 1847.9 acres initially entered into the AFRIMS database.
Change to ML125 MRA/MRS Footprint:	Update AFRIMS from 1619.2 acres to 2231.3 acres (Figure 14-7)	Increase in acreage due to change in MRA boundary
Change to ML200 MRA/MRS Footprint:	Add area east of present ML200 border to ML200. MRS ML200a will total 696.9 acres and MRA ML200 will total 960.2 acres (Figure 14-8)	Increase in acreage due to change in MRA boundary
Change to ML201 MRA/MRS Footprint:	None (Figure 14-9)	N/A

Table 14-3. Recommended MRA/MRS Footprint Changes (Continued, Page 2 of 3)

MRA/MRS	Description	Rationale
Change to ML760 (OB-7) MRA/MRS Footprint:	None (Figure 14-10)	N/A
Change to ML762 MRA/MRS Footprint:	None (Figure 14-11)	N/A
Change to ML774 MRA/MRS Footprint:	Update AFRIMS from 643.3 acres to 622.6 acres (Figure 14-12)	The field verified acreage for ML774 differs from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of ML774 is 622.6 acres, not the 643.3 acres initially entered into the AFRIMS database.
Change to ML781 MRA/MRS Footprint:	Update AFRIMS from 6.2 acres to 0.6 acres (Figure 14-13)	Decrease in acreage as a result of original area including acres now located in an active explosive area
Change to ML784 MRA/MRS Footprint:	None (Figure 14-14).	N/A
Change to MU772 MRA/MRS Footprint:	Update AFRIMS from 45.6 acres to 132.8 acres and remove from inventory (Figure 14-14)	Increase in acreage due to correction of AFRIMS acreage discrepancy
Change to PT123 MRA/MRS Footprint:	Update AFRIMS from 811.5 acres to 434.2 acres (Figure 14-16)	Decrease in acreage due to correcting GIS errors; original area included acres now excluded due to being in an active explosive area.
Change to PT761 MRA/MRS Footprint:	Update AFRIMS from 34.2 acres to 574.9 acres (Figure 14-17)	Increase in acreage due to change in MRA boundary
Change to PT773 MRA/MRS Footprint:	Update AFRIMS from 130.5 acres to 77.2 acres (Figure 14-18)	The field verified acreage for PT773 differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of PT773 is 77.2 acres, not the 130.5 acres initially entered into the AFRIMS database.
Change to PT783 MRA/MRS Footprint:	Update AFRIMS from 144.7 acres to 116.6 acres (Figure 14-19)	Decrease in acreage due to change in MRA boundary
Change to SR763 MRA/MRS Footprint:	Update AFRIMS from 499 acres to 17.9 acres (Figure 14-20)	The field verified acreage for SR763 differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of SR763 is 17.9 acres, not the 499 acres initially entered into the AFRIMS database.
Change to SR764 MRA/MRS Footprint:	Update AFRIMS from 103.4 acres to 6.6 acres (Figure 14-21)	The field verified acreage for SR764 differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of SR764 is 6.6 acres, not the 103.4 acres initially entered into the AFRIMS database.

Table 14-3. Recommended MRA/MRS Footprint Changes (Concluded, Page 3 of 3)

MRA/MRS	Description	Rationale
Change to SR765 MRA/MRS Footprint:	Update AFRIMS from 242.2 acres to 2.3 acres (Figure 14-22)	The field verified acreage for SR765 differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of SR765 is 2.3 acres, not the 242.2 acres initially entered into the AFRIMS database.
Change to SR766 MRA/MRS Footprint:	Update AFRIMS from 148.7 acres to 64.0 acres (Figure 14-23)	The field verified acreage for SR766 differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of SR766 is 64 acres, not the 148.7acres initially entered into the AFRIMS database.
Change to SR767 MRA/MRS Footprint:	Update AFRIMS from 188.5 acres to 2.7 acres (Figure 14-24)	The field verified acreage for SR767differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of SR767 is 2.7 acres, not the 188.5 acres initially entered into the AFRIMS database.
Change to SR768 MRA/MRS Footprint:	Update AFRIMS from 22.3 acres to 180.7 acres (Figure 14-25)	Increase in acreage due to correction of AFRIMS acreage discrepancy
Change to SR777 MRA/MRS Footprint:	None (Figure 14-26)	N/A
Change to SR778 MRA/MRS Footprint:	Update AFRIMS from 9.7 acres to 2.0 acres (Figure 14-27)	The field verified acreage for SR778 differs significantly from the acreage initially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of SR778 is 2 acres, not the 9.7 acres initially entered into the AFRIMS database.
Change to SR780 MRA/MRS Footprint:	Update AFRIMS from 88.3 acres to 139.3 acres (Figure 14-28) NOTE: See AL120	Increase in acreage due to correction of AFRIMS acreage discrepancy
Change to TG100 MRA/MRS Footprint:	Update AFRIMS from 2.6 acres to 37.8 acres (Figure 14-29)	Increase in acreage due to change in MRA boundary
Change to TS775 MRA/MRS Footprint:	Update AFRIMS from 12.3 acres to 25.2 acres (Figure 14-30)	Increase in acreage due to change in MRA boundary
Change to TS776 MRA/MRS Footprint:	Update AFRIMS from 11.3 acres to 29.3 acres (Figure 14-31)	Increase in acreage due to change in MRA boundary

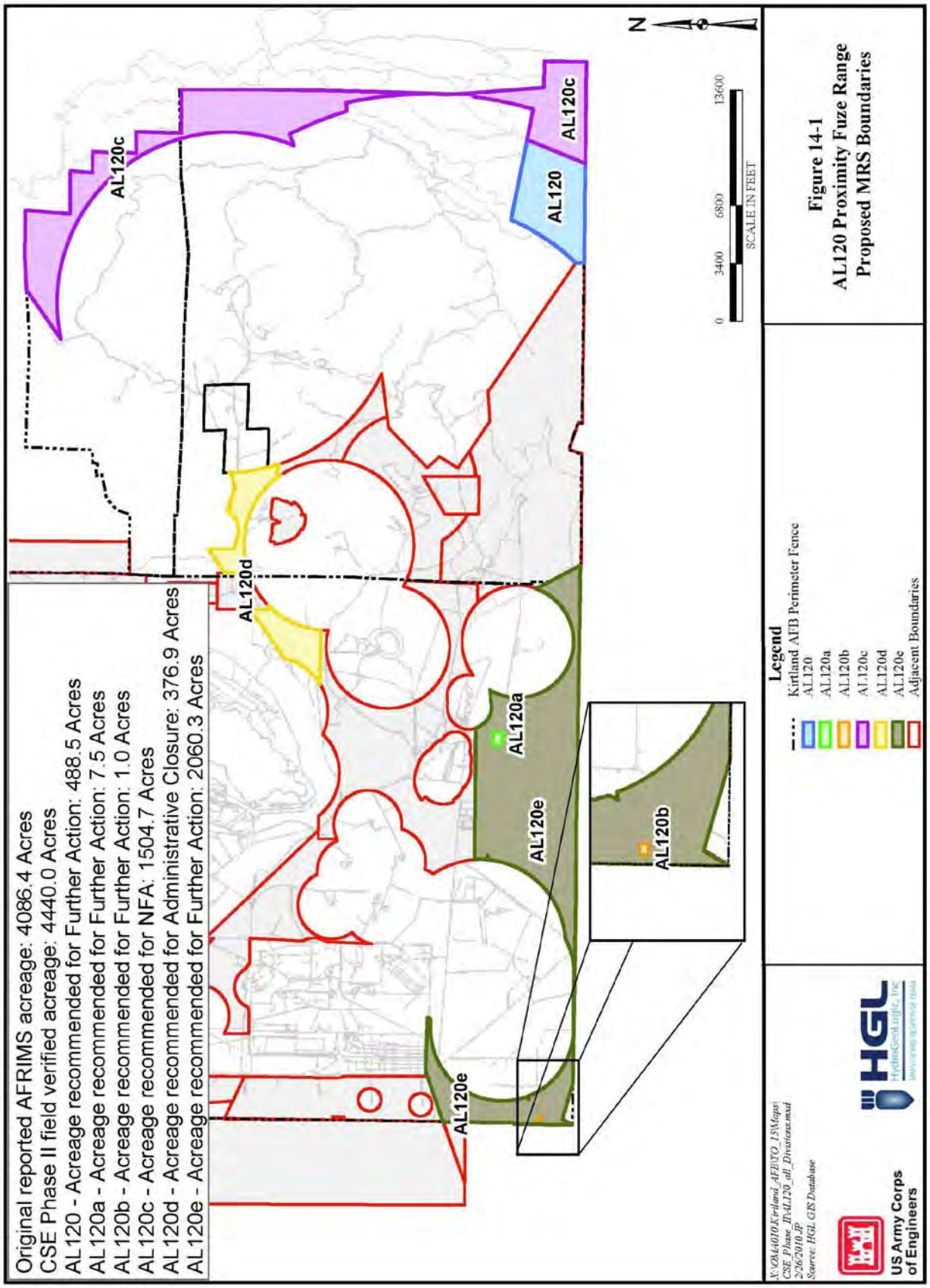


Figure 14-1
AL120 Proximity Fuze Range Proposed MRS Boundaries

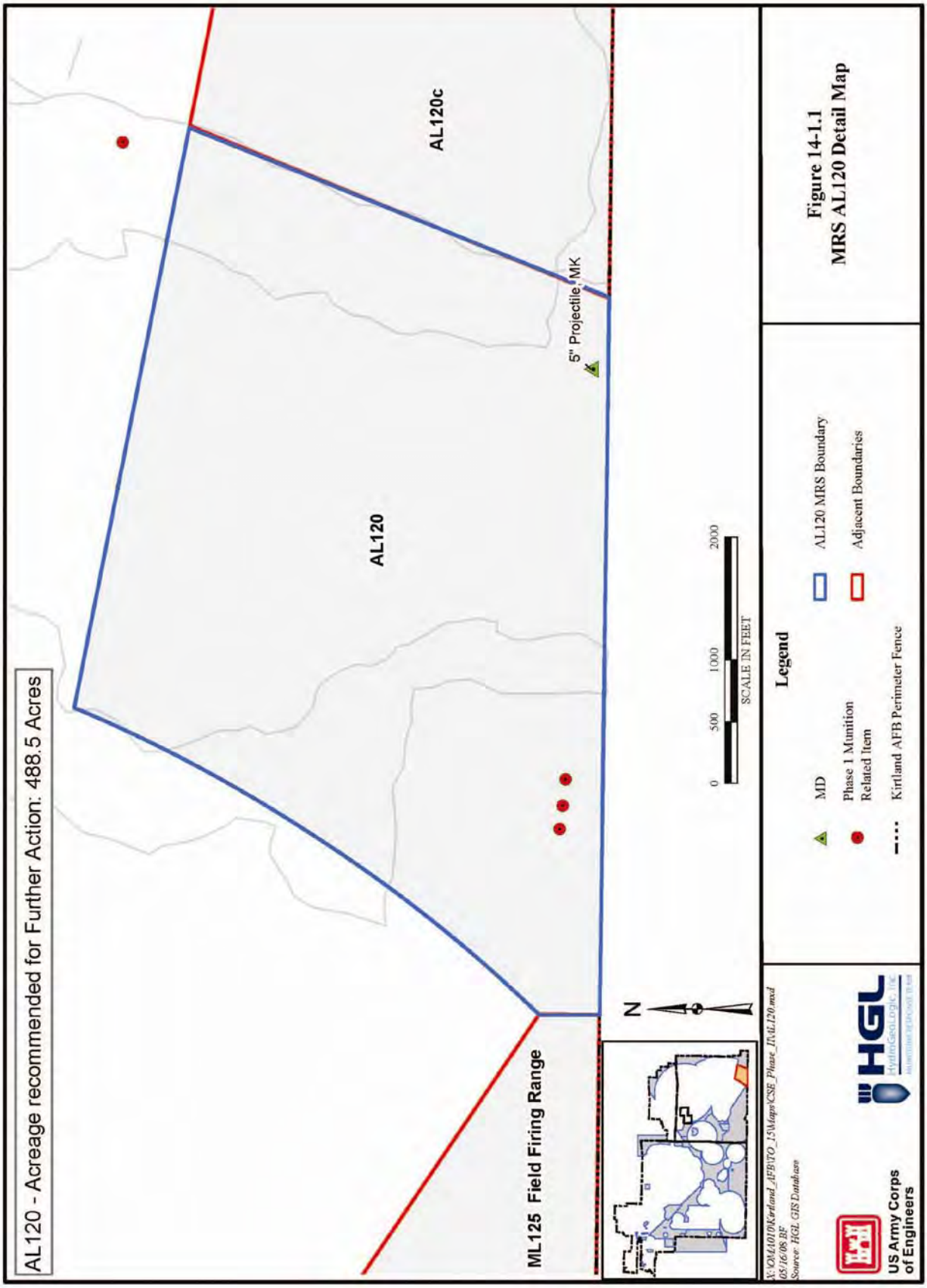


Figure 14-1.1
MRS AL120 Detail Map

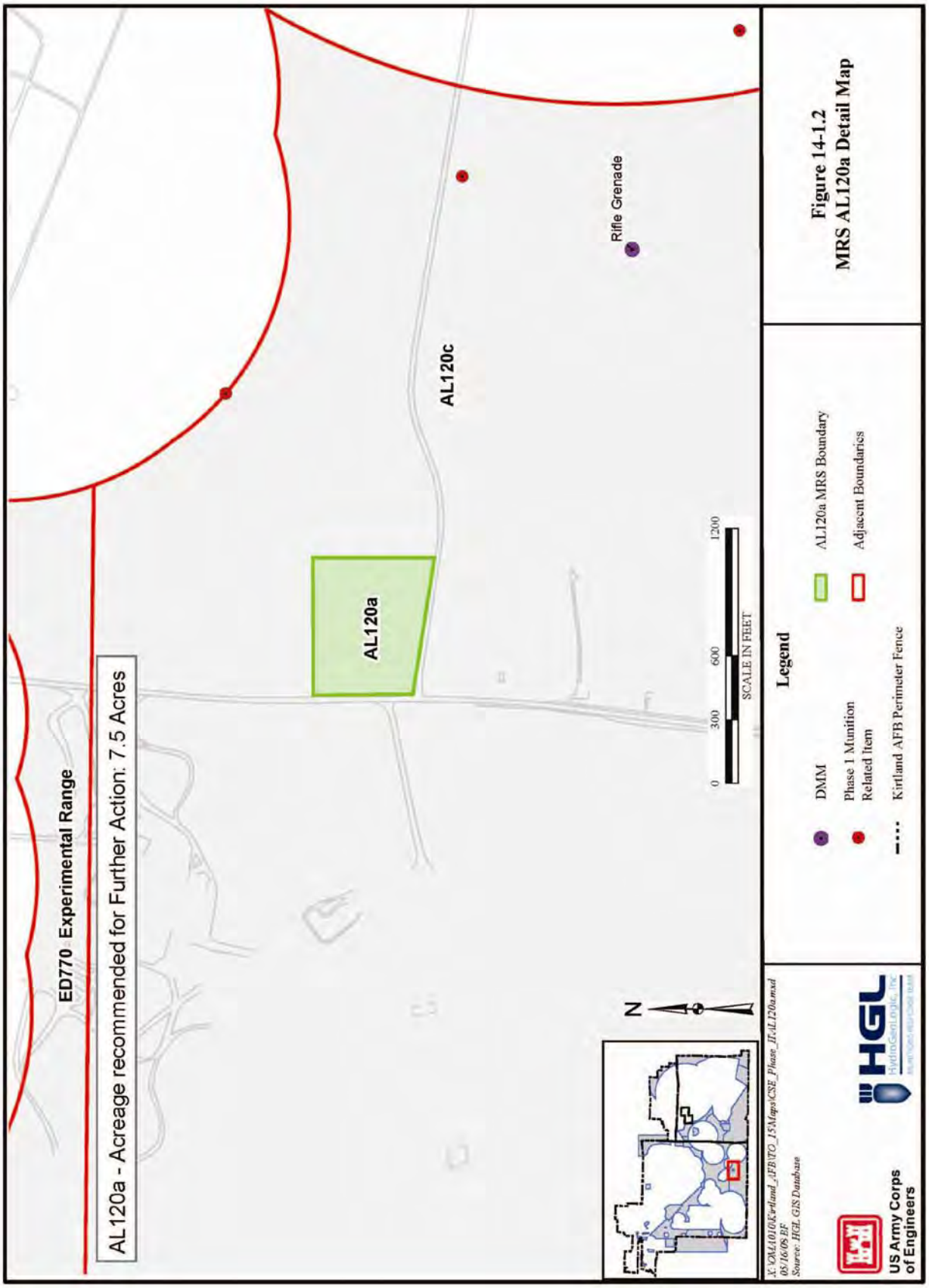


Figure 14-1.2
MRS AL120a Detail Map

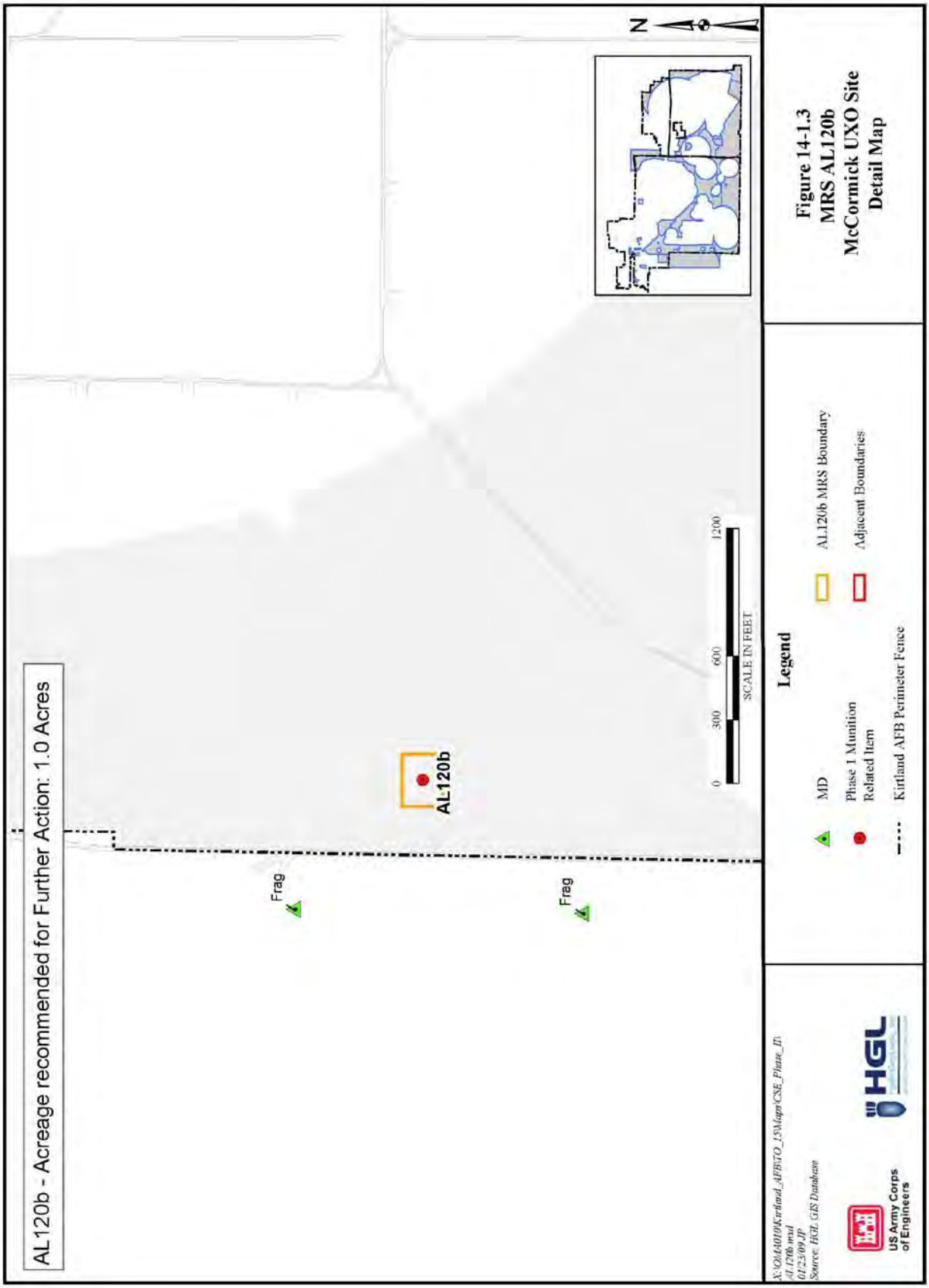


Figure 14-1.3
MRS AL120b
McCormick UXO Site
Detail Map

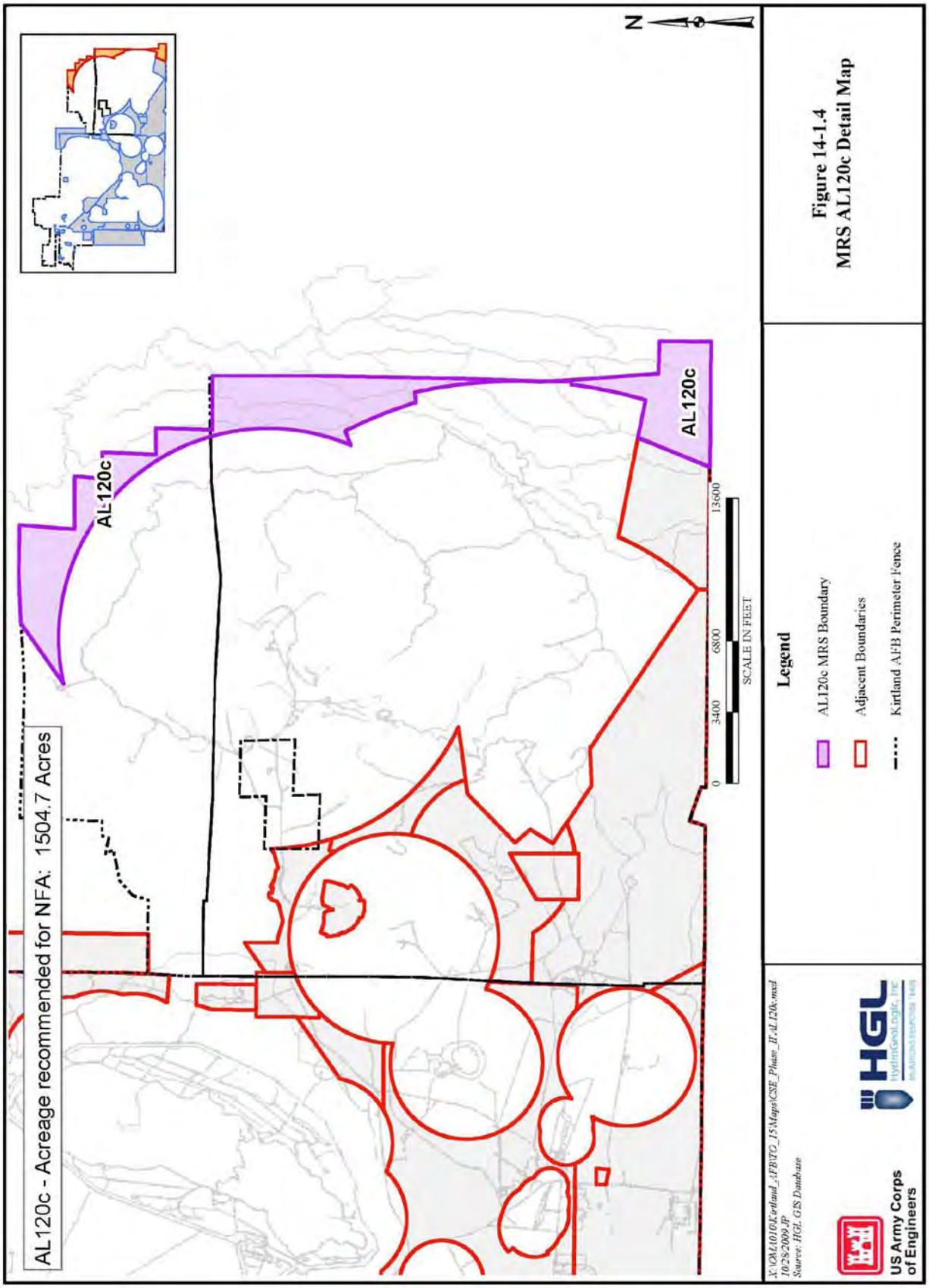


Figure 14-1.4
MRS AL120c Detail Map

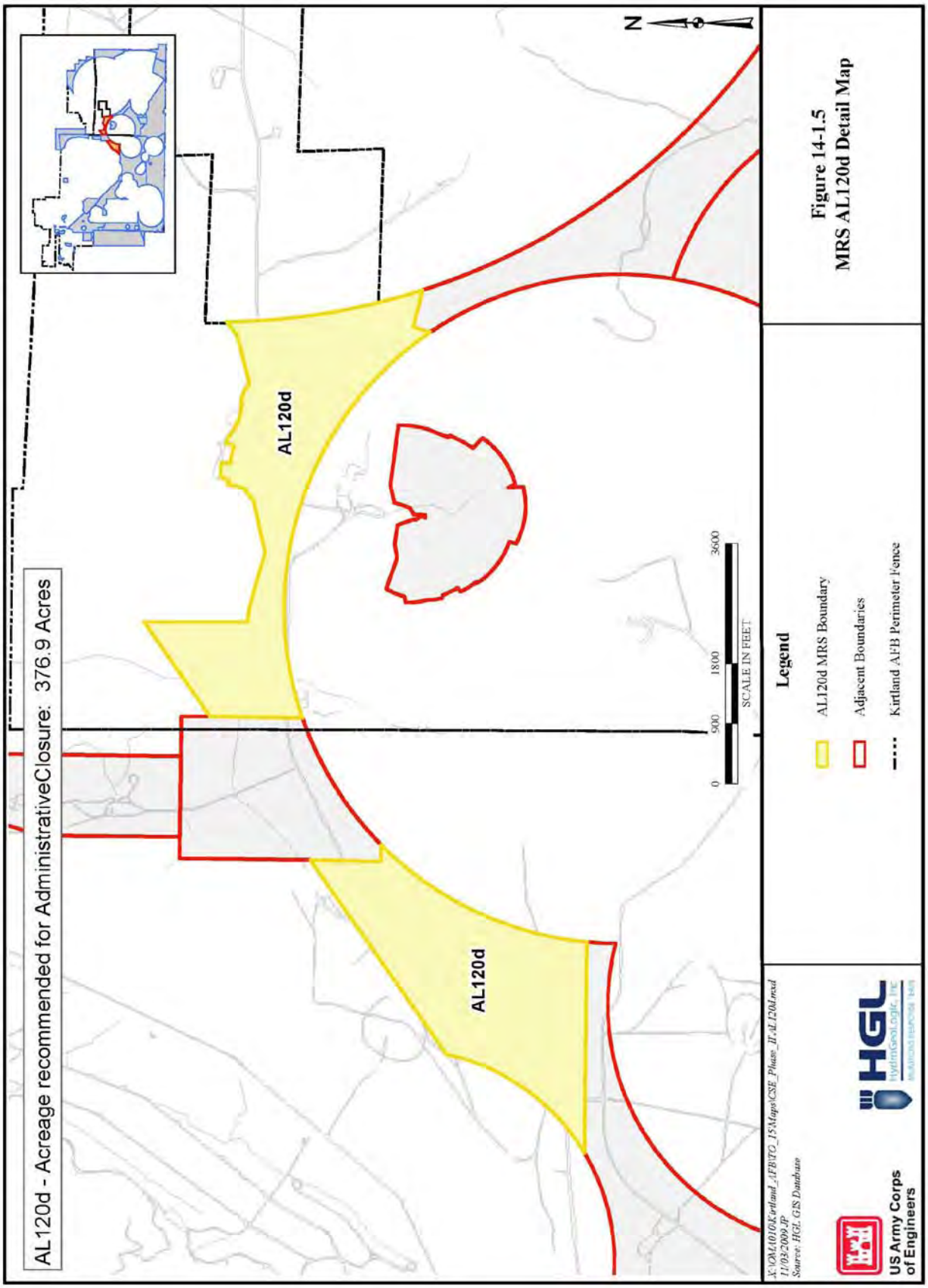


Figure 14-1.5
MRS AL120d Detail Map

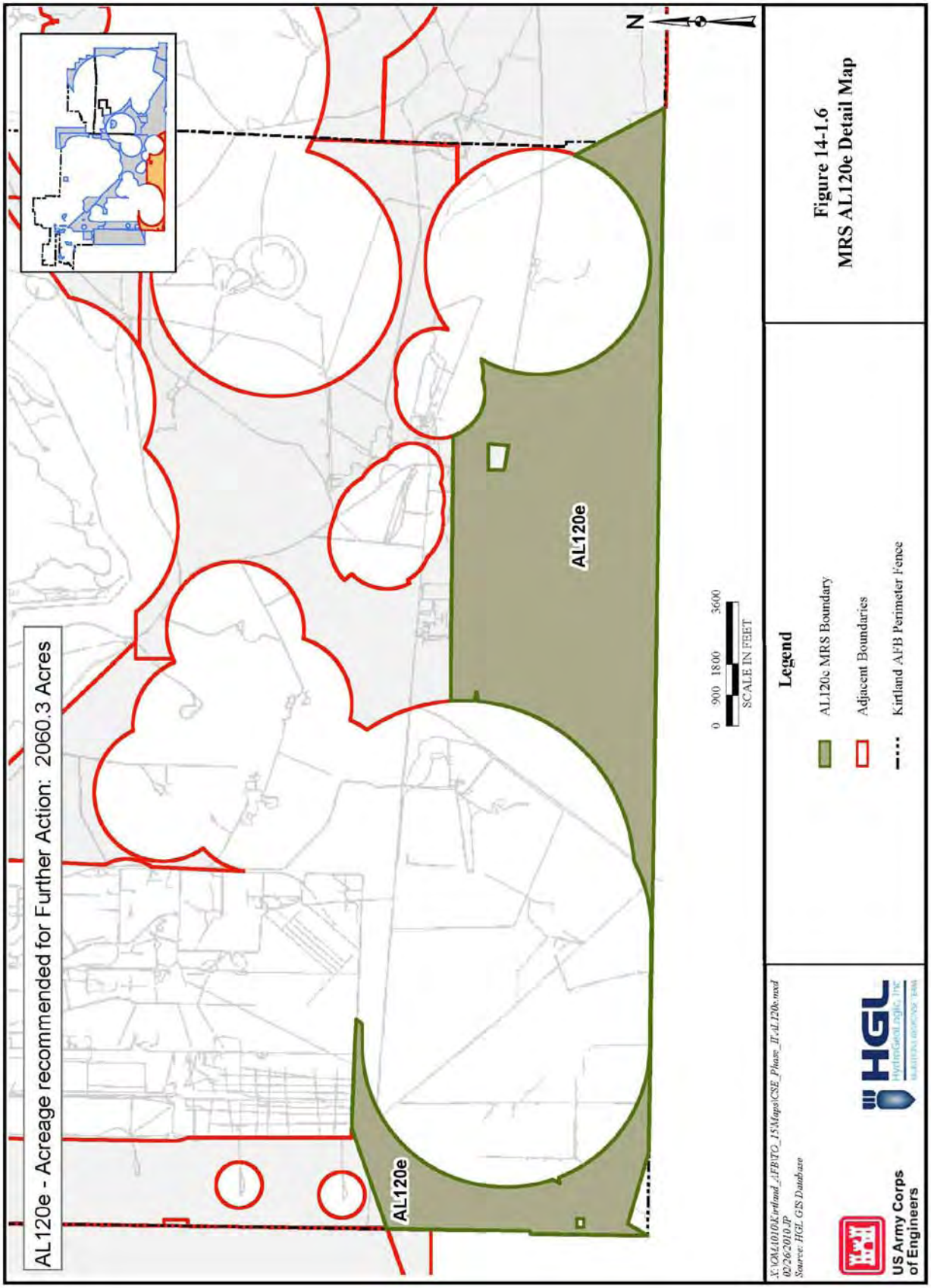
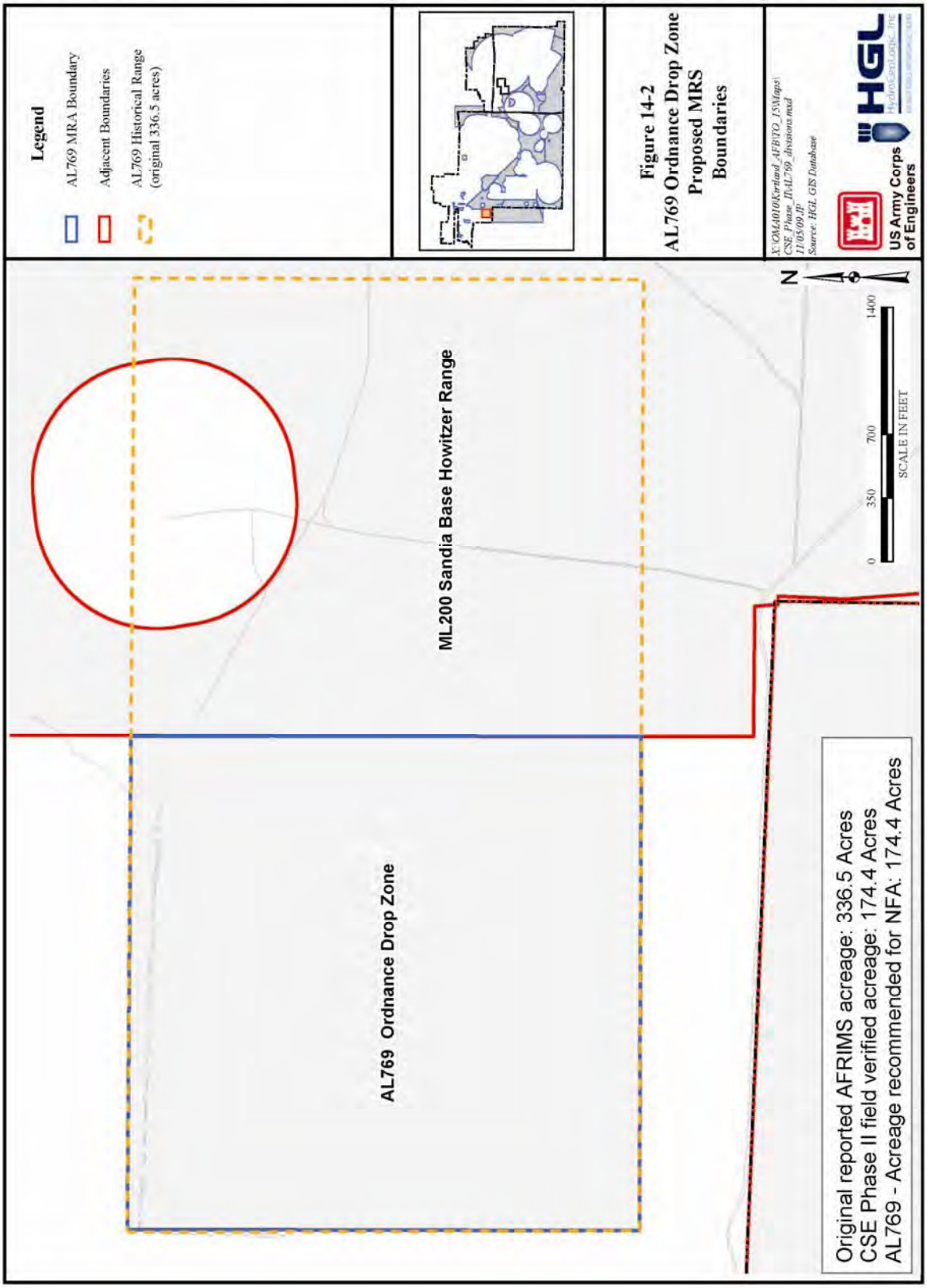
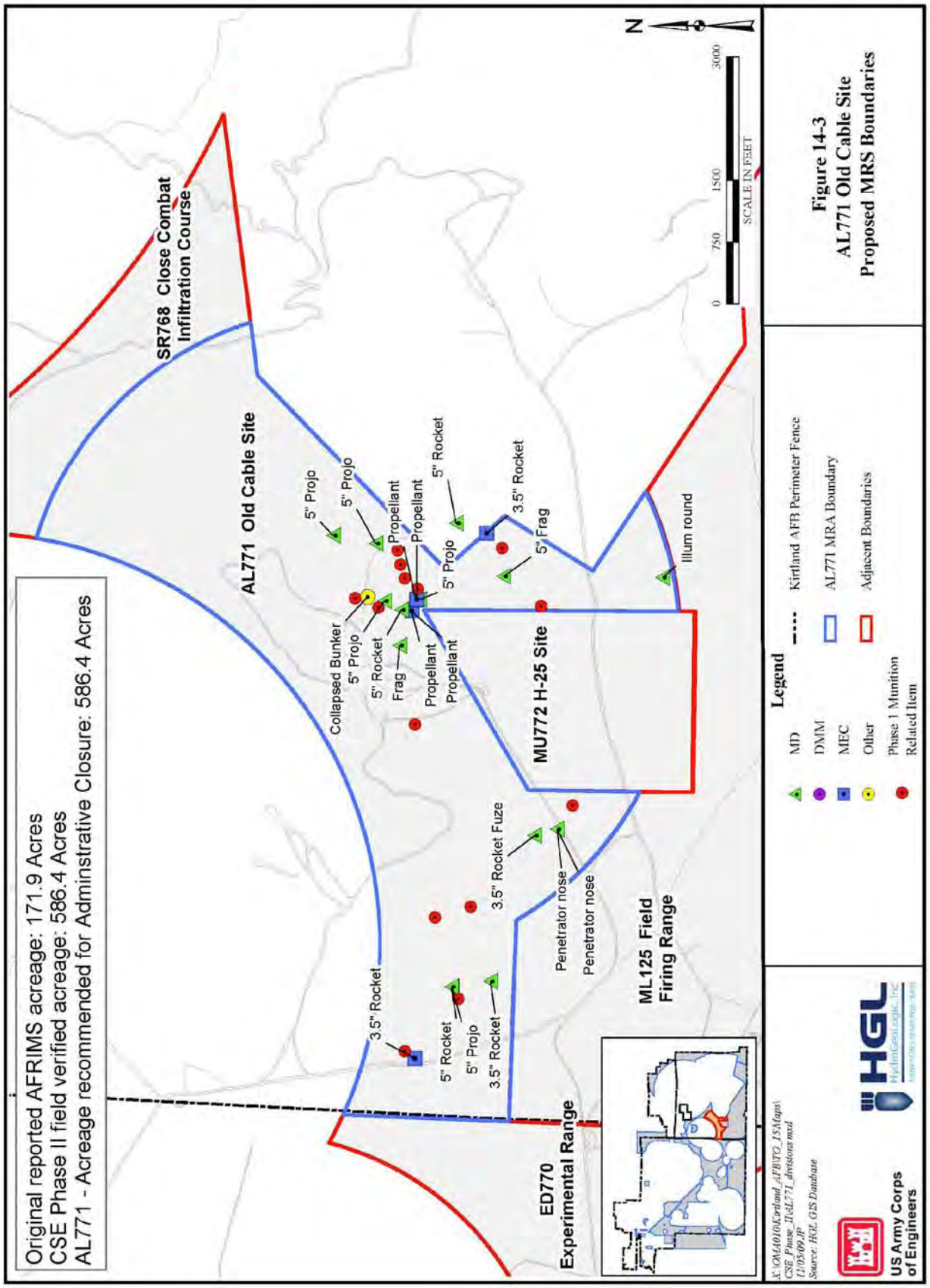
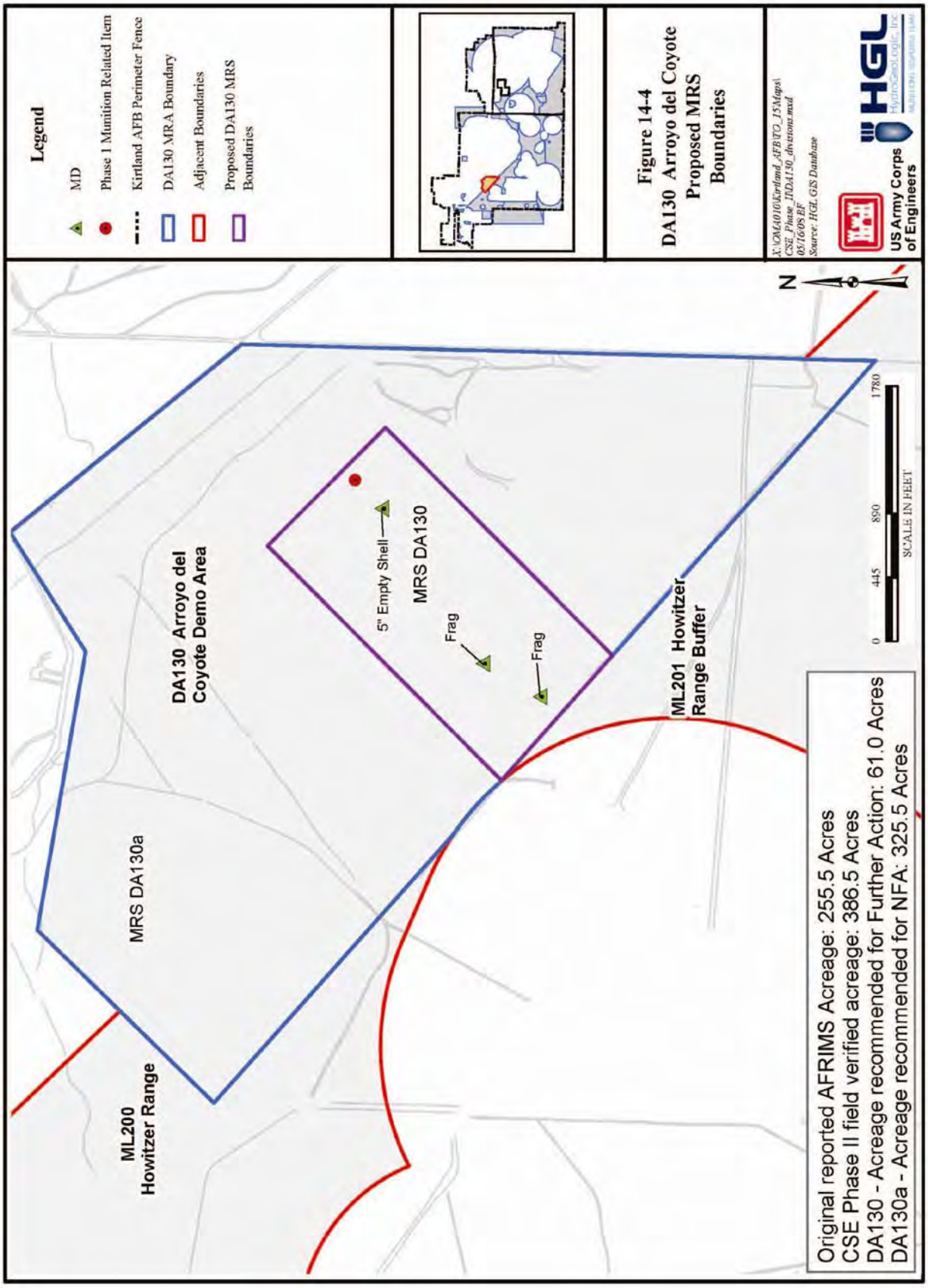
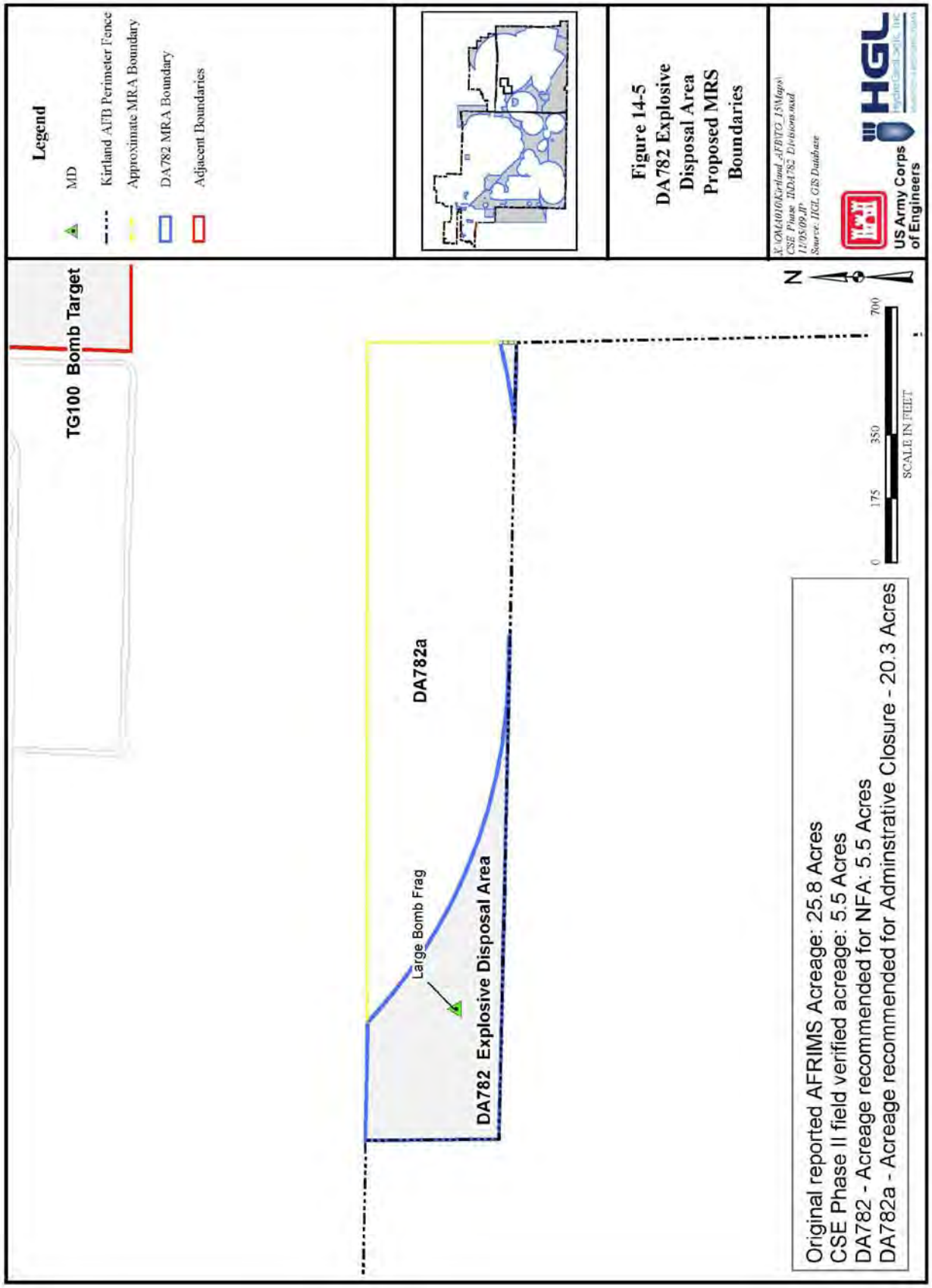


Figure 14-1.6
MRS AL120e Detail Map


Legend
AL769 MRA Boundary
Adjacent Boundaries
AL769 Historical Range (original 336.5 acres)
Figure 14-2
AL769 Ordnance Drop Zone Proposed MRS Boundaries
X:\OA4010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\AL769_divisions.mxd
11/05/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
ML200 Sandia Base Howitzer Range
AL769 Ordnance Drop Zone
N
0
350
700
1400
SCALE IN FEET
Original reported AFRIMS acreage: 336.5 Acres
CSE Phase II field verified acreage: 174.4 Acres
AL769 - Acreage recommended for NFA: 174.4 Acres


Original reported AFRIMS acreage: 171.9 Acres
CSE Phase II field verified acreage: 586.4 Acres
AL771 - Acreage recommended for Adminstrative Closure: 586.4 Acres
SR768 Close Combat Infiltration Course
AL771 Old Cable Site
MU772 H-25 Site
ML125 Field Firing Range
ED770 Experimental Range
5" Projo
5" Projo
Propellant
Propellant
5" Rocket
3.5" Rocket
5" Frag
5" Projo
Illum round
Collapsed Bunker
5" Projo
5" Rocket
Frag
Propellant
Propellant
3.5" Rocket Fuze
Penetrator nose
Penetrator nose
3.5" Rocket
5" Rocket
5" Projo
3.5" Rocket
N
0
750
1500
3000
SCALE IN FEET
Legend
MD
DMM
MEC
Other
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
AL771 MRA Boundary
Adjacent Boundaries
Figure 14-3
AL771 Old Cable Site
Proposed MRS Boundaries
US Army Corps of Engineers
HGL
Hydrogeologic, Inc.
X:\OA10\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\AL771_divisions.mxd
11/05/09 JP
Source: HGL GIS Database


Legend
MD
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
DA130 MRA Boundary
Adjacent Boundaries
Proposed DA130 MRS Boundaries
Figure 14-4
DA130 Arroyo del Coyote Proposed MRS Boundaries
X:\OMA010\Kirtland_AFB\TO_15\Maps\CSE_Phase_II\DA130_divisions.mxd
05/16/09 BF
Source: HGL GIS Database
HGL
HydroGeoLogic, Inc.
US Army Corps of Engineers
N
0
445
890
1780
SCALE IN FEET
DA130 Arroyo del Coyote Demo Area
MRS DA130
5" Empty Shell
Frag
Frag
MRS DA130a
ML200 Howitzer Range
ML201 Howitzer Range Buffer
Original reported AFRIMS Acreage: 255.5 Acres
CSE Phase II field verified acreage: 386.5 Acres
DA130 - Acreage recommended for Further Action: 61.0 Acres
DA130a - Acreage recommended for NFA: 325.5 Acres


Legend
MD
Kirtland AFB Perimeter Fence
Approximate MRA Boundary
DA782 MRA Boundary
Adjacent Boundaries
Figure 14-5
DA782 Explosive Disposal Area Proposed MRS Boundaries
X:\OM4010\Kirtland_AFB\TG_15\Maps\
CSE Phase IIDA782 Divisions.mxd
11/05/09 JT
Source: HGL GIS Database
US Army Corps of Engineers
HGL
TG100 Bomb Target
DA782a
Large Bomb Frag
DA782 Explosive Disposal Area
N
0
175
350
700
SCALE IN FEET
Original reported AFRIMS Acreage: 25.8 Acres
CSE Phase II field verified acreage: 5.5 Acres
DA782 - Acreage recommended for NFA: 5.5 Acres
DA782a - Acreage recommended for Adminstrative Closure - 20.3 Acres

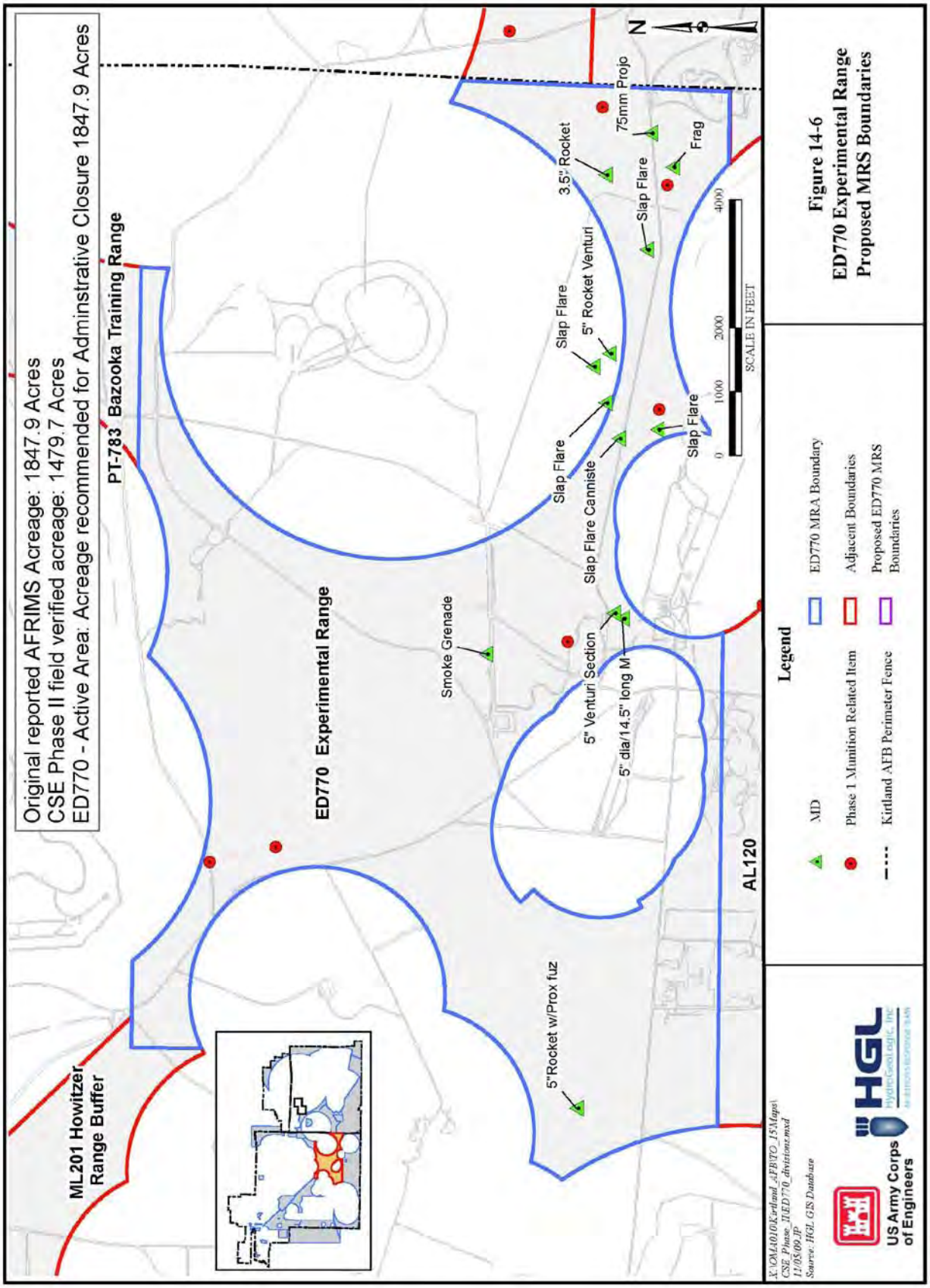


Figure 14-6
ED770 Experimental Range
Proposed MRS Boundaries

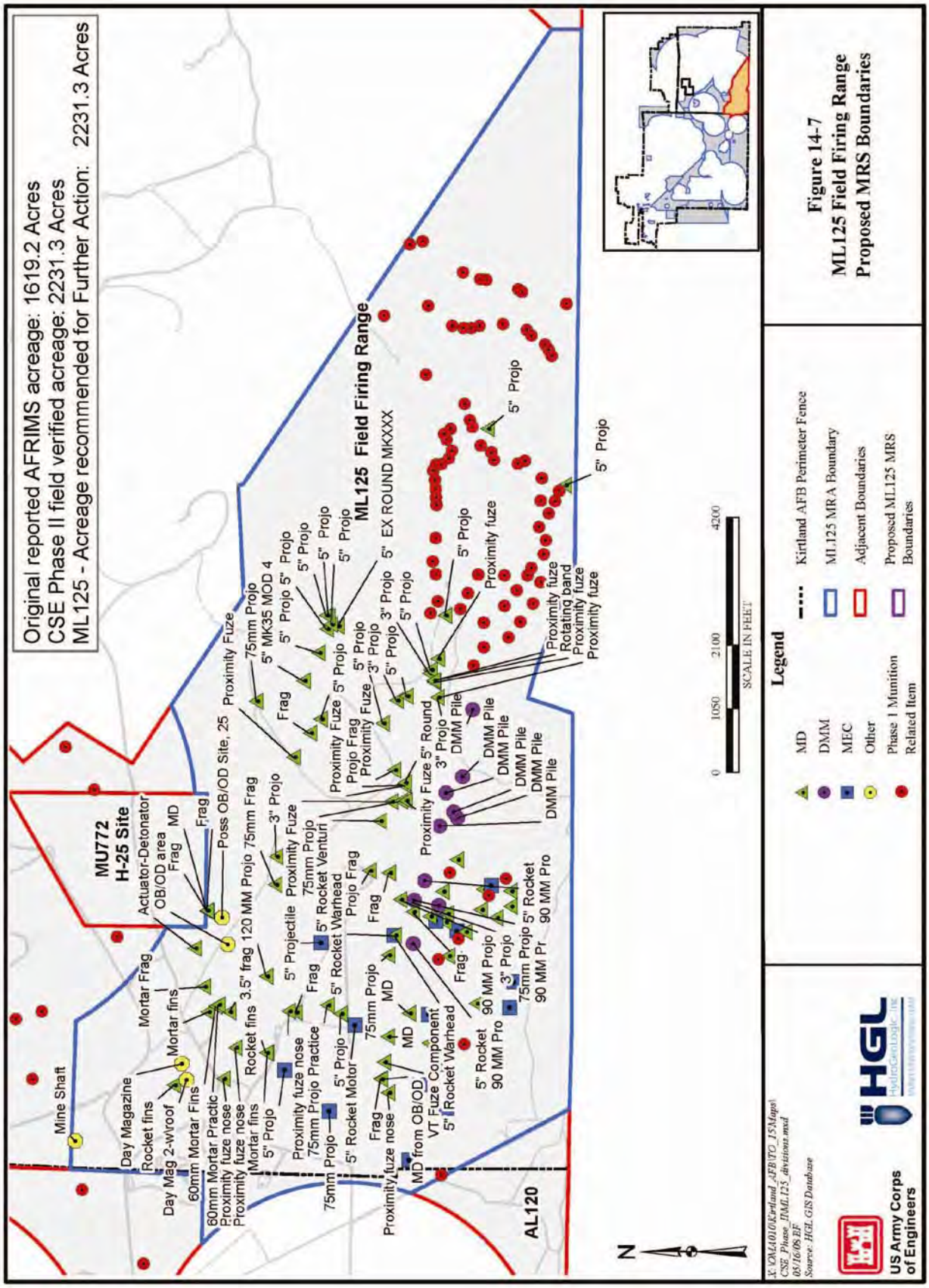
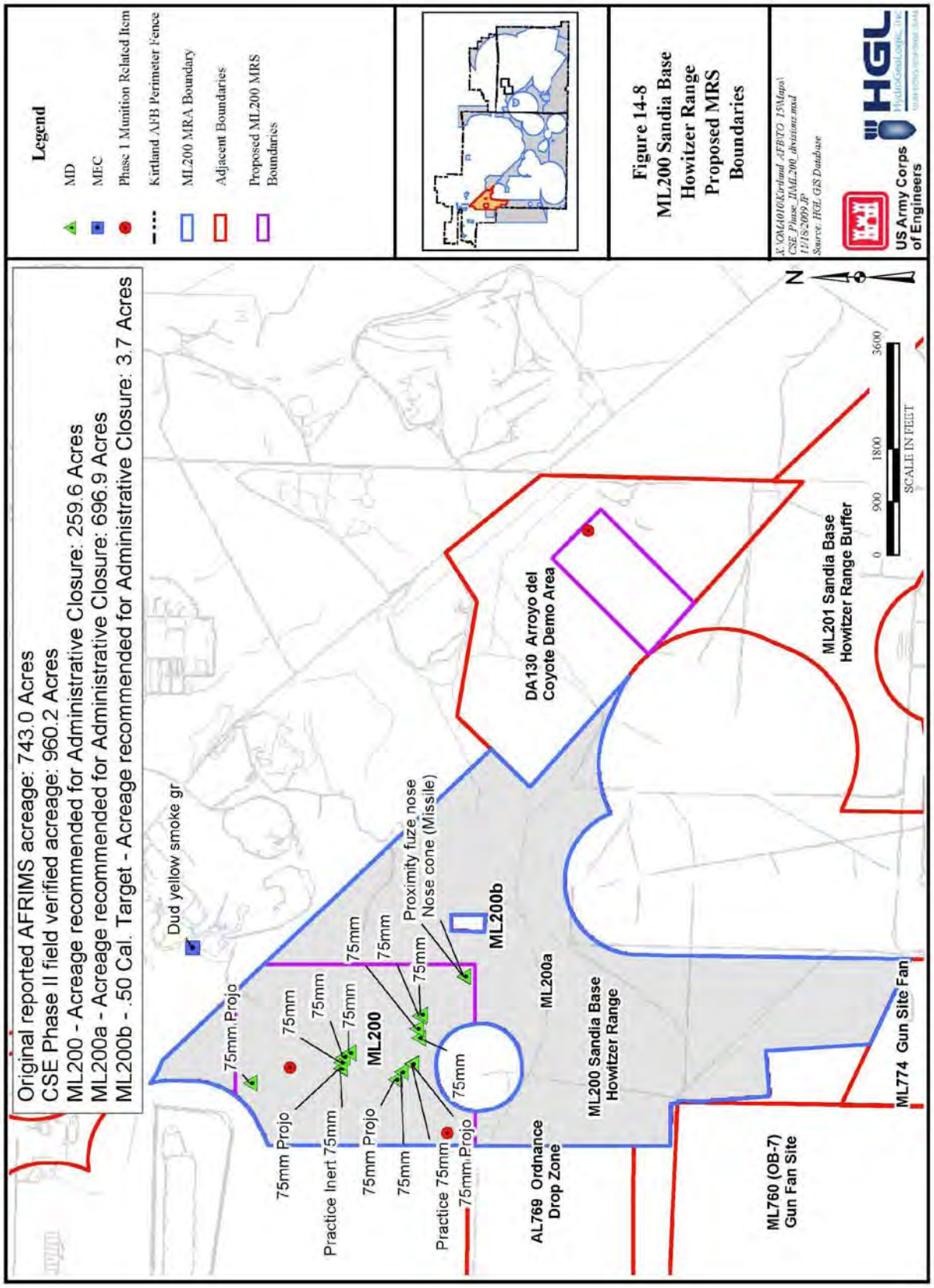


Figure 14-7
ML125 Field Firing Range
Proposed MRS Boundaries


Legend
MD
MEC
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
ML200 MRA Boundary
Adjacent Boundaries
Proposed ML200 MRS Boundaries
Figure 14-8
ML200 Sandia Base
Howitzer Range
Proposed MRS
Boundaries
US Army Corps of Engineers
HGL
Original reported AFRIMS acreage: 743.0 Acres
CSE Phase II field verified acreage: 960.2 Acres
ML200 - Acreage recommended for Administrative Closure: 259.6 Acres
ML200a - Acreage recommended for Administrative Closure: 696.9 Acres
ML200b - .50 Cal. Target - Acreage recommended for Administrative Closure: 3.7 Acres
Dud yellow smoke gr
75mm Projo
75mm
Practice Inert 75mm
Practice 75mm
Proximity fuze nose
Nose cone (Missile)
ML200
ML200b
ML200a
ML200 Sandia Base Howitzer Range
AL769 Ordnance Drop Zone
DA130 Arroyo del Coyote Demo Area
ML201 Sandia Base Howitzer Range Buffer
ML774 Gun Site Fan
ML760 (OB-7) Gun Fan Site
SCALE IN FEET
0
900
1800
3600
N

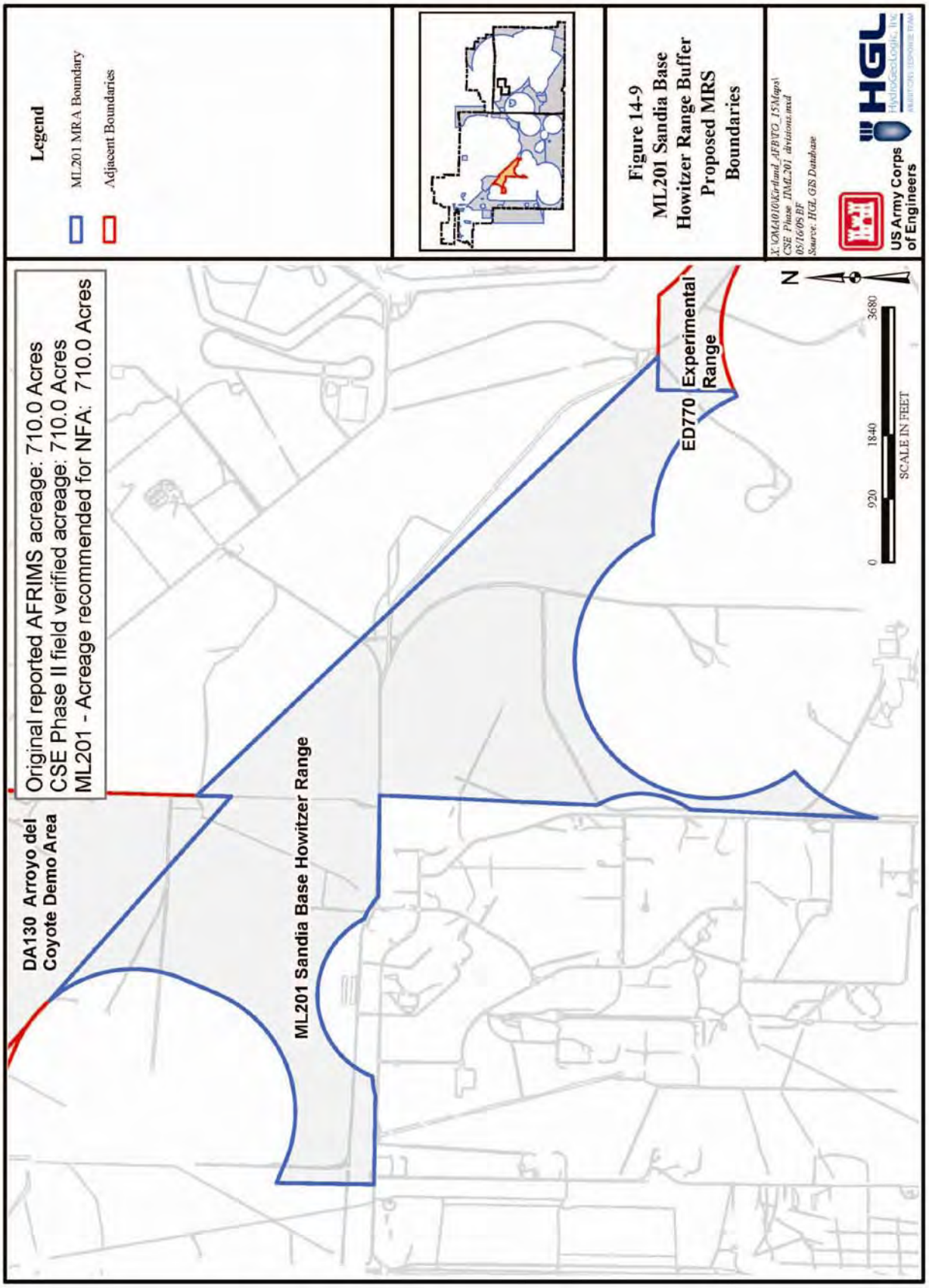
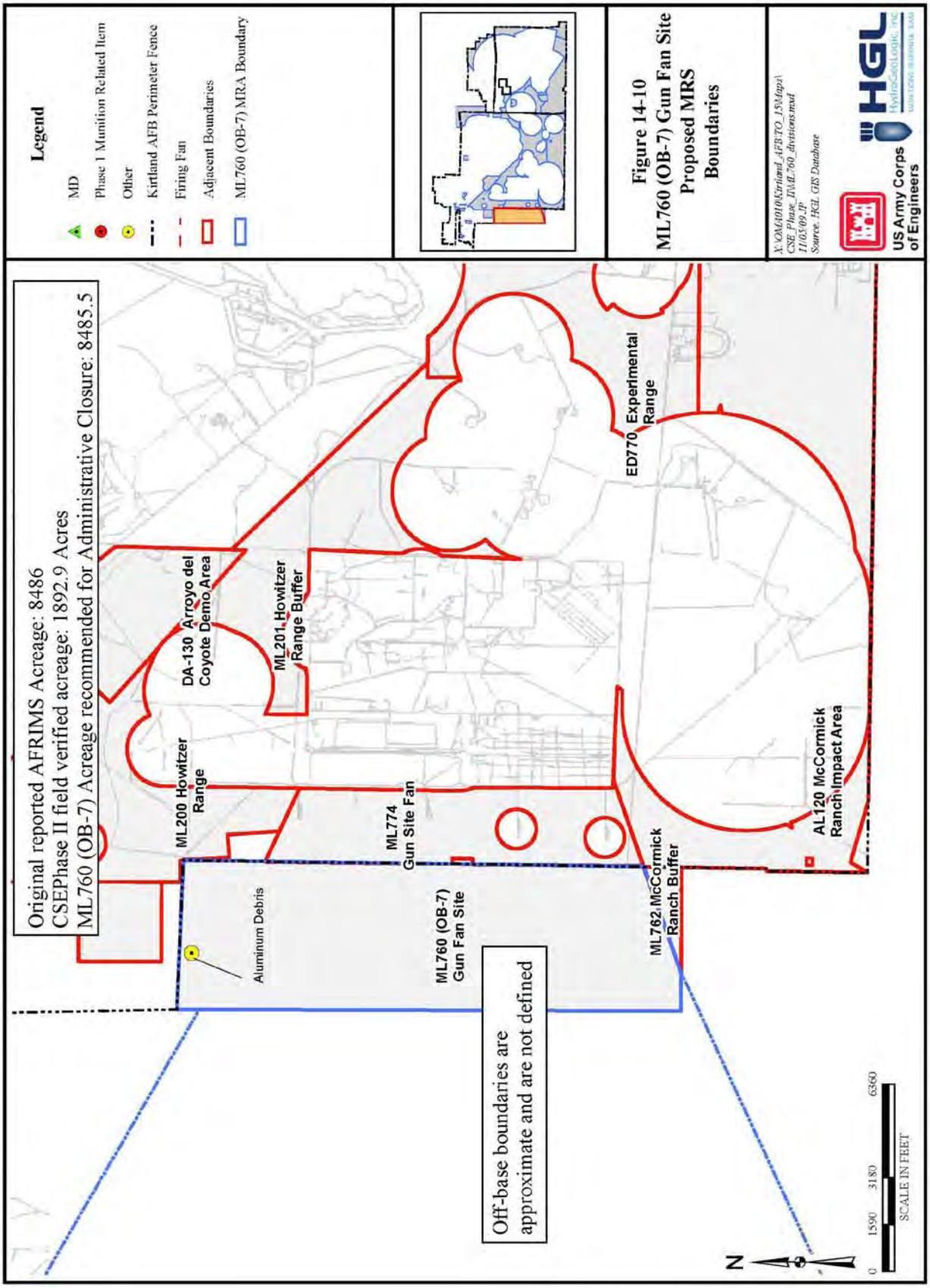
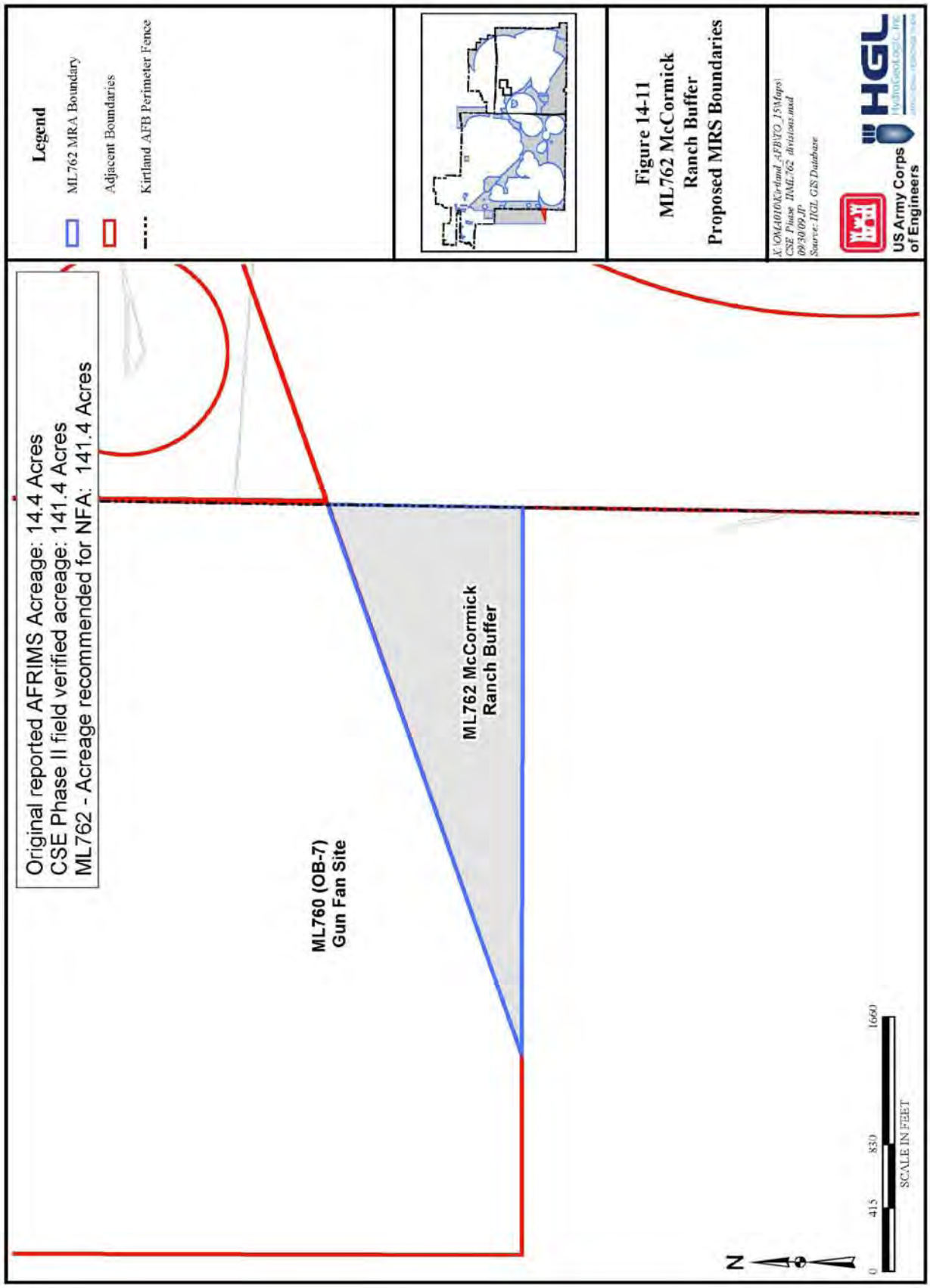
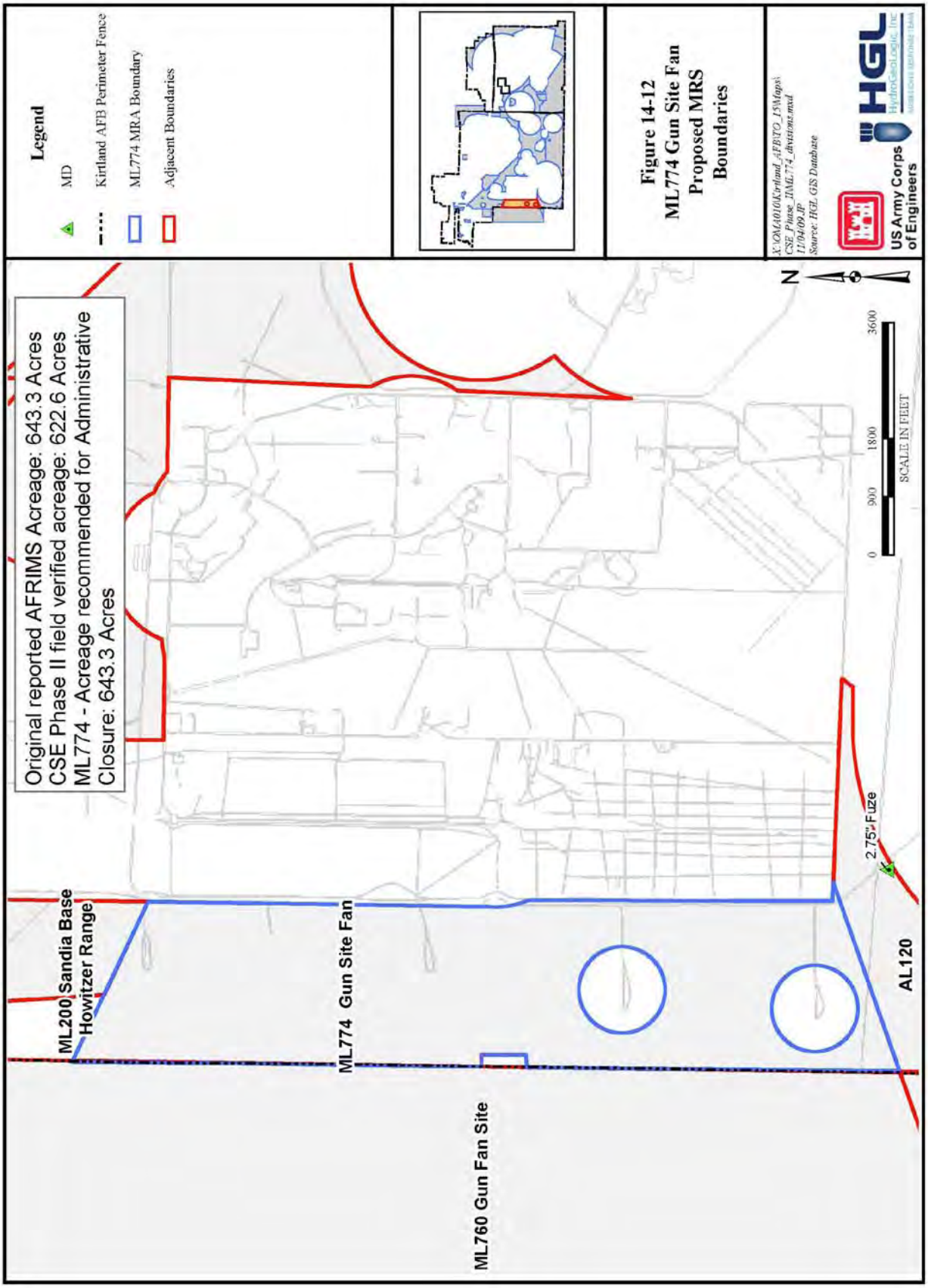


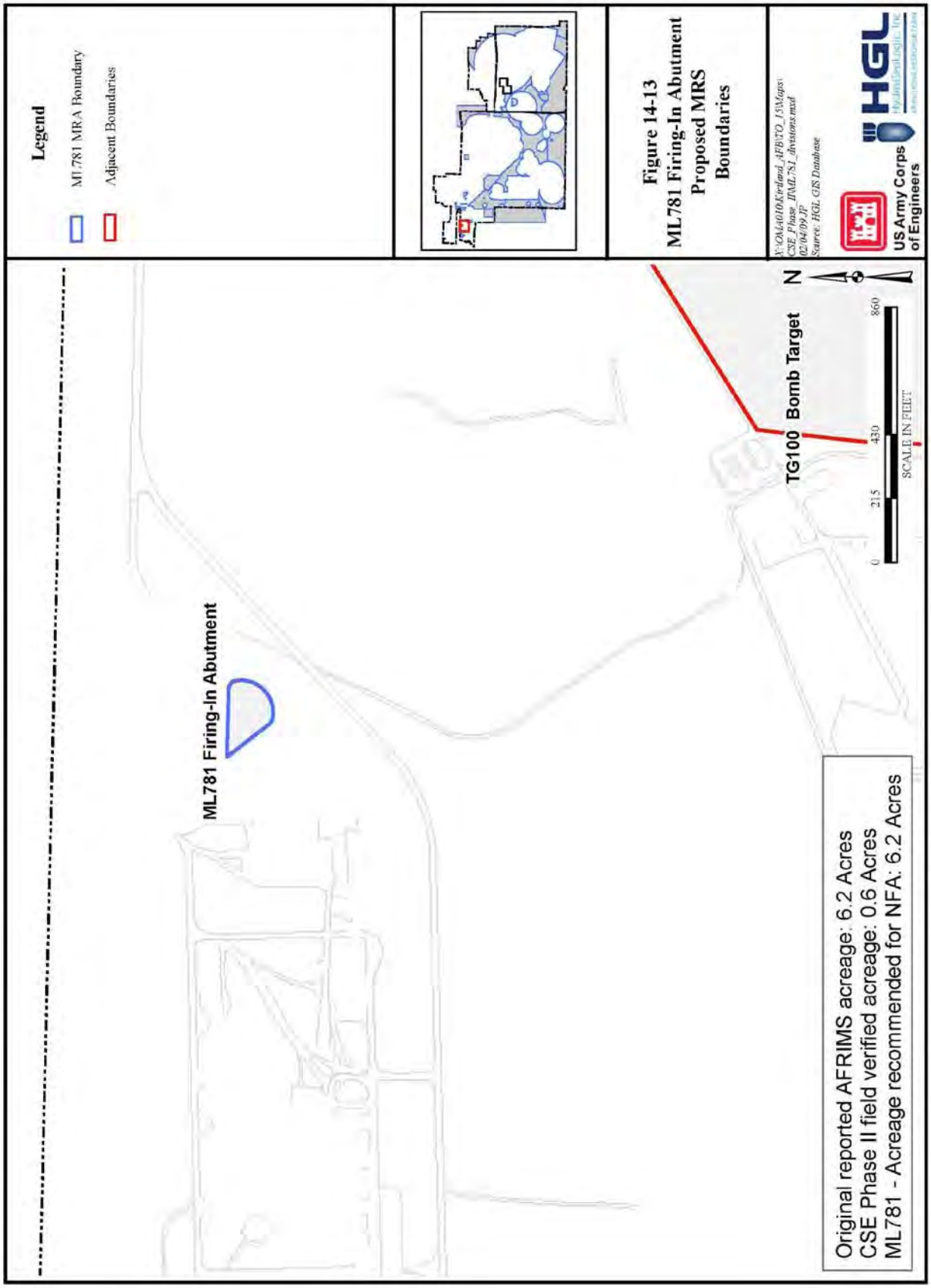
Figure 14-9
ML201 Sandia Base
Howitzer Range Buffer
Proposed MRS
Boundaries

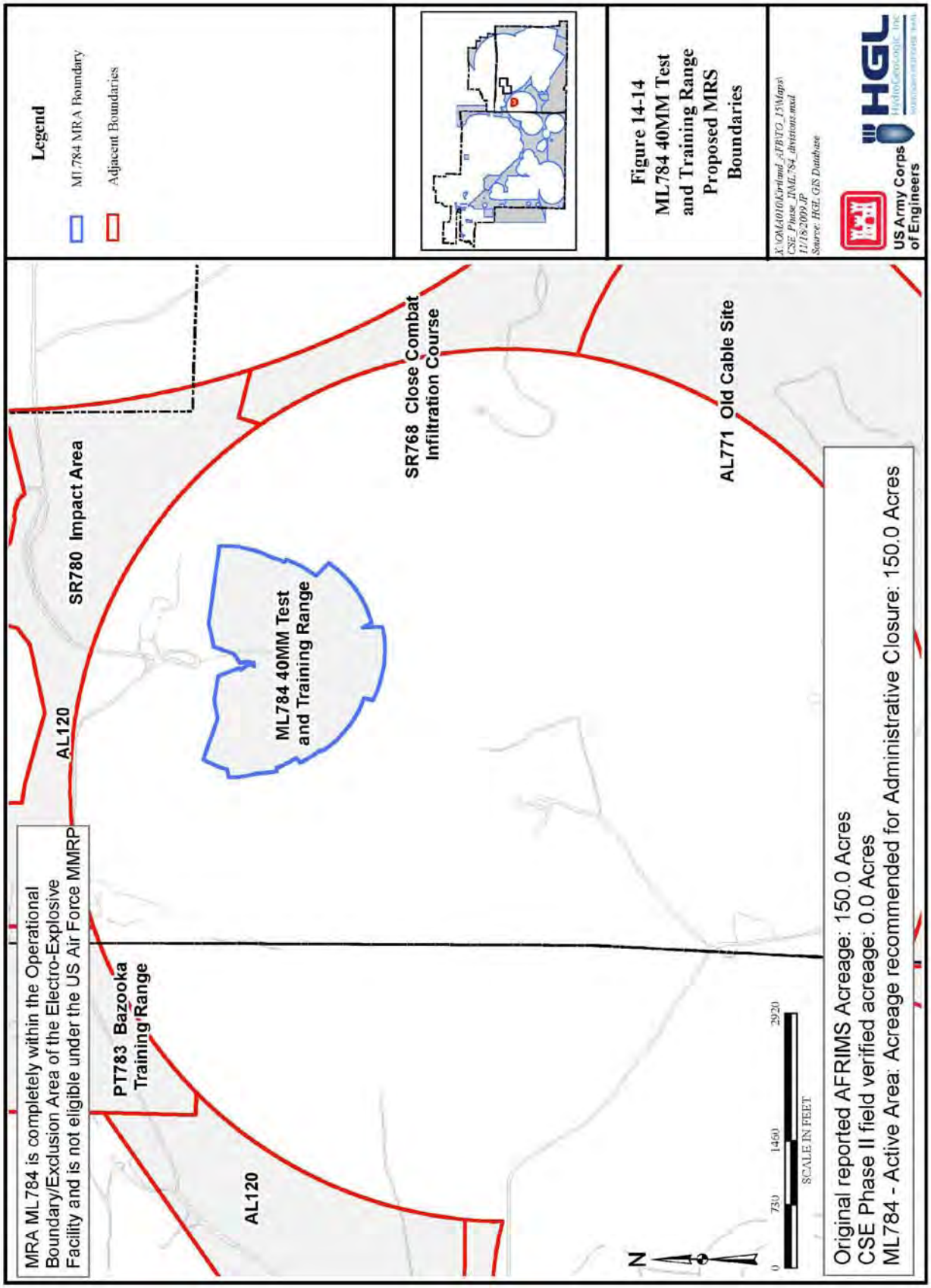
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE Phase II\ML201 deviations.mxd
05/16/09 BF
Source: HGL GIS Database


Legend
MD
Phase 1 Munition Related Item
Other
Kirtland AFB Perimeter Fence
Firing Fan
Adjacent Boundaries
ML760 (OB-7) MRA Boundary
Figure 14-10
ML760 (OB-7) Gun Fan Site
Proposed MRS
Boundaries
X:\OMA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\ML760_divisions.mxd
11/03/09 JP
Source: HGL GIS Database
HGL
HydroGeoLogic, Inc.
US Army Corps
of Engineers
Original reported AFRIMS Acreage: 8486
CSEPhase II field verified acreage: 1892.9 Acres
ML760 (OB-7) Acreage recommended for Administrative Closure: 8485.5
DA-130 Arroyo del
Coyote Demo Area
ML201 Howitzer
Range Buffer
ED770 Experimental
Range
ML200 Howitzer
Range
ML774
Gun Site Fan
AL120 McCormick
Ranch Impact Area
Aluminum Debris
ML760 (OB-7)
Gun Fan Site
ML762 McCormick
Ranch Buffer
Off-base boundaries are
approximate and are not defined
N
0
1590
3180
6360
SCALE IN FEET


Legend
ML762 MRA Boundary
Adjacent Boundaries
Kirtland AFB Perimeter Fence
Figure 14-11
ML762 McCormick
Ranch Buffer
Proposed MRS Boundaries
X:\OM4010\Kirtland_AFB\TO_15\Maps\
CSE Phase II\ML762 divisions.mxd
09/30/09 JP
Source: HGL GIS Database
HGL
HydroGeoLogic, Inc.
US Army Corps
of Engineers
Original reported AFRIMS Acreage: 14.4 Acres
CSE Phase II field verified acreage: 141.4 Acres
ML762 - Acreage recommended for NFA: 141.4 Acres
ML760 (OB-7)
Gun Fan Site
ML762 McCormick
Ranch Buffer
N
0
415
830
1660
SCALE IN FEET


Legend
MD
Kirtland AFB Perimeter Fence
ML774 MRA Boundary
Adjacent Boundaries
Figure 14-12
ML774 Gun Site Fan
Proposed MRS
Boundaries
X:\OM2010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\ML774_divisions.mxd
11/04/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
Original reported AFRIMS Acreage: 643.3 Acres
CSE Phase II field verified acreage: 622.6 Acres
ML774 - Acreage recommended for Administrative
Closure: 643.3 Acres
N
0
900
1800
3600
SCALE IN FEET
ML200 Sandia Base
Howitzer Range
ML774 Gun Site Fan
ML760 Gun Fan Site
2.75" Fuze
AL120


Legend
ML781 MRA Boundary
Adjacent Boundaries
Figure 14-13
ML781 Firing-In Abutment
Proposed MRS
Boundaries
F:\OALA010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\ML781_divisions.mxd
02/04/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
ML781 Firing-In Abutment
TG100 Bomb Target
N
0
215
430
860
SCALE IN FEET
Original reported AFRIMS acreage: 6.2 Acres
CSE Phase II field verified acreage: 0.6 Acres
ML781 - Acreage recommended for NFA: 6.2 Acres


Legend
ML784 MRA Boundary
Adjacent Boundaries
Figure 14-14
ML784 40MM Test and Training Range Proposed MRS Boundaries
X:\QM4010\Kirland_AFB\TO_15\Maps\CSE_Phase_II\ML784_divisions.mxd
11/18/2009 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
SR780 Impact Area
SR768 Close Combat Infiltration Course
AL771 Old Cable Site
AL120
ML784 40MM Test and Training Range
PT783 Bazooka Training Range
AL120
MRA ML784 is completely within the Operational Boundary/Exclusion Area of the Electro-Explosive Facility and is not eligible under the US Air Force MMRP
N
0
730
1460
2920
SCALE IN FEET
Original reported AFRIMS Acreage: 150.0 Acres
CSE Phase II field verified acreage: 0.0 Acres
ML784 - Active Area: Acreage recommended for Administrative Closure: 150.0 Acres

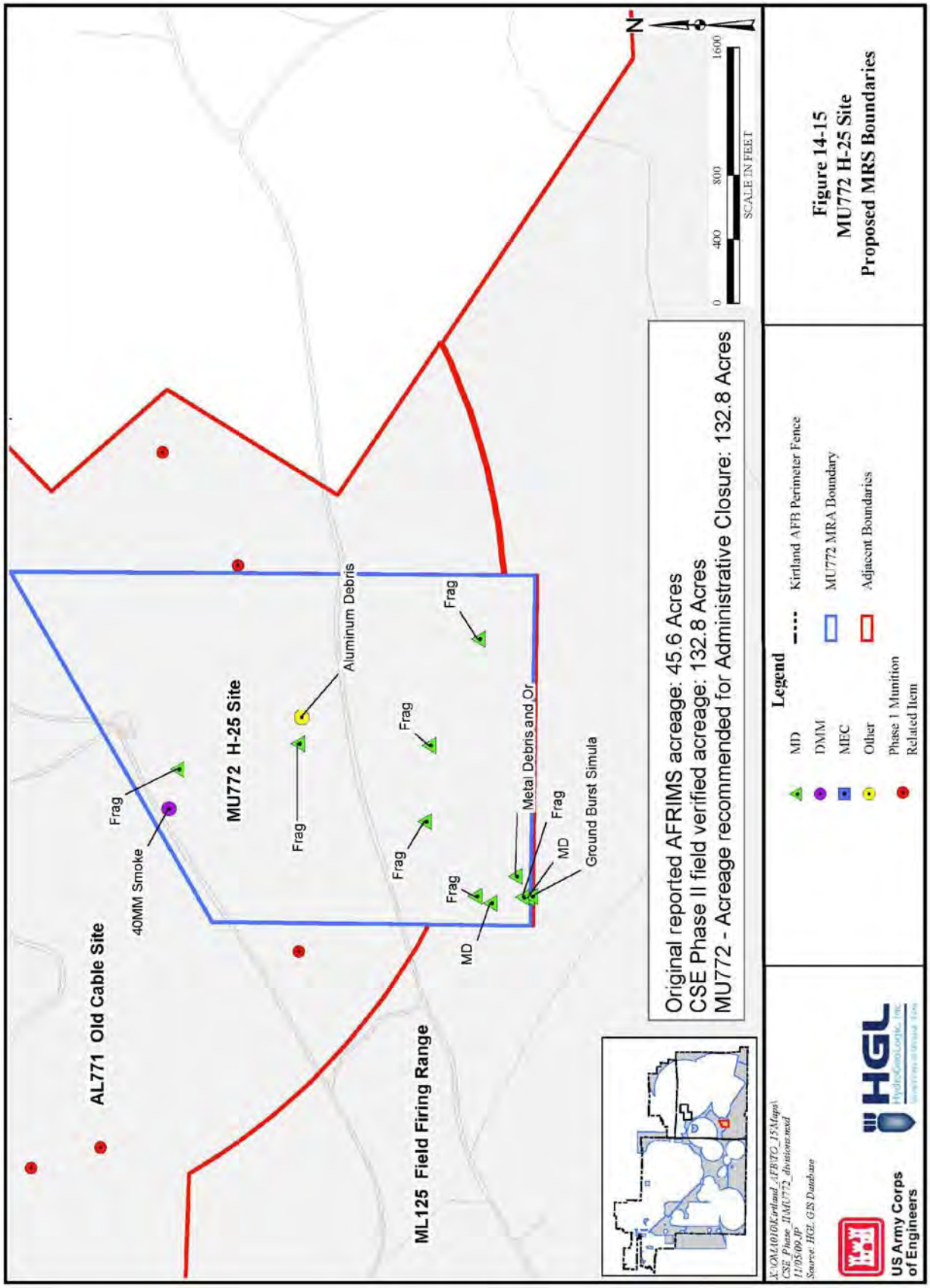
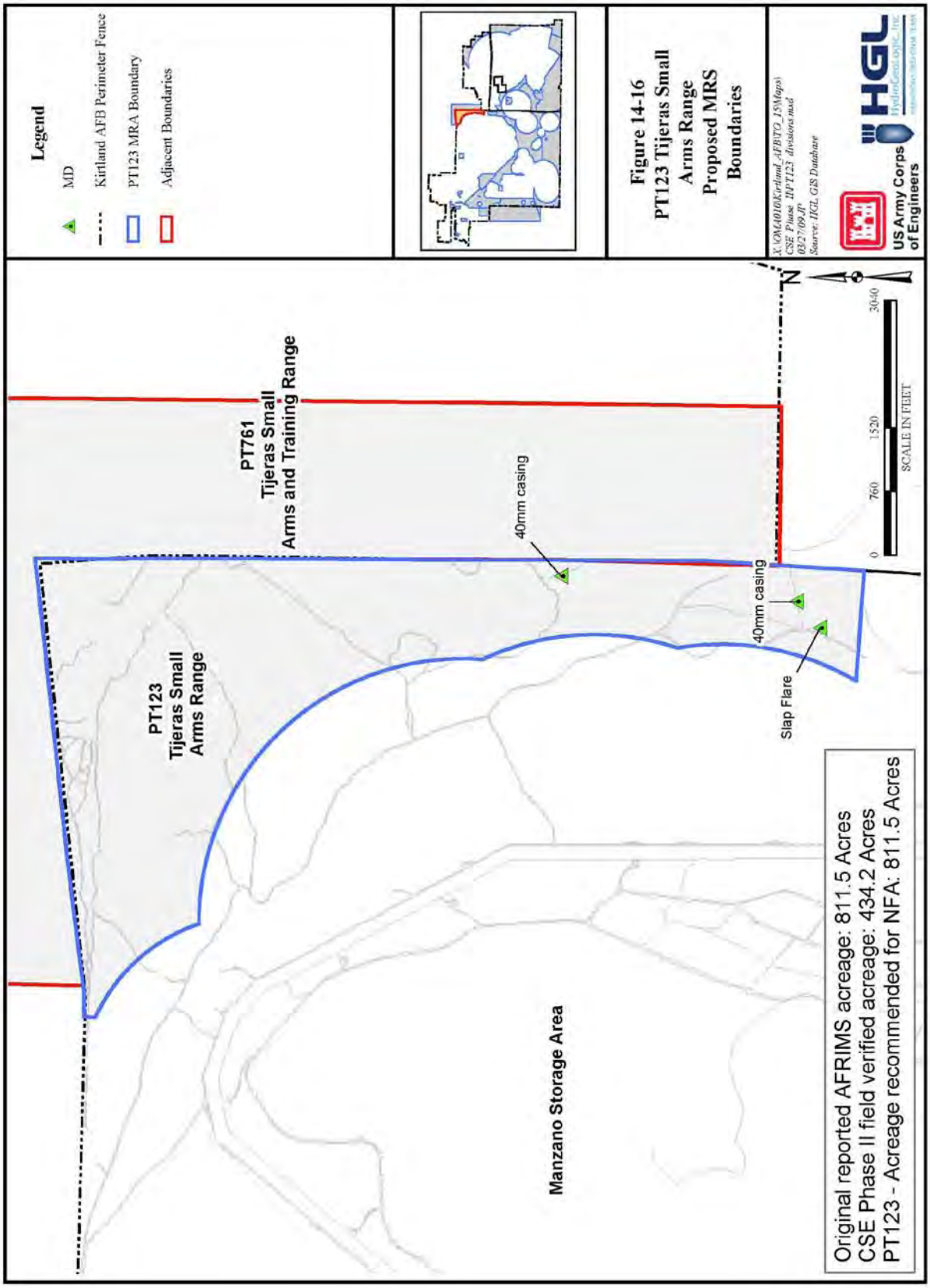
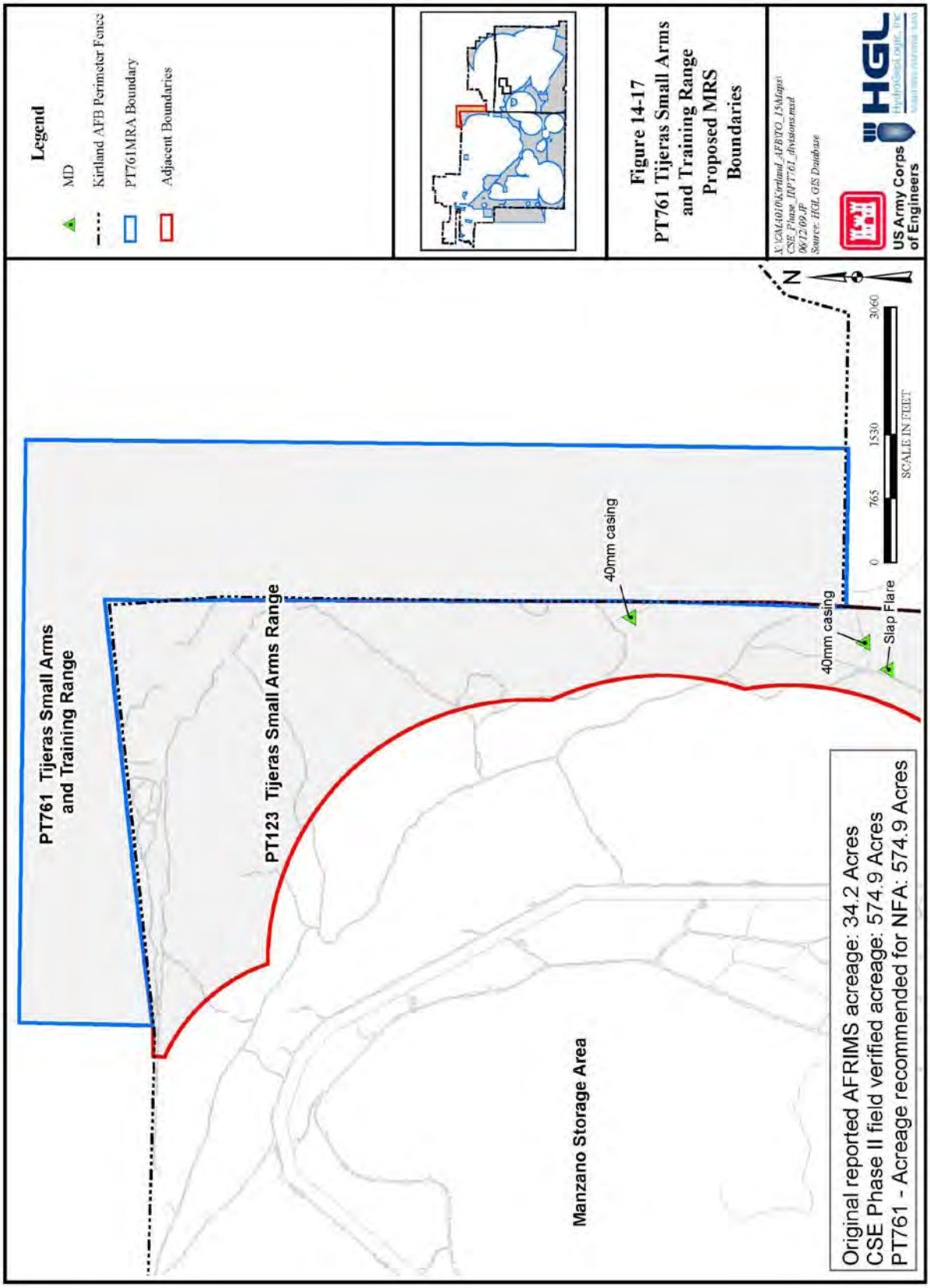
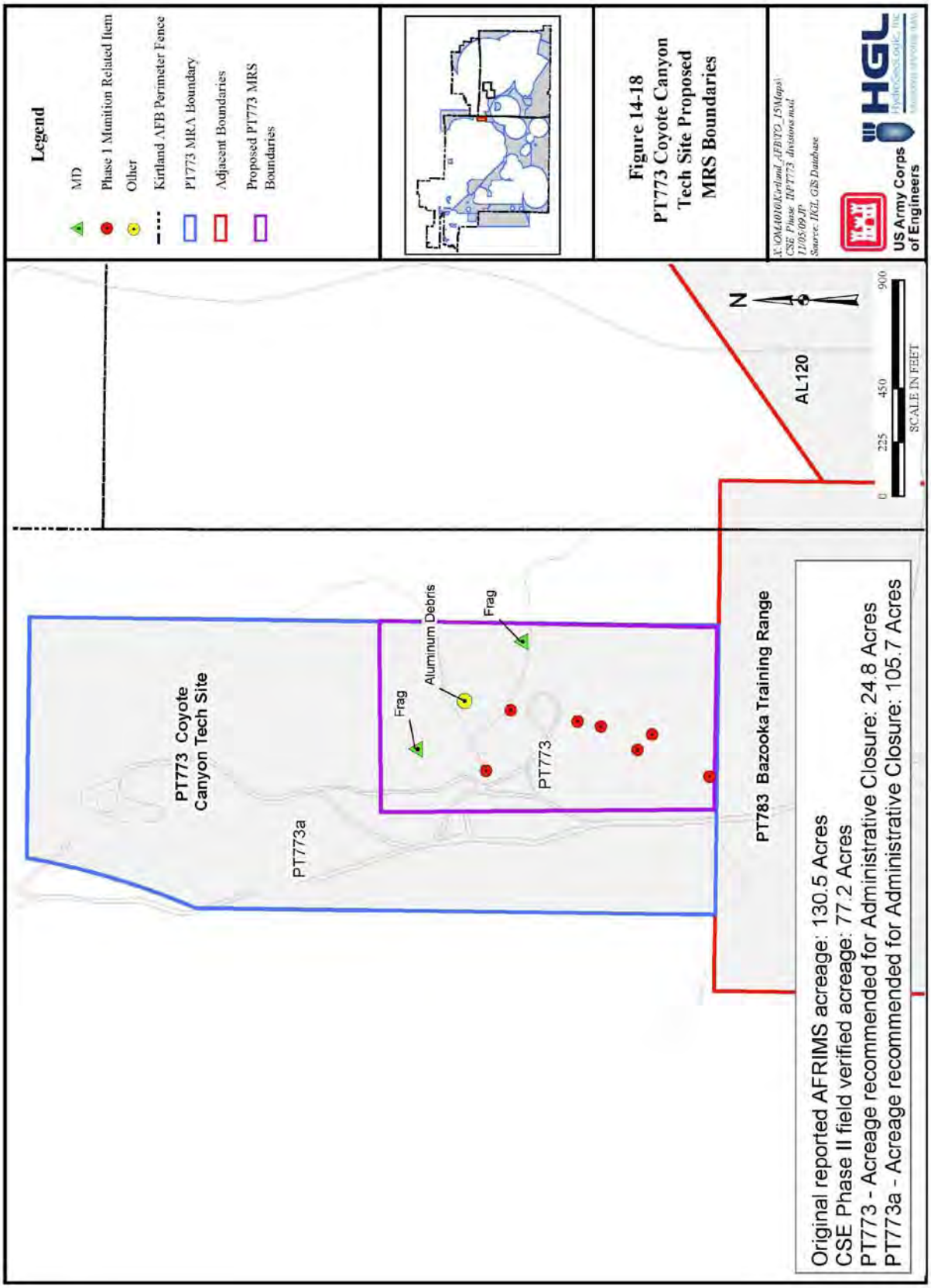
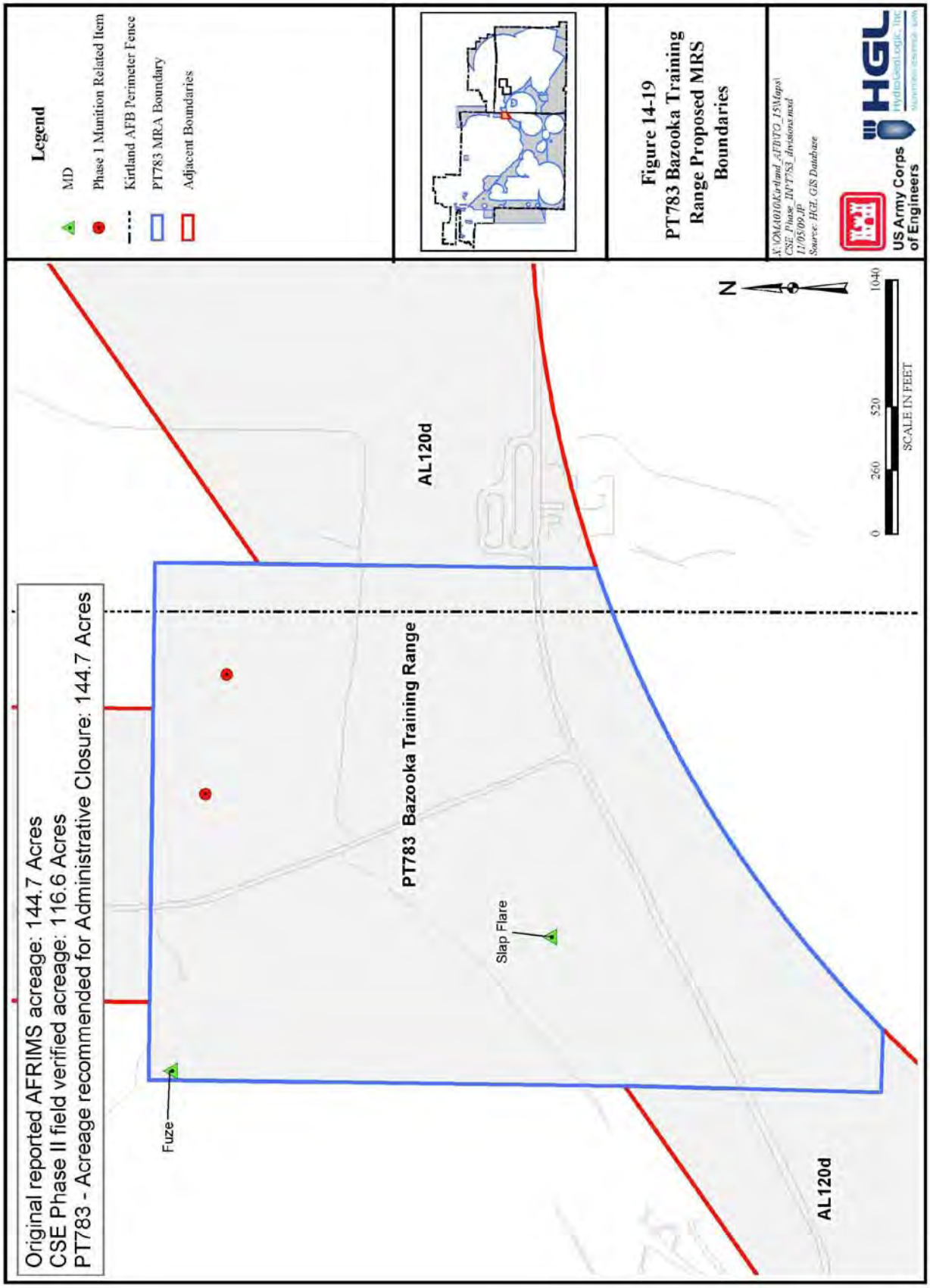


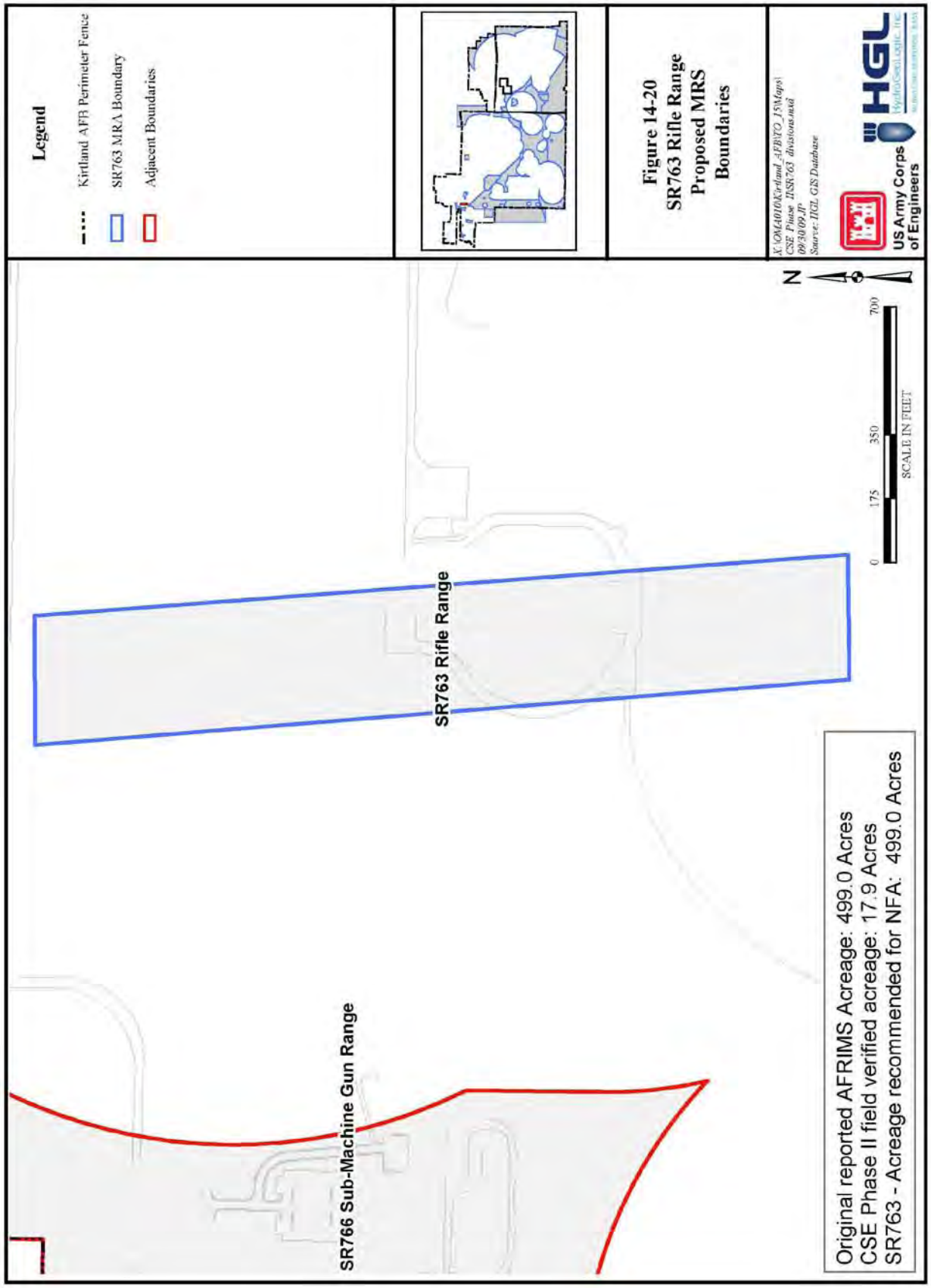
Figure 14-15
MU772 H-25 Site
Proposed MRS Boundaries

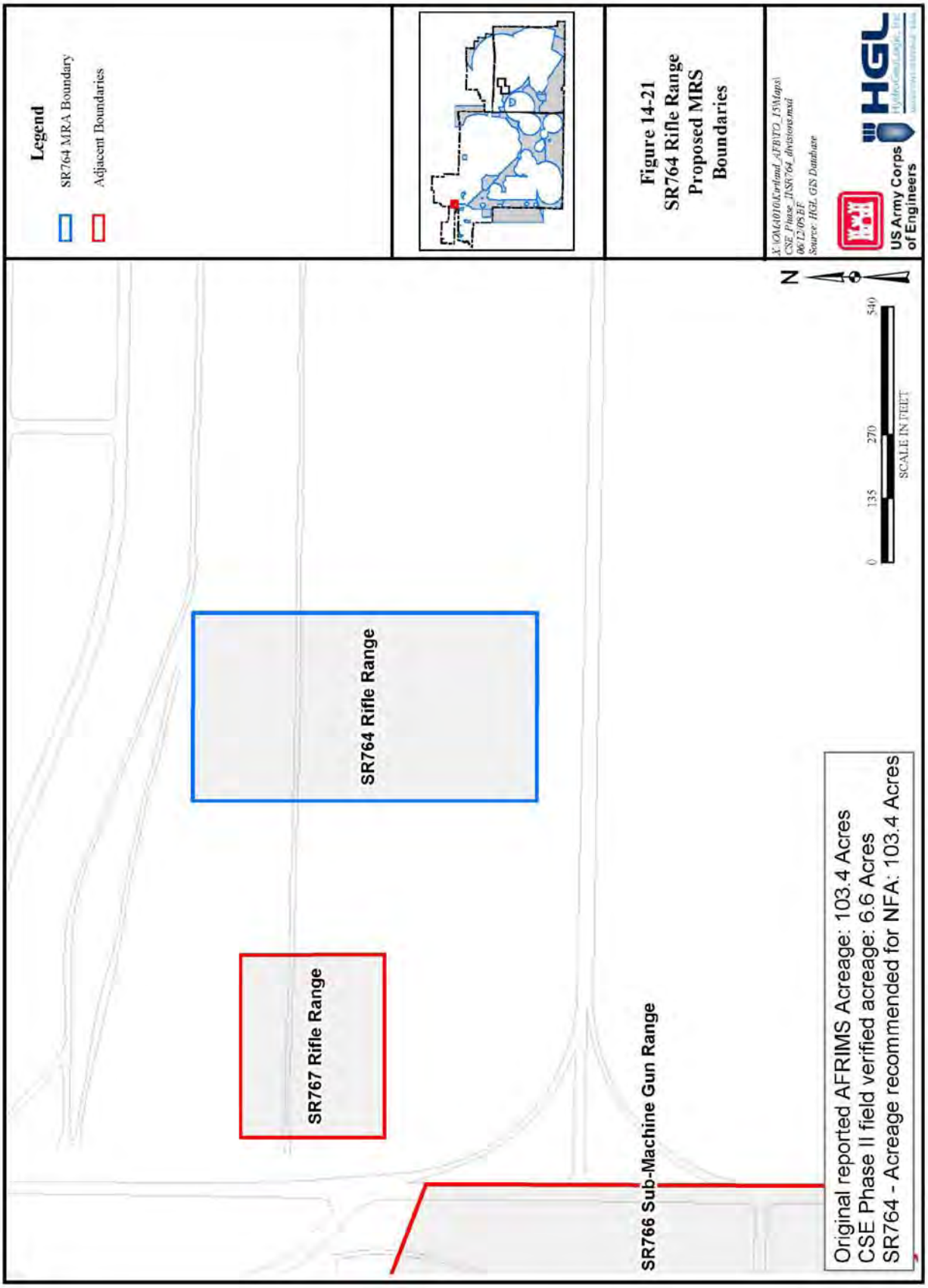

Legend
MD
Kirtland AFB Perimeter Fence
PT123 MRA Boundary
Adjacent Boundaries
Figure 14-16
PT123 Tijeras Small
Arms Range
Proposed MRS
Boundaries
X:\KMA010\Kirtland_AFB\TO_15\Maps\
CSE Phase II\PT123 divisions.mxd
03/27/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
PT761
Tijeras Small
Arms and Training Range
PT123
Tijeras Small
Arms Range
40mm casing
40mm casing
Slap Flare
Manzano Storage Area
0
760
1520
3040
SCALE IN FEET
N
Original reported AFRIMS acreage: 811.5 Acres
CSE Phase II field verified acreage: 434.2 Acres
PT123 - Acreage recommended for NFA: 811.5 Acres

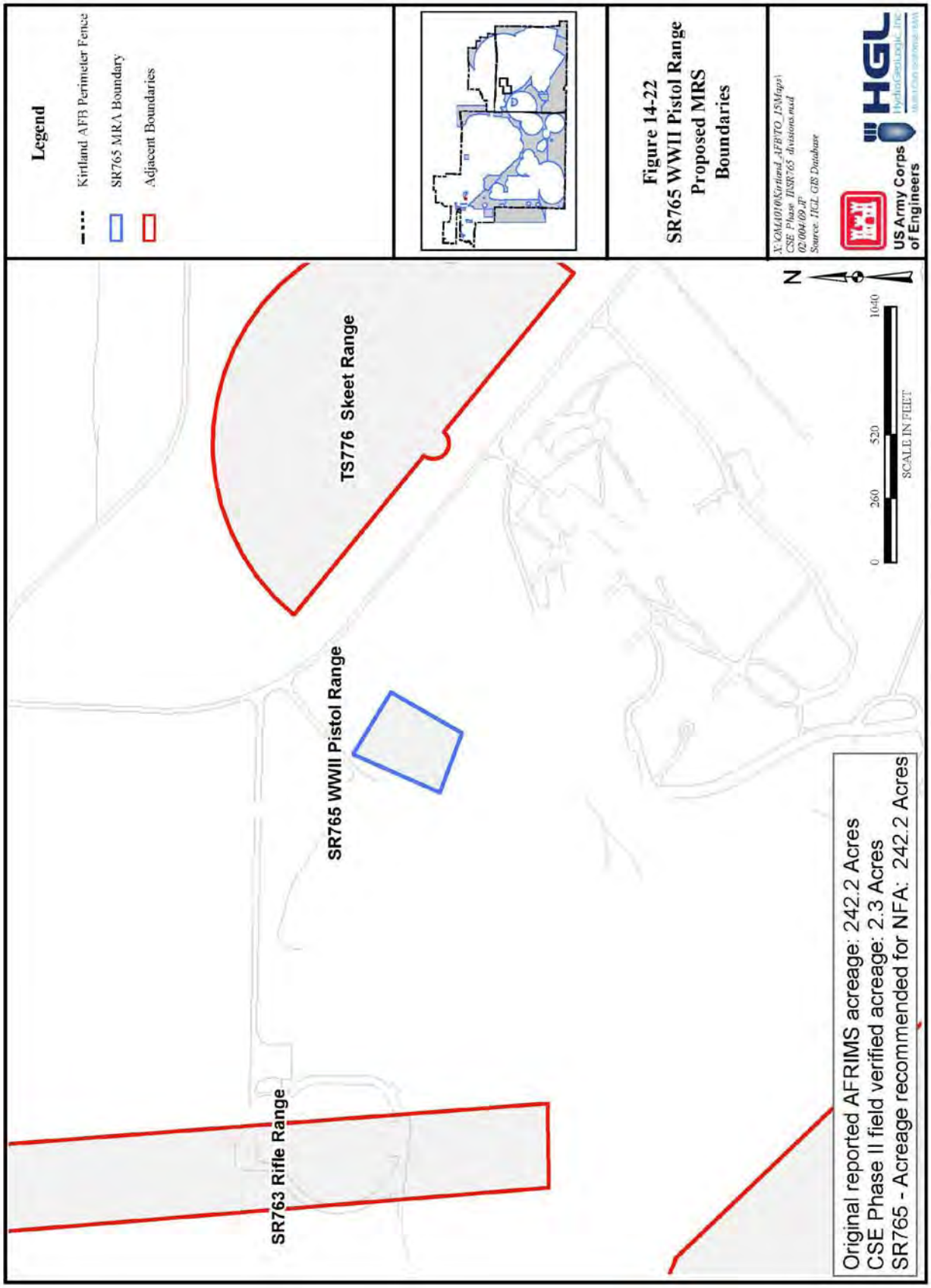

Legend
MD
Kirtland AFB Perimeter Fence
PT761MRA Boundary
Adjacent Boundaries
Figure 14-17
PT761 Tijeras Small Arms and Training Range Proposed MRS Boundaries
X:\OA4010\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\PT761_divisions.mxd
06/12/09_JF
Source: HGL GIS Database
US Army Corps of Engineers
HGL
HydroGeoLogic, INC.
environmental, inc.
N
0 765 1530 3060
SCALE IN FEET
PT761 Tijeras Small Arms and Training Range
PT123 Tijeras Small Arms Range
40mm casing
40mm casing
Slap Flare
Manzano Storage Area
Original reported AFRIMS acreage: 34.2 Acres
CSE Phase II field verified acreage: 574.9 Acres
PT761 - Acreage recommended for NFA: 574.9 Acres

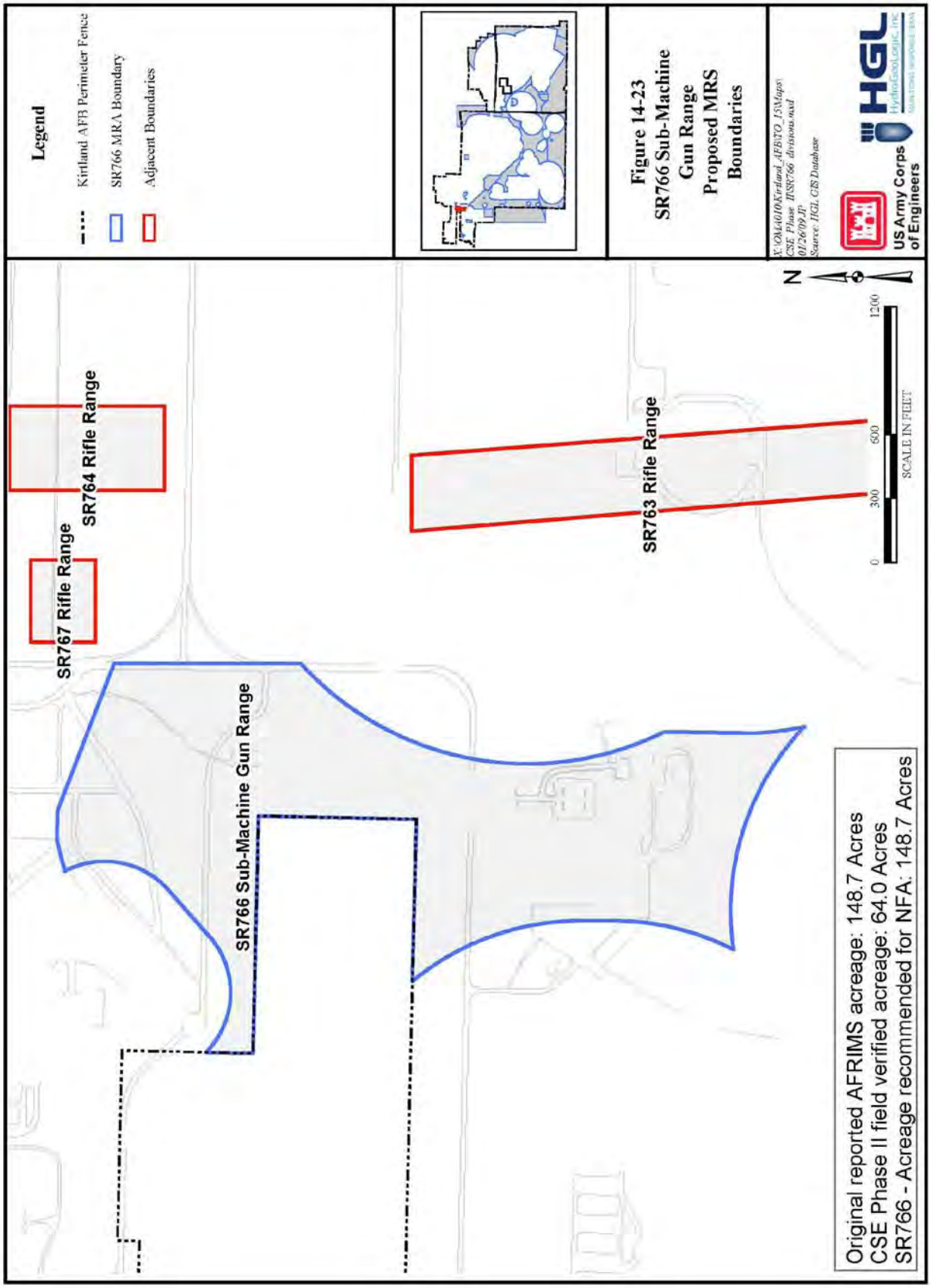

Legend
MD
Phase 1 Munition Related Item
Other
Kirtland AFB Perimeter Fence
PT773 MRA Boundary
Adjacent Boundaries
Proposed PT773 MRS Boundaries
Figure 14-18
PT773 Coyote Canyon Tech Site Proposed MRS Boundaries
X:\OM4016\Kirtland_AFB\PO_15\Maps\
CSE Phase II\PT773 divisions.mxd
11/05/09 JP
Source: HGL GIS Database
US Army Corps of Engineers
HGL
Hydrogeologic, Inc.
N
AL120
0
225
450
900
SCALE IN FEET
PT773 Coyote Canyon Tech Site
PT773a
Frag
Aluminum Debris
Frag
PT773
PT783 Bazooka Training Range
Original reported AFRIMS acreage: 130.5 Acres
CSE Phase II field verified acreage: 77.2 Acres
PT773 - Acreage recommended for Administrative Closure: 24.8 Acres
PT773a - Acreage recommended for Administrative Closure: 105.7 Acres

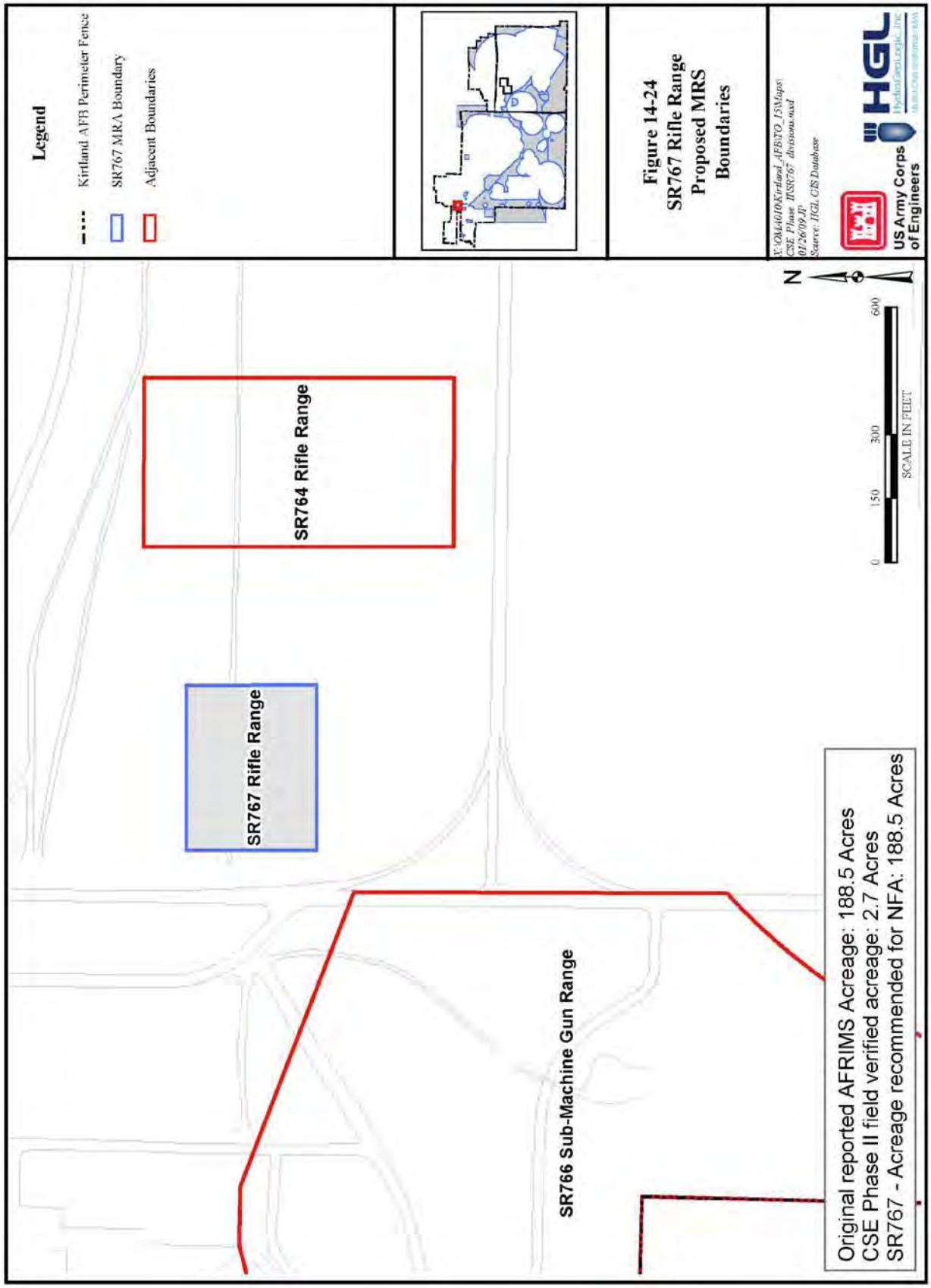

Legend
MD
Phase 1 Munition Related Item
Kirtland AFB Perimeter Fence
PT783 MRA Boundary
Adjacent Boundaries
Figure 14-19
PT783 Bazooka Training Range Proposed MRS Boundaries
US Army Corps of Engineers
HGL
Original reported AFRIMS acreage: 144.7 Acres
CSE Phase II field verified acreage: 116.6 Acres
PT783 - Acreage recommended for Administrative Closure: 144.7 Acres
PT783 Bazooka Training Range
AL120d
AL120d
Fuze
Slap Flare
N
0
260
520
1040
SCALE IN FEET


Legend
Kirtland AFB Perimeter Fence
SR763 MRA Boundary
Adjacent Boundaries
Figure 14-20
SR763 Rifle Range
Proposed MRS
Boundaries
X:\OM4010\Kirtland_AFB\TO_15\Maps\
CSE Phase II\SR763 divisions.mxd
09/30/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
N
0
175
350
700
SCALE IN FEET
SR763 Rifle Range
SR766 Sub-Machine Gun Range
Original reported AFRIMS Acreage: 499.0 Acres
CSE Phase II field verified acreage: 17.9 Acres
SR763 - Acreage recommended for NFA: 499.0 Acres


Legend
SR764 MRA Boundary
Adjacent Boundaries
Figure 14-21
SR764 Rifle Range
Proposed MRS
Boundaries
US Army Corps
of Engineers
HGL
0
135
270
540
SCALE IN FEET
N
SR764 Rifle Range
SR767 Rifle Range
SR766 Sub-Machine Gun Range
Original reported AFRIMS Acreage: 103.4 Acres
CSE Phase II field verified acreage: 6.6 Acres
SR764 - Acreage recommended for NFA: 103.4 Acres


Legend
Kirtland AFB Perimeter Fence
SR765 MRA Boundary
Adjacent Boundaries
Figure 14-22
SR765 WWII Pistol Range
Proposed MRS
Boundaries
X:\QMA010\Kirtland_AFB\TO_15\Maps\
CSE Phase II\SR765 divisions.mxd
02/004/09 JF
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
N
0
260
520
1040
SCALE IN FEET
TS776 Skeet Range
SR765 WWII Pistol Range
SR763 Rifle Range
Original reported AFRIMS acreage: 242.2 Acres
CSE Phase II field verified acreage: 2.3 Acres
SR765 - Acreage recommended for NFA: 242.2 Acres


Legend
Kirtland AFB Perimeter Fence
SR766 MRA Boundary
Adjacent Boundaries
Figure 14-23
SR766 Sub-Machine Gun Range Proposed MRS Boundaries
X:\OA\010Kirtland_AFB\TO_15\Maps\CSE_Phase_II\SR766_divisions.mxd
01/26/09 JT
Source: HGL GIS Database
US Army Corps of Engineers
HGL
HydroGeologic, Inc.
SR767 Rifle Range
SR764 Rifle Range
SR763 Rifle Range
SR766 Sub-Machine Gun Range
N
0
300
600
1200
SCALE IN FEET
Original reported AFRIMS acreage: 148.7 Acres
CSE Phase II field verified acreage: 64.0 Acres
SR766 - Acreage recommended for NFA: 148.7 Acres


Legend
Kirtland AFB Perimeter Fence
SR767 MRA Boundary
Adjacent Boundaries
Figure 14-24
SR767 Rifle Range
Proposed MRS
Boundaries
X:\OA\010Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\SR767_divisions.mxd
01/26/09 JT
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
N
0
150
300
600
SCALE IN FEET
SR764 Rifle Range
SR767 Rifle Range
SR766 Sub-Machine Gun Range
Original reported AFRIMS Acreage: 188.5 Acres
CSE Phase II field verified acreage: 2.7 Acres
SR767 - Acreage recommended for NFA: 188.5 Acres

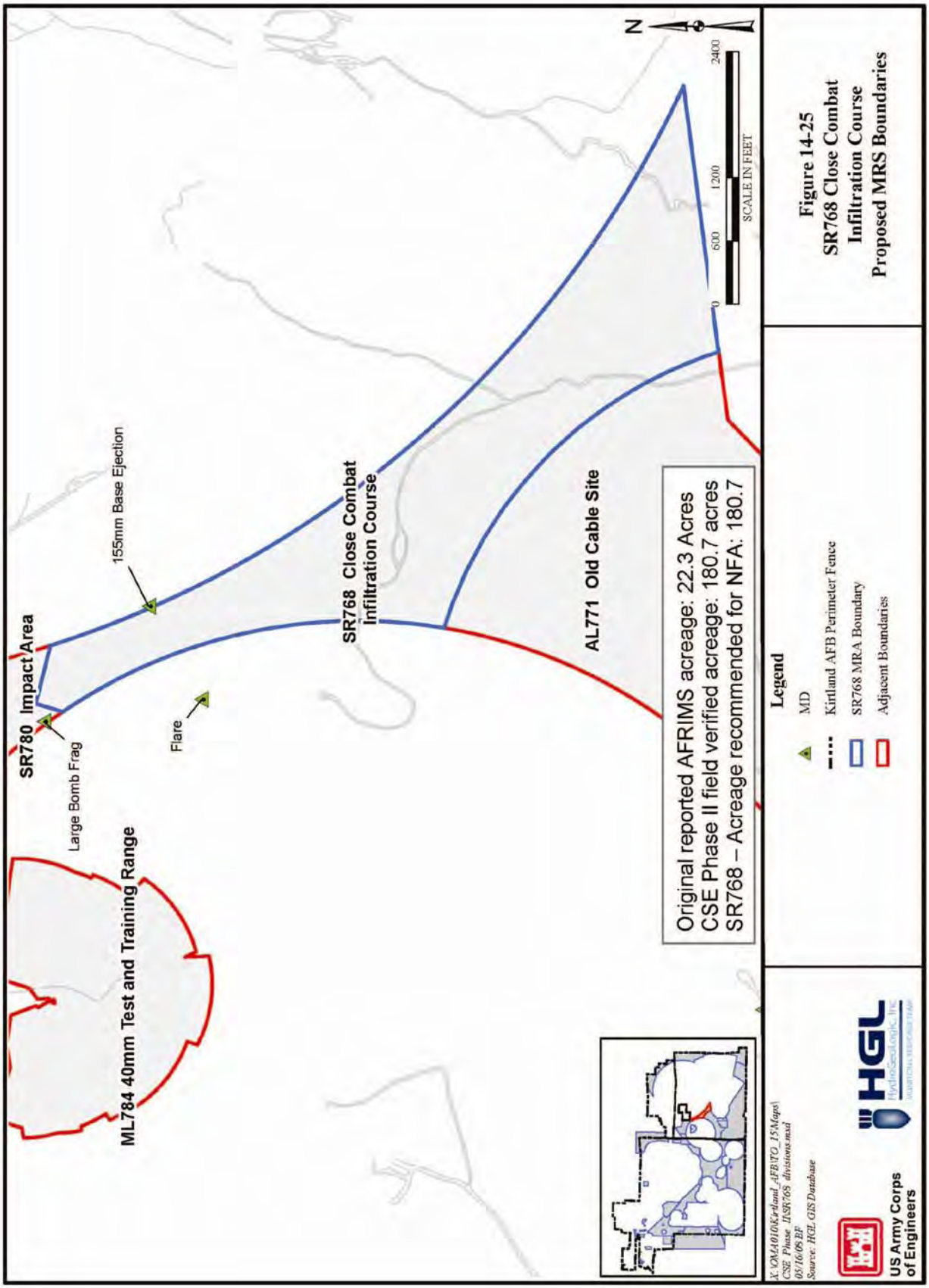


Figure 14-25
SR768 Close Combat Infiltration Course Proposed MRS Boundaries

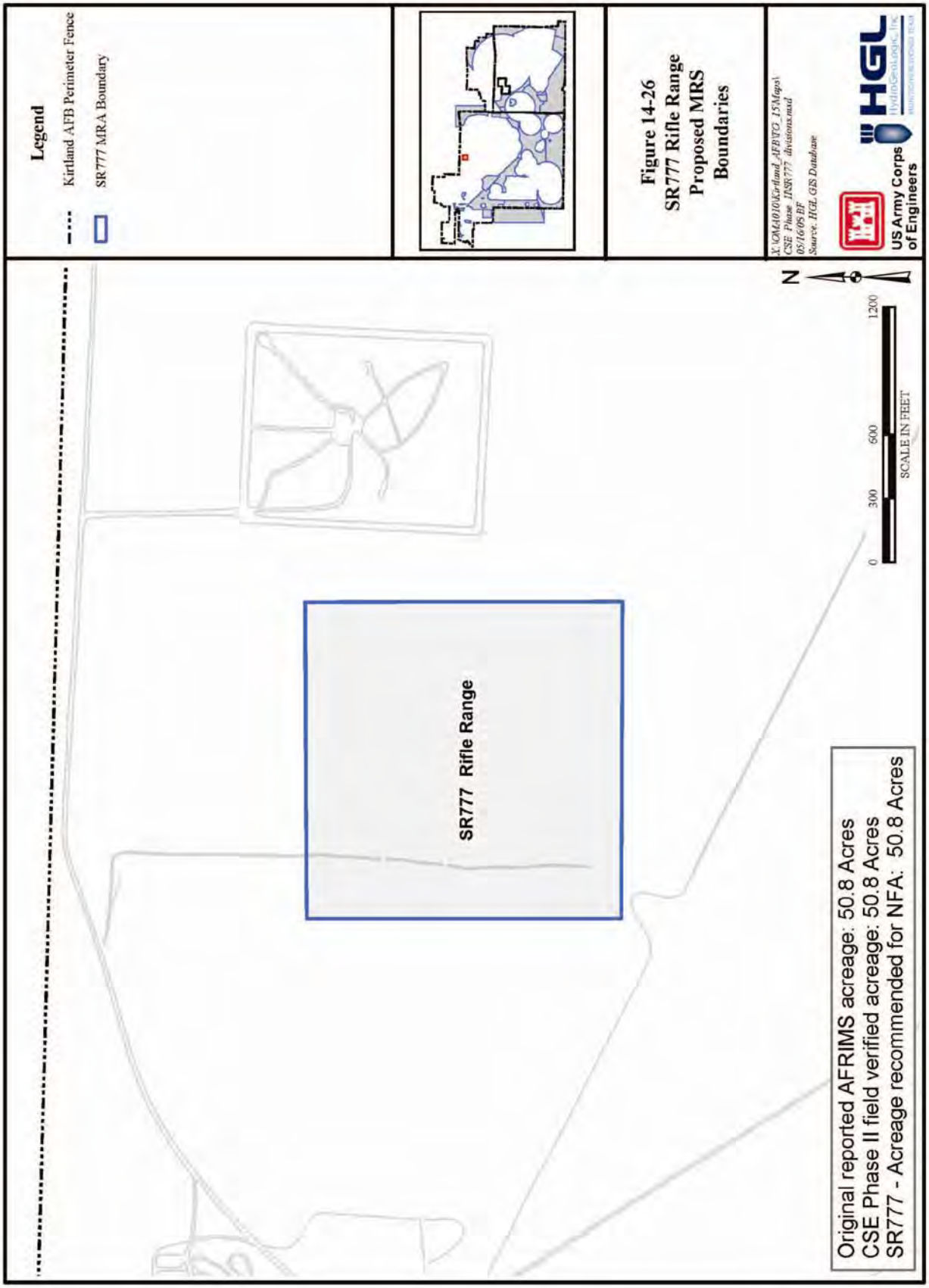


Figure 14-26
SR777 Rifle Range
Proposed MRS
Boundaries

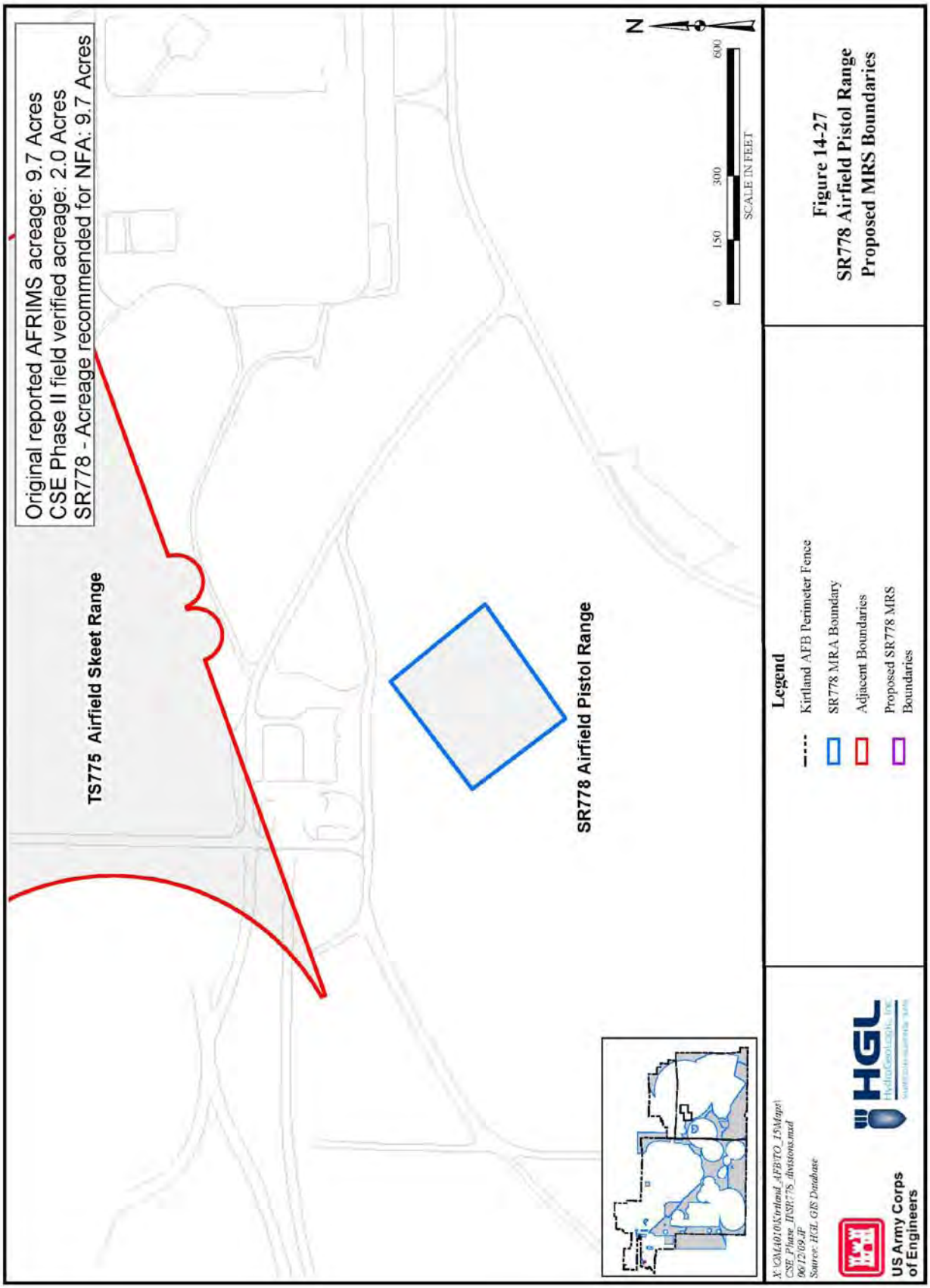
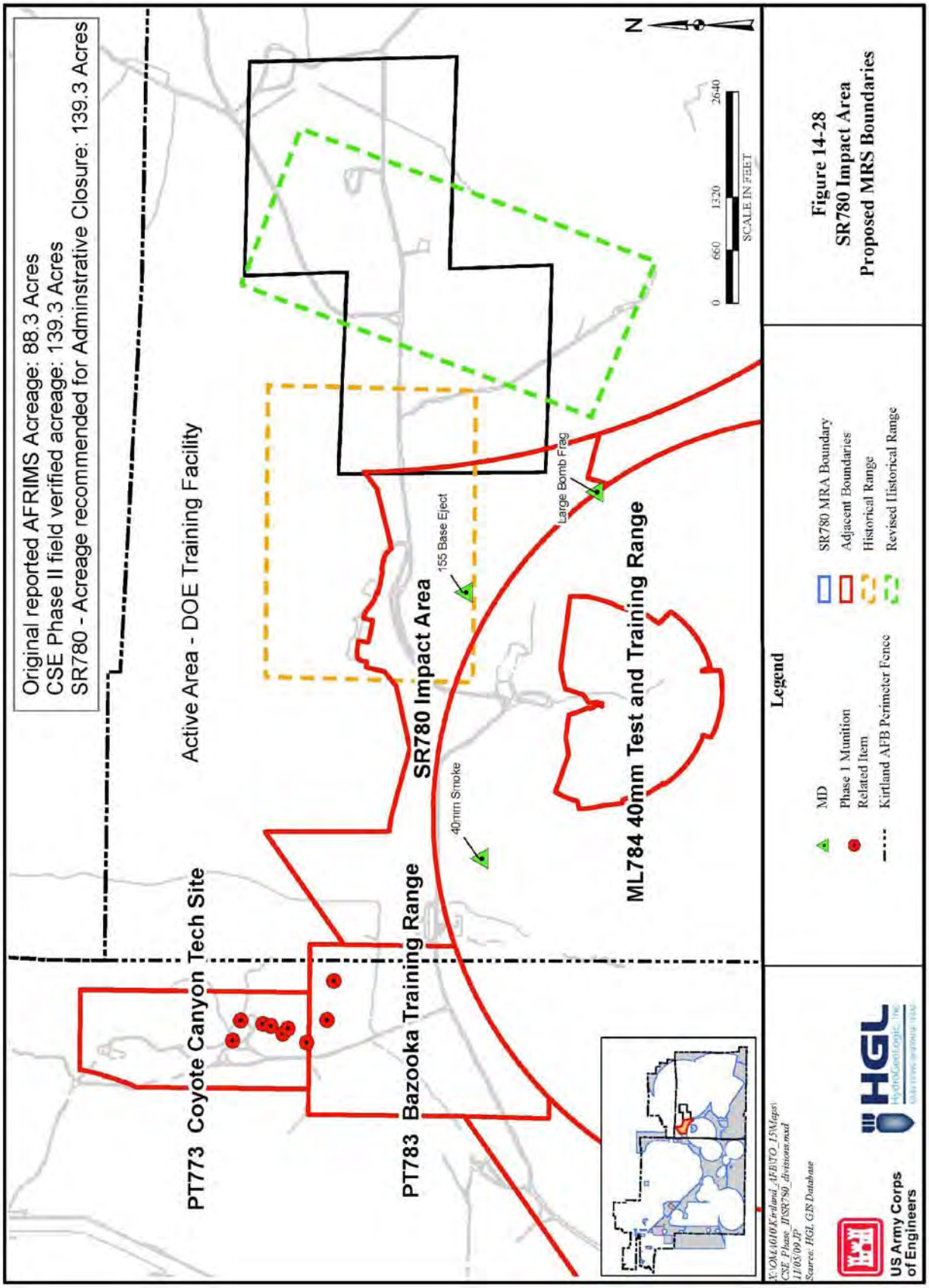
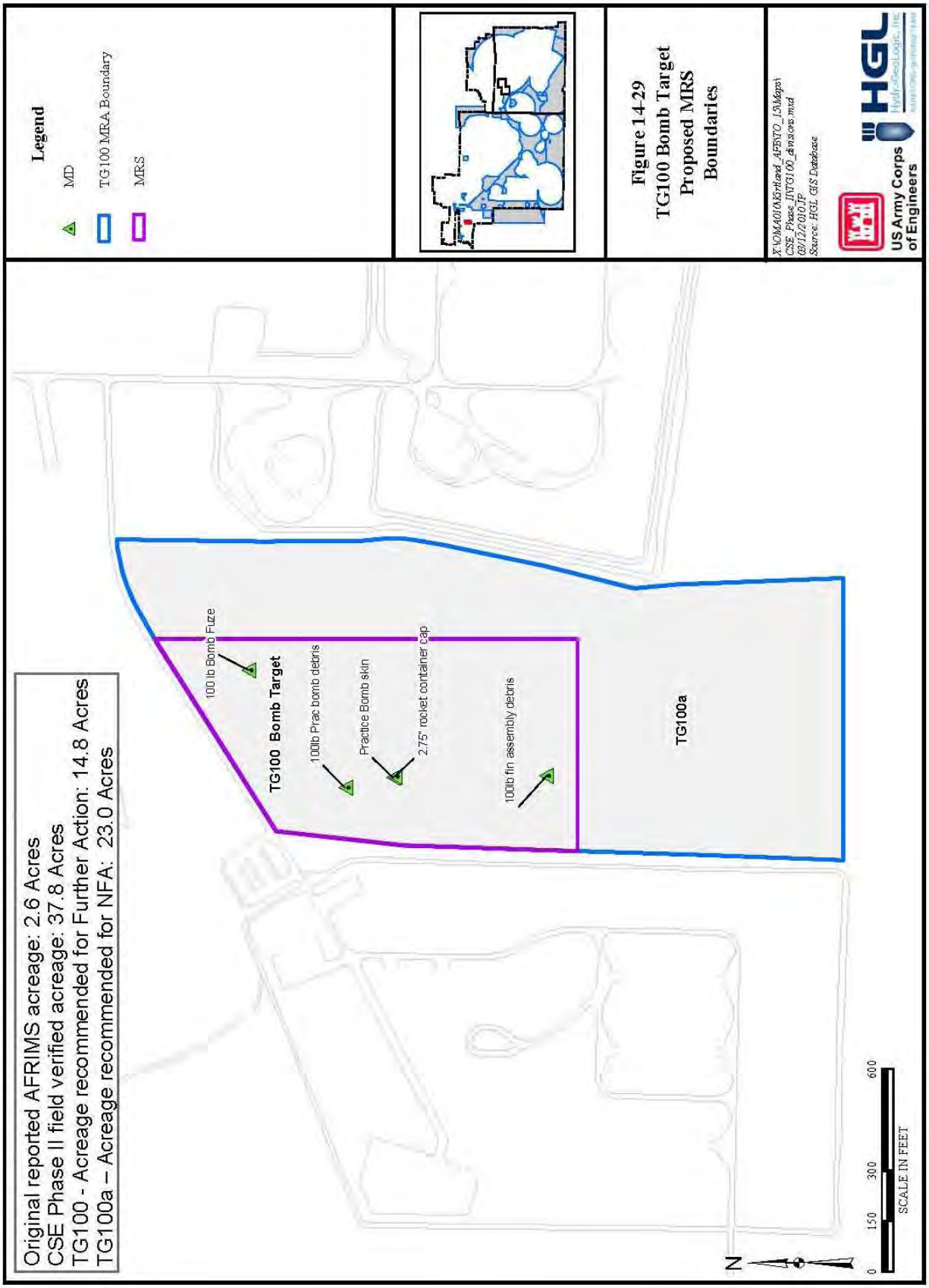
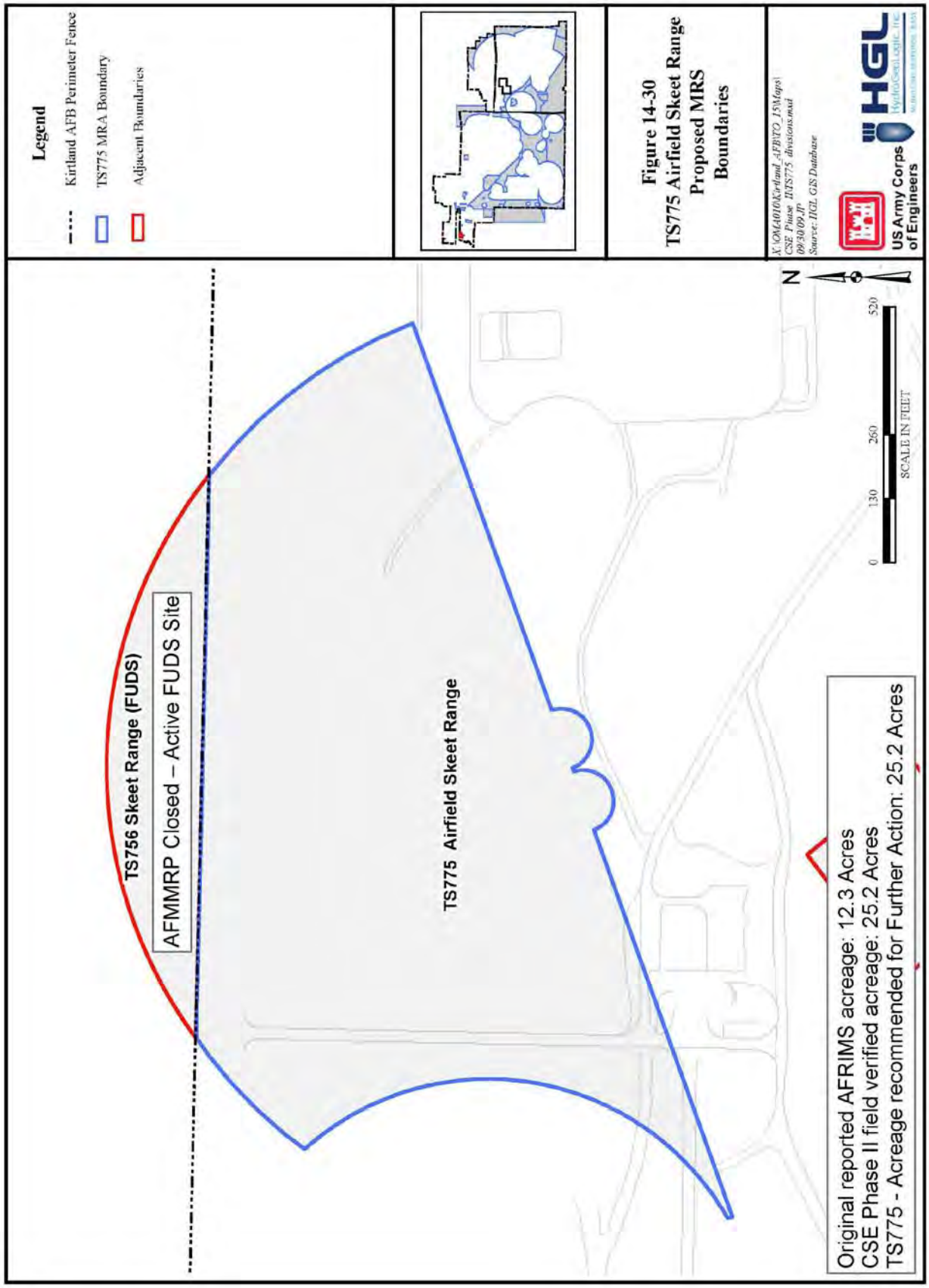
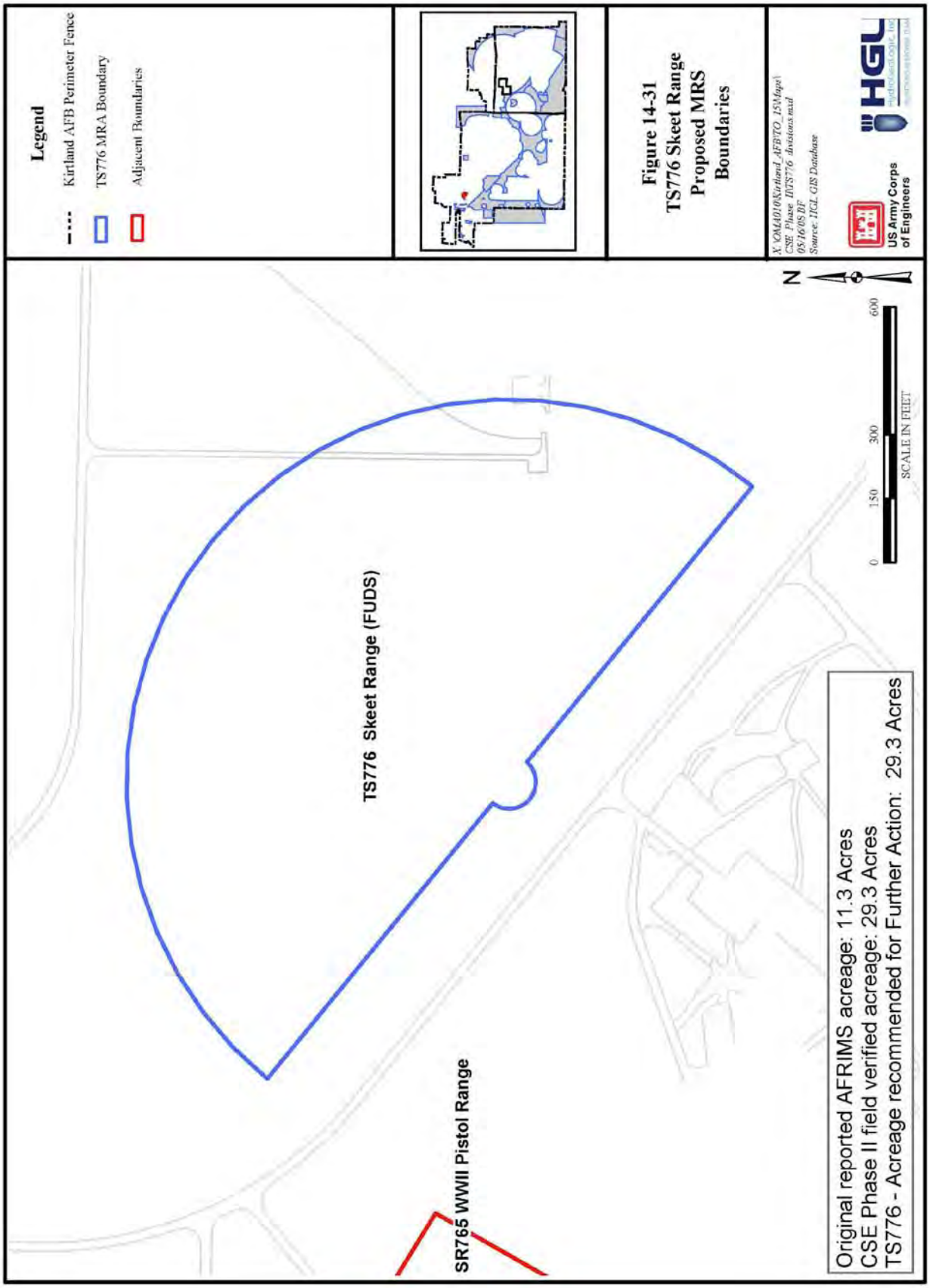


Figure 14-27
SR778 Airfield Pistol Range
Proposed MRS Boundaries


Original reported AFRIMS Acreage: 88.3 Acres
CSE Phase II field verified acreage: 139.3 Acres
SR780 - Acreage recommended for Adminstrative Closure: 139.3 Acres
Active Area - DOE Training Facility
PT773 Coyote Canyon Tech Site
PT783 Bazooka Training Range
SR780 Impact Area
ML784 40mm Test and Training Range
155 Base Eject
Large Bomb Frag
40mm Smoke
N
0 660 1320 2640
SCALE IN FEET
Legend
MD
Phase 1 Munition
Related Item
Kirtland AFB Perimeter Fence
SR780 MRA Boundary
Adjacent Boundaries
Historical Range
Revised Historical Range
Figure 14-28
SR780 Impact Area
Proposed MRS Boundaries
US Army Corps of Engineers
HGL
HydroGeoLogic, Inc.
Source: HGL GIS Database


Legend
MD
TG100 MRA Boundary
MRS
Figure 14-29
TG100 Bomb Target
Proposed MRS
Boundaries
X:\OMA01\Kirtland_AFB\TO_15\Maps\
CSE_Phase_II\TG100_dwnsows.mxd
08/12/2010 TP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
Original reported AFRIMS acreage: 2.6 Acres
CSE Phase II field verified acreage: 37.8 Acres
TG100 - Acreage recommended for Further Action: 14.8 Acres
TG100a – Acreage recommended for NFA: 23.0 Acres
100 lb Bomb Fuze
TG100 Bomb Target
100lb Prac bomb debris
Practice Bomb skin
2.75" rocket container cap
100lb fin assembly debris
TG100a
N
0
150
300
600
SCALE IN FEET


Legend
Kirtland AFB Perimeter Fence
TS775 MRA Boundary
Adjacent Boundaries
Figure 14-30
TS775 Airfield Skeet Range
Proposed MRS
Boundaries
X:\OMA010\Kirtland -AFB\TO_15\Maps\
CSE Phase II\TS775 divisions.mxd
09/30/09 JP
Source: HGL GIS Database
US Army Corps
of Engineers
HGL
N
0
130
260
520
SCALE IN FEET
TS756 Skeet Range (FUDS)
AFMMRP Closed – Active FUDS Site
TS775 Airfield Skeet Range
Original reported AFRIMS acreage: 12.3 Acres
CSE Phase II field verified acreage: 25.2 Acres
TS775 - Acreage recommended for Further Action: 25.2 Acres


Legend
Kirtland AFB Perimeter Fence
TS776 MRA Boundary
Adjacent Boundaries
Figure 14-31
TS776 Skeet Range
Proposed MRS
Boundaries
US Army Corps
of Engineers
HGL
TS776 Skeet Range (FUDS)
SR765 WWII Pistol Range
0
150
300
600
SCALE IN FEET
N
Original reported AFRIMS acreage: 11.3 Acres
CSE Phase II field verified acreage: 29.3 Acres
TS776 - Acreage recommended for Further Action: 29.3 Acres

14.5 Future Response Actions and Objectives

A summary of CSE Phase II conclusions for future response actions is provided in Table 14-4.

Table 14-4. Conclusions and Recommendations

MRA/MRS	CSE Phase II Conclusions	Recommendations
AL120 Proximity Fuze Range	**MEC Results:** 5" projectiles from VT fuze tests were found. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 5	**Surface Clearance**
AL120a Propellant Dispersal Site	**MEC Results:** Large numbers of scattered propellant are visible on the surface. This was the firing point for approximately 48,000 projectiles fired into NMPG. **MC Results:** No HE-related analytes were detected above screening levels (Table 5-1.1). **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 4	**Removal Action**
AL120b McCormick UXO	**MEC Results:** One 57mm base fuzed projectile was found. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 3	**Surface Clearance**
AL120c Proximity Fuze Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
AL120d Proximity Fuze Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
AL120e Proximity Fuze Range	**MEC Results:** 5" projectile, unfired rifle grenade, 5" rocket, broken open fuze from 2.75" rocket and projectile frag. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 3	**Surface Clearance**

Table 14-4. Conclusions and Recommendations (Continued, Page 2 of 8)

MRA/MRS	CSE Phase II Conclusions	Recommendations
AL769 Ordnance Drop Zone	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
AL771 Old Cable Site	**MEC Results:** Items found include 40mm (smoke), 75mm and 5" projectiles; VT fuzes and components; 3.5" and 5" rockets; and bulk pieces of ballistite rocket propellent. **MC Results:** No analytes were detected above screening levels – see Table 5-3.1. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
DA130 Arroyo del Coyote Demolition Area	**MEC Results:** No MEC were found. One 5" projectile (empty) and several pieces of fragmentation. Annotate records to reflect probable subsurface munition items exist. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 3	**Surface Clearance**
DA130a Arroyo del Coyote Demolition Area	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
DA782 Explosives Disposal Area	**MEC Results:** No MEC found, but one piece of large heavy fragmentation was found and believed to be from a HE bomb not originating in this MRA. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
DA782a Explosives Disposal Area	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**

Table 14-4. Conclusions and Recommendations (Continued, Page 3 of 8)

MRA/MRS	CSE Phase II Conclusions	Recommendations
ED770 Experimental Range	**MEC Results:** Items found include a smoke grenade, 75mm projectiles, projectile fragmentation, slap flare and blank small arms cartridges, and 3.5" and 5" rockets. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
ML125 Field Firing Range	**MEC Results:** Items found include 60mm mortars; 75mm, 90mm, 105mm, 120mm & 5" projectiles; 3.5" and 5" rockets. Area was primary target area during WWII development of VT fuzes and fuze components are widespread throughout the MRA. **MC Results:** No analytes were detected above screening levels (Table 5-7.1). **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** Additional investigation is recommended to assess the potential for ecological risk. **MRSPP Priority Score:** 3	**Surface Clearance**
ML200 Sandia Base Howitzer Range	**MEC Results:** No MEC found, but 75mm practice projectiles were located in this area. These are solid steel and present no explosive hazard. Additionally, one proximity nose fuze and a suspected missile nose cone were found. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
ML200a Sandia Base Howitzer Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**

Table 14-4. Conclusions and Recommendations (Continued, Page 4 of 8)

MRA/MRS	CSE Phase II Conclusions	Recommendations
ML200b .50 Caliber Target	**MEC Results:** No MEC found. A .50-cal Target area contains large numbers of copper-jacketed steel core .50 caliber projectiles. **MC Results:** No analytes were detected above screening or background levels (Table 5-8.1 and H-8.1) **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**Administrative Closure**
ML201 Sandia Base Howitzer Range Buffer	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
ML760 Gun Fan Site	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
ML762 McCormick Ranch Buffer	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
ML774 Gun Fan Site	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
ML781 Firing In Abutment	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
ML784 40mm Test and Training Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**

Table 14-4. Conclusions and Recommendations (Continued, Page 5 of 8)

MRA/MRS	CSE Phase II Conclusions	Recommendations
MU772 H-25 Site	**MEC Results:** Ground burst simulator, 40mm smoke grenade, large amount of fragmentation. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
PT123 Tijeras Small Arms Range	**MEC Results:** CSE Phase II discovered 40mm grenade casings, slap flare casings, and expended small arms blanks. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 4	**Surface Clearance**
PT761 Tijeras Small Arms and Training Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
PT773 Coyote Canyon Tech Site	**MEC Results:** CSE Phase II discovered heavy case HE fragments, 7.62mm cartridge casings and metal frag. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
PT773a Coyote Canyon Tech Site	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**
PT783 Bazooka Training Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure**

Table 14-4. Conclusions and Recommendations (Continued, Page 6 of 8)

MRA/MRS	CSE Phase II Conclusions	Recommendations
SR763 Rifle Range	**MEC Results:** No MEC encountered. **MC Results:** No analytes were detected above screening levels (Tables 5-20.1 and 5-20.2). **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 8	**No Further Action**
SR764 Rifle Range	**MEC Results:** No MEC encountered. **MC Results:** No analytes were detected above screening levels (Tables 5-21.1 and 5-21.2). **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 8	**No Further Action**
SR765 WWII Pistol Range	**MEC Results:** No MEC encountered. **MC Results:** No analytes were detected above screening levels (Tables 5-22.1 and 5-22.2). **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 8	**No Further Action**
SR766 Sub-Machine Gun Range	**MEC Results:** No MEC encountered. **MC Results:** No analytes were detected above screening levels (Tables 5-23.1 and 5-23.2). **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 8	**No Further Action**
SR767 Rifle Range	**MEC Results:** No MEC encountered. **MC Results:** No analytes were detected above screening levels (Tables 5-24.1 and 5-24.2). **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 8	**No Further Action**
SR768 Close Combat Infiltration Course	**MEC Results:** No MEC found, but a 155mm Base Ejection (empty) projectile was found. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**

Table 14-4. Conclusions and Recommendations (Continued, Page 7 of 8)

MRA/MRS	CSE Phase II Conclusions	Recommendations
SR777 Rifle Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**
SR778 Airfield Pistol Range	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 8	**No Further Action**
SR780 Impact Area	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** Prioritization No Longer Required	**Administrative Closure as part of AL120d**
TG100 Bomb Target	**MEC Results:** 100 lb practice bomb debris, 100 lb bomb fuze, practice bomb skin, 100 lb fin assembly debris, 2.75" rocket container cap. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** 7	**Surface Clearance**
TG100a Bomb Target	**MEC Results:** No MEC encountered. **MC Results:** No sampling conducted. **Human Health Risk Screening Results:** No Further Action **Ecological Risk Screening Results:** No Further Action **MRSPP Priority Score:** No Known or Suspected Hazards	**No Further Action**

Table 14-4. Conclusions and Recommendations (Concluded, Page 8 of 8)

MRA/MRS	CSE Phase II Conclusions	Recommendations
TS775 Airfield Skeet Range	**MEC Results:** No MEC encountered. **MC Results:** Sampling results for lead, antimony, and PAH compounds exceeded limits (Tables 5-30.1 and 5-30.2) **Human Health Risk Screening Results:** Additional investigation is warranted to assess potential human health risks. **Ecological Risk Screening Results:** Additional investigation is recommended to assess the potential for ecological risk. **MRSPP Priority Score:** 5	**Remedial Investigation**
TS776 Skeet Range	**MEC Results:** No MEC encountered. **MC Results:** Sampling results for lead, antimony, and PAH compounds exceeded limits (Tables 5-31.1 and 5-31.2) **Human Health Risk Screening Results:** Additional investigation is warranted to assess potential human health risks. **Ecological Risk Screening Results:** Additional investigation is recommended to assess the potential for ecological risk. **MRSPP Priority Score:** 5	**Remedial Investigation**

14.6 Identify Gaps in CSM

The CSM for the Kirtland AFB MRA is well defined as discussed in Section 8. No gaps in the CSM were identified.

14.7 DoD MRSPP Priority

The DoD MSRPP Priorities for the Kirtland AFB MRAs/MRSs range from “3” to “No Known or Suspected Hazards.”

14.8 Site Sequencing Considerations

Due to the potential risks to national security that would occur during accidental detonation of UXO on Kirtland AFB, it is recommended that the installation be sequenced ahead of higher priority MRAs. The priority determined by the MRSPP (a maximum score of 3) does not reflect the inherent dangers associated with interruption of the mission of Kirtland AFB’s NWC, 377 ABW, 58 SOW, AFRL, AFOTEC, DTRA, DOE/SNL, and in excess of 100 additional tenant units. Future planning documents, necessary for the MRAs requiring additional action, should contain coordination with Cultural and Natural Resources for avoidance purposes.

APPENDIX A

Definitions

Anomaly – Any identified subsurface mass that may be geologic in origin, unexploded ordnance (UXO), or some other man-made material. Such identification is made through geophysical investigation and reflects the response of the sensor used to conduct the investigation. (Handbook on the Management of Munitions Response Actions, Interim Final, EPA, May 2005)

Anomaly Avoidance –Techniques employed on property known or suspected to contain unexploded ordnance, other munitions that may have experienced abnormal environments (e.g., discarded military munitions), munitions constituents in high enough concentrations to pose an explosive hazard, or chemical agents, regardless of configuration, to avoid contact with potential surface or subsurface explosive or CA hazards, to allow entry to the area for the performance of required operations. (AF Manual 91-201 and DOD 6055.9-STD)

Applicable or Relevant and Appropriate Requirements – Applicable requirements are cleanup standards, standards of control, and other substantive environmental protection requirements promulgated under Federal or state environmental law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at a CERCLA site. Relevant and appropriate requirements are cleanup standards that, while not "applicable," address situations sufficiently similar to those encountered at a CERCLA site where their use is well suited to the particular site. (NCP, 40 CFR Part 300, July 2005)

Chemical Agent (CA) – An agent that, through its chemical properties, produces lethal or other damaging effects on human beings, except that such term does not include riot control agents, chemical herbicides, smoke, and other obscuration materials. This definition is based on the definition of "chemical agent and munition" in 50 U.S.C. 1521(j)(1).

Chemical Warfare Materiel (CWM) – Items generally configured as a munition containing a chemical compound that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. CWM includes V- and G-series nerve agents or H-series (mustard) and L-series (lewisite) blister agents in other-than-munition configurations; and certain industrial chemicals (e.g., hydrogen cyanide [AC], cyanogen chloride [CK], or carbonyl dichloride [called phosgene or CG]) configured as a military munition. CWM does not include riot control devices, chemical defoliants and herbicides, industrial chemicals (e.g., AC, CK, or CG) not configured as a munition, smoke and other obscuration producing items, flame and incendiary producing items, or soil, water, debris or other media contaminated with low concentrations of chemical agents where no CA hazards exist. (MRSPP, 32 CFR Part 179, October 2005)
CWM contains the following four subcategories
:

1) CWM, explosively configured – All UXO or DMM that contain a CA fill and any explosive component. Examples are M55 rockets with CA, the M23 VX mine, and the M360 105-mm GB artillery cartridge.
2) CWM, nonexplosively configured – All UXO or DMM that contain a CA fill but that do not contain any explosive components. Examples are any chemical munitions that do not contain explosive components and VX or mustard agent spray canisters.
3) CWM, bulk container – All discarded (e.g., buried) non-munitions-configured containers of CA (e.g., a ton container) and CAIS K941, toxic gas set M-1 and K942, toxic gas set M-2/E11.

4) Chemical Agent Identification Sets (CAIS) – Military training aids containing small quantities of various CA and other chemicals. All forms of CAIS are scored the same in this rule, except CAIS K941, toxic gas set M-1; and CAIS K942, toxic gas set M-2/E11, which are considered forms of CWM, bulk container, due to the relatively large quantities of agent contained in those types of sets.

Closed Range – A military range that has been taken out of service as a range and that either has been put to new uses that are incompatible with range activities or is not considered by the military to be a potential range area. A closed range is still under the control of a Component. (MGDERP, September 2001)

Defense Sites – Locations that are or were owned by, leased to, or otherwise possessed or used by the Department of Defense. The term does not include any operational range, operating storage or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions. (10 U.S.C. 2710(e)(1))

Department of Defense Components – The Office of the Secretary of Defense (OSD), the Military Departments, the Defense Agencies, the Department Field Activities, and any other Department organizational entity or instrumentality established to perform a government function. (MRSPP, 32 CFR Part 179, October 2005)

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

Explosive Ordnance Disposal (EOD) Personnel – Active duty military personnel of any military service branch that are trained in the detection, identification, field evaluation, safe rendering, recovery, and final disposal of explosive ordnance and of other munitions that have become an imposing danger, for example, by damage or deterioration. (Handbook on the Management of Munitions Response Actions, Interim Final, EPA, May 2005)

Facility – A building, structure, or other improvement to real property, in relation to work classification. (10 U.S.C. 2801)

Formerly Used Defense Sites (FUDS) – Facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to the contamination by hazardous substances. By the DoD Environmental Restoration Program (ERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States. (FUDS Program Policy, ER 200 3-1, May 2004)

Hazardous Substance – (A) Any substance designated pursuant to Section 1321(b)(2)(A) of title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to Section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act [42 U.S.C. 6921] (but not including any waste the regulation of which under the Solid Waste Disposal Act [42 U.S.C. 6901 et seq.] has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of title 33, (E) any hazardous air pollutant listed under Section 112 of the Clean Air Act [42 U.S.C. 7412], and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to Section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). (CERCLA, 42 U.S.C. § 9601 et seq.)

Installation (as defined by the RMIS Data Element Dictionary for a Federal Facility Identification [FFID]) – The FFID number is a unique identifier, assigned to an installation/property in RMIS. The 14-character aggregate string is used in RMIS as the key column for each data table and is used to track all associated records for each installation. An installation may have a single range or multiple ranges (and each range may have more than one site contained within its boundaries) and a single or multiple sites, not associated with a range. (Management Guidance for the Defense Environmental Restoration Program, September 2001)

Land Use Controls (LUCs) – Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, contaminated property in order to reduce risk to human health and the environment. Physical mechanisms encompass a variety of engineered remedies to contain or reduce contamination and/or physical barriers to limit access to property, such as fences or signs. The legal mechanisms are generally the same as those used for institution controls (ICs) as discussed in the NCP. ICs are a subset of LUCs and are primarily legal mechanisms imposed to ensure the continued effectiveness of land use restrictions imposed as part of a remedial decision. Legal mechanisms include restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and ordinances, construction permitting, or other existing land use management systems that may be used to ensure compliance with use restrictions. (MGDERP, September 2001)

Material That Potentially Presents an Explosive Hazard (MPPEH) – Material potentially containing explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris), or material potentially containing a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization or disposal operations). Excluded from MPPEH are munitions within DoD's established munitions management system and other hazardous items that may present explosion hazards (e.g., gasoline cans, compressed gas cylinders) that are not munitions and are not intended for use as munitions. (DoD Instruction 4140.62, Management and Disposition of MPPEH, December 2004)

Military Installation – A base, camp, post, station, yard, center, or other activity under the jurisdiction of the Secretary of a Military Department, or, in the case of an activity in a foreign country, under the operational control of the Secretary of a military department or the Secretary of Defense, without regard to the duration of operational control. (10 U.S.C. 2801)

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

Military Range – Designated land and water areas set aside, managed, and used to research, develop, test, and evaluate military munitions, other ordnance, or weapon systems, or to train military personnel in their use and handling. Ranges include firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, and buffer zones with restricted access and exclusionary areas. (40 CFR 266.201)

Munitions and Explosives of Concern (MEC) – Military munitions that are 1) unexploded ordnance, as defined in 10 U.S.C. 101(e)(5); 2) abandoned or discarded, as defined in 10 U.S.C. 2710(e)(2); 3) MC (e.g., TNT, RDX) present in soil, facilities, equipment, or other materials in high enough concentrations so as to pose an explosive hazard. (MRSPP, 32 CFR Part 179, October 2005)

Munitions Constituent (MC) – Any material that originates from UXO, DMM, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (10 U.S.C. 2710(e)(4))

Munitions Debris – Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal. (DoD 6055.9-STD)

Munitions Response – Response actions, including investigation, removal actions, and remedial actions, to address the explosives safety, human health, or environmental risks presented by UXO, DMM, or MC or to support a determination that no removal or remedial action is required. (MRSPP, 32 CFR Part 179, October 2005)

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. A munitions response area is comprised of one or more munitions response sites. (MRSPP, 32 CFR Part 179, October 2005)

Munitions Response Site (MRS) – A discrete location within an MRA that is known to require a munitions response. (MRSPP, 32 CFR Part 179, October 2005)

Operational Range – A range that is under the jurisdiction, custody, or control of the Secretary of Defense and that is used for range activities, or although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities. (10 U.S.C. 101(e)(3))

Outlier – An outlier is an observation that lies an abnormal distance from other values in a random sample from a population. In a sense, this definition leaves it up to the analyst (or a consensus process) to decide what will be considered abnormal. Before abnormal observations can be singled out, it is necessary to characterize normal observations.

Pollutant and Contaminant – These terms include, but are not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring; except that the term pollutant or contaminant shall not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas). (CERCLA, 42 U.S.C. § 9601 et seq.)

Range Activities – Research, development, testing, and evaluation of military munitions, other ordnance, and weapons systems; and the training of members of the Armed Forces in the use and handling of military munitions, other ordnance, and weapons systems. (10 U.S.C. 101(3)(2))

Range-Related Debris – Debris, other than munitions debris, collected from operational ranges or from former ranges (e.g., targets, military munitions packaging and crating material) . (DoD 6055.9-STD)

Range Residue – Material, including but not limited to, parts and sections of practice bombs, artillery, small arms, mortars, projectiles, bombs, missiles, rockets, rocket mortars, targets, grenades, incendiary devices, experimental items, demolition devices, and any other material fired on or discovered on a range. (AFI 13-212, Range Planning and Operations, August 2001)

Real Property – Real estate owned by the United States and under the control of the DoD. Includes lands, buildings, structures, utilities systems, improvements and appurtenances thereto.

Includes equipment attached to and made part of buildings and structures (such as heating systems) but not moveable equipment (such as plant equipment). (MGDERP, September 2001)

Relative Risk – The evaluation of individual sites to determine high, medium, or low relative risk to human health and the environment, based on contaminant hazards, migration pathways and receptors, in accordance with the DoD's *Risk-Based Site Evaluation Primer*. (MGDERP, September 2001)

Removal – The cleanup or removal of released hazardous substances from the environment. Such actions may be taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under Section 9604(b) of this title, and any emergency assistance which may be provided under the Disaster Relief and Emergency Assistance Act [42 U.S.C. 5121 et seq.] The requirements for removal actions are addressed in 40 CFR §§300.410 and 300.415. The three types of removals are emergency, timecritical, and non-time critical removals. (CERCLA, 42 U.S.C. § 9601 et seq.)
There are three types of removals:
1) Emergency – Emergency removal or response is performed when an immediate or imminent danger to public health or the environment is present and action is required within hours. Trained responders identify the explosive threat and make the decision as to whether the munitions and explosive of concern should be moved or blown in place and ensure the threat is removed safely and expeditiously.
2) Time-critical – A response to a release or threat of release that poses such a risk to public health (serious injury or death), or the environment, that cleanup or stabilization actions must be initiated within six months.
3) Non-time critical – An action initiated in response to a release or threat of a release that poses a risk to human health and welfare, or the environment. Initiation of removal cleanup actions may be delayed for six months or more.

Risk Reduction – The movement of any site from a higher to lower relative risk category as a result of natural attenuation, interim remedial, remedial, or removal actions taken. (DoD Instruction 4715.7, Environmental Restoration Program, April 1996)

Site (as defined in the Restoration Management Information System Data Element Dictionary for a SITE_ID) – A unique name given to a distinct area of an installation containing one or more releases or threatened releases of hazardous substances treated as a discreet entity or consolidated grouping for response purposes. Includes any building, structure, impoundment, landfill, storage container, or other site or area where a hazardous substance was or has come to be located, including formerly used sites eligible for building demolition/debris removal. Installations and ranges may have more than one site. (MGDERP, September 2001)

Stakeholder – Groups or individuals who were interested in, concerned about, affected by, who had a vested interest in, or would be involved in the munitions response at an MRA/MRS.

Transferred Range – A property formerly used as a military range that is no longer under military control and had been leased by the DoD, transferred, or returned from the DoD to another entity, including federal entities. This includes a military range that is no longer under military control but was used under the terms of a withdrawal, executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the federal land manager. (MGDERP, September 2001)

Transferring Range – A military range that is proposed to be transferred or returned from the DoD to another entity, including federal entities. This includes a military range that is used under the terms of a withdrawal, executive order, act of Congress, public land order, special-use permit or authorization, right-of-way, or other instrument issued by the federal land manager or property owner. An operational or closed range will not be considered a "transferring range" until the transfer is imminent. (MGDERP, September 2001)

Unexploded Ordnance (UXO) – Military munitions that have been primed, fuzed, armed, or otherwise prepared for action and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material, and remain unexploded either by malfunction, design, or any other cause. (10 U.S.C. 101(e)(5))
UXO Technicians – Personnel who are qualified for and filling Department of Labor, Service Contract Act, Directory of Occupations, contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III. (Department of Defense Explosive Safety Board TP18, December 2004)

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APPENDIX B

Abbreviations

ABBREVIATIONS

ABW	Air Base Wing
AFB	Air Force Base
AFCEE	Air Force Center for Engineering and the Environment
AFMC	Air Force Materiel Command
AFRIMS	Air Force Restoration Information Management System
AFRL	Air Force Research Laboratory
AFSOC	Air Force Special Operations Command
AMC	Air Mobility Command
AR	Administrative Record
BuOrd	Bureau of Ordnance
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHE	Chemical Warfare Materiel Hazard Evaluation
CHF	Contamination Hazard Factor
CLP	Contract Laboratory Program
COC	Contaminant of Concern
COPC	Chemical of Potential Concern
CSE	Comprehensive Site Evaluation
CSM	Conceptual Site Model
CTW	Crew Training Wing
CWM	Chemical Warfare Materiel
DERP	Defense Environmental Restoration Program
DGM	digital geophysical mapping
DMM	Discarded Military Munitions
DMT	Data Management Tool
DoD	United States Department of Defense
DOE	United States Department of Energy
DQO	Data Quality Objective
DU	depleted uranium
Eco-SSLs	Ecological Soil Screening Levels
EHE	Explosive Hazard Evaluation
EM	Environmental Management
EOD	Explosive Ordnance Disposal
EP	Environmental Pamphlet
ER	Environmental Restoration
ERA	Ecological Risk Assessment
ERP	Environmental Restoration Program
ERP/ECP	Environmental Restoration and Compliance Program
ERPIMS	Environmental Restoration Program Information Management System
ESS	Explosives Safety Submission
ft	feet
ft/day	feet per day
FUDS	Formerly Used Defense Sites

ABBREVIATIONS (Continued)

GIS	Geographic Information System
GPS	Global Positioning System
H	High
HDAS	hardware-based data acquisitions system
HE	High Explosive
HeliMag	Helicopter-Mounted Magnetometry
HERTF	High Energy Research and Technology Facility
HGL	HydroGeoLogic, Inc.
HHE	Human Health Evaluation
HHRA	Human Health Risk Assessment
HMX	High Melting Explosives, octahydro-1,3,5,7- tetranitro-1,3,5,7-tetrazocine
HQ	Headquarters
HRR	Historical Records Review
IC	Institutional Control
ICP-AES	Inductively Coupled Plasma – Atomic Emission Spectrometry
ICSM	Interim Conceptual Site Model
IRA	Interim Removal Action
IRIS	Integrated Risk Information System
L	Low
LiDAR	Light Detection and Ranging
LTES	Long Term Environmental Stewardship
M	Middle
m^3/kg	cubic meter per kilogram
MAC	Military Airlift Command
MC	Munitions Constituents
MCE	Maximum Credible Event
MD	Munitions Debris
MDL	method detection limit
MEC	Munitions and Explosives of Concern
MGFD	Munitions with the Greatest Fragmentation Distance
mg/kg	milligrams per kilogram
MIDAS	Munitions Items Disposition Action System
mm	Millimeter
MMRP	Military Munitions Response Program
MPF	Migration Pathway Factor
MPPEH	Material Potentially Presenting an Explosive Hazard
MR	Munitions Response
MRA	Munitions Response Area
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
msl	Mean sea level

ABBREVIATIONS (Continued)

NCEA	National Center for Environmental Assessment
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NDAI	No DoD Action Indicated
NELAC	National Environmental Laboratory Accreditation Conference
NFA	No Further Action
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMER	New Mexico Experimental Range
NMFRCD	New Mexico Forestry and Resource Conservation Division
NMPG	New Mexico Proving Ground
nT	nano-Tesla
NWC	Nuclear Weapons Center
ORP	oxidation reduction potential
OB/OD	Open Burn/Open Detonation
Orthophotography	digital high-resolution color orthophotography
PA	Preliminary Assessment
PAHs	polycyclic aromatic hydrocarbons
PEFs	particulate emission factors
PEP	propellants, explosives, pyrotechnics
ppm	parts per million
QA	Quality Assurance
QC	Quality Control
QAPP	Quality Assurance Project Plan
r^2	correlation coefficient
RACER	Remedial Action Cost Engineering and Requirements
RCRA	Resource Conservation and Recovery Act
RDX	Royal Demolition Explosives, hexahydro-1,3,5-trinitro-1,3,5-tetrazocine
RF	Receptor Factor
RFI	RCRA Facility Investigation
RL	reporting limit
RPD	relative percent difference
RSD	relative standard deviation
SAR	Small Arms Range
SDAS	software-based acquisition system
SI	Site Investigation
SKY	Sky Research, Inc.
SLERA	Screening Level Ecological Risk Assessment
SNL	Sandia National Laboratories
SNL/NM	Sandia National Laboratories/New Mexico
SOO	Statement of Objectives
SOP	Standard Operating Procedure
SSL	Soil Screening Levels
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit

ABBREVIATIONS (Concluded)

TLI	TLI Solutions, Inc.
TPP	Technical Project Planning
TNT	Trinitrotoluene
URS	URS Corporation
USACE	United States Army Corps of Engineers
USAE	USA Environmental, Inc.
US Air Force	United States Air Force
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance
VT	Variable Timing (aka Proximity Fuze)
WAA	Wide Area Assessment
WWII	World War II
XRF	X-ray fluorescence

APPENDIX C

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APPENDIX D

Photo Documentation Log

General Site Photos

Photograph 1 Litter Carried Geophysics
Photograph 2 Towed Array Geophysics
Photograph 3 Detector Aided Visual Reconnaissance

AL120- Proximity Fuze Range Photos

Photograph 4 Site Overview of Proximity Fuze Range
Photograph 5 Underground Bunker Entrance
Photograph 6 Firing Point
Photograph 7 Propellant found in Proximity Fuze Range
Photograph 8 Rifle Grenade found in Proximity Fuze Range
Photograph 9 105mm Projectile found in Proximity Fuze Range
Photograph 10 75mm Projectile found in Proximity Fuze Range
Photograph 11 105mm Projectile found in Proximity Fuze Range
Photograph 12 VT Fuze Components found in Proximity Fuze Range
Photograph 13 Proximity Fuze Range Terrain
Photograph 14 75mm Projectile found in Proximity Fuze Range
Photograph 15 Fuze found in Proximity Fuze Range
Photograph 16 Site Overview of Proximity Fuze Range
Photograph 17 Fuze found in Proximity Fuze Range

AL769-Ordnance Drop Zone Photos

Photograph 18 Powerlines in Ordnance Drop Zone

AL771-Old Cable Site Photos

Photograph 19 5" Rocket found in Old Cable Site
Photograph 20 40mm Smoke Grenade found in Old Cable Site

DA130-Arroyo del Coyote Demolition Area Photos

Photograph 21 Bunkers in Arroyo del Coyote Demo Area

ED770-Experimental Range Photos

Photograph 22 3.5" Rocket found in Experimental Range
Photograph 23 4.5" Round found in Experimental Range
Photograph 24 Site Overview of Experimental Range
Photograph 25 Demo Range in Experimental Range

ML125-Field Firing Range Photos

Photograph 26 Munitions found in Field Firing Range
Photograph 27 Munitions found in Field Firing Range
Photograph 28 Proximity Fuzes found in Field Firing Range
Photograph 29 Archeological Site found in Field Firing Range
Photograph 30 Depleted Uranium found in Field Firing Range

ML200-Sandia Base Howitzer Range Photos

Photograph 31 75mm Projectile found in Sandia Base Howitzer Range
Photograph 32 75mm Projectiles found in Sandia Base Howitzer Range
Photograph 33 40mm Projectile found in Sandia Base Howitzer Range
Photograph 34 Target barrel found (.50 Cal Target) in Sandia Base Howitzer Range

ML760-Gun Fan Site Photos

Photograph 35 Debris found in Gun Fan Site

MU772-H-25 Site Photos

Photograph 36 Fuze found in H-25
Photograph 37 Munitions Debris found in H-25

PT123-Tijeras Small Arms Range Photos

Photograph 38 Fuze found in Tijeras Small Arms Range
Photograph 39 Site Overview of Tijeras Small Arms Range

PT773-Coyote Canyon Tech Site Photos
Photograph 40 Site Overview of Coyote Canyon
PT783-Bazooka Training Range Photos
Photograph 41 Site Overview of Bazooka Training Range
SR768-Close Combat Infiltration Course Photos
Photograph 42 Slap Flare found in Close Combat Infiltration Course
Photograph 43 155mm Base Ejecting Projectile found in Close Combat Infiltration Course
SR777-Rifle Range Photos
Photograph 44 Site Overview of Rifle Range

General Site Photos

Photograph 1
Litter Carried Geophysics

Photograph 2
Towed Array Geophysics

Photograph 3
Detector Aided Visual Reconnaissance

AL120- Proximity Fuze Range Photos

Photograph 4
Site Overview of Proximity Fuze Range

Photograph 5
Underground Bunker Entrance

Photograph 6
Firing Point

Photograph 7
Propellant found in Proximity Fuze Range

Photograph 8
Rifle Grenade found on Proximity Fuze Range

Photograph 9
105mm Projectile found in Proximity Fuze Range

Photograph 10
75mm Projectile found in Proximity Fuze Range

Photograph 11
105mm Projectile found in Proximity Fuze Range

Photograph 12
VT Fuze Components found in Proximity Fuze Range

Photograph 13
Proximity Fuze Range Terrain

Photograph 14
75mm Projectile found in Proximity Fuze Range

Photograph 15
Fuze found in Proximity Fuze Range

Photograph 16
Site Overview of Proximity Fuze Range

Photograph 17
Fuze found in Proximity Fuze Range

AL769-Ordnance Drop Zone Photos

Photograph 18
Powerlines in Ordnance Drop Zone

AL771-Old Cable Site Photos

Photograph 19
5" Rocket found in Old Cable Site

Photograph 20
40mm Smoke Grenade found in Old Cable Site

DA130-Arroyo del Coyote Demolition Area Photos

Photograph 21
Bunkers in Arroyo del Coyote Demo Area

ED770-Experimental Range Photos

Photograph 22
3.5" Rocket found in Experimental Range

Photograph 23
4.5" Round found in Experimental Range

Photograph 24
Site Overview of Experimental Range

Photograph 25
Demo Range in Experimental Range

ML125-Field Firing Range Photos

Photograph 26
Munitions found in Field Firing Range

Photograph 27
Munitions found in Field Firing Range

Photograph 28
Proximity Fuzes found in Field Firing Range

Photograph 29
Archeological Site found in Field Firing Range

Photograph 30
Depleted Uranium found in Field Firing Range

ML200-Sandia Base Howitzer Range Photos

Photograph 31
75mm Projectile found in Sandia Base Howitzer Range

Photograph 32
75mm Projectile found in Sandia Base Howitzer Range

Photograph 33
40mm Projectile Cartridge case found in Sandia Base Howitzer Range

Photograph 34
Target barrel found (.50 Cal Target) in Sandia Base Howitzer Range

ML760-Gun Fan Site Photos

Photograph 35
Debris found in Gun Fan Site

MU772-H-25 Site Photos

Photograph 36
Fuze found in H-25

Photograph 37
Munitions Debris found in H-25

PT123-Tijeras Small Arms Range Photos

Photograph 38
Fuze found in Tijeras Small Arms Range

Photograph 39
Site Overview of Tijeras Small Arms Range

PT773-Coyote Canyon Tech Site Photos

Photograph 40
Site Overview of Coyote Canyon

PT783-Bazooka Training Range Photos

Photograph 41
Site Overview of Bazooka Training Range

SR768-Close Combat Infiltration Course Photos

Photograph 42
Slap Flare found in Close Combat Infiltration Course

Photograph 43
155mm Base Ejecting Projectile found in Close Combat Infiltration Course

SR777-Rifle Range Photos

Photograph 44
Site Overview of Rifle Range

Photograph 45
SKY HeliMag System

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APPENDIX E

Field Forms

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Workman Site Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120A1-AF21

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1015

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Workman Site Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120A1-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (x)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 7/29/08 TIME: 1017

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st N/A	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Workman Site Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120A1-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1019

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica-Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Workman Site Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120A1-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1021

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1024

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1031

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1035

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1039

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1029

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1033

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1037

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1041

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-01-8D

SAMPLING METHOD G DUP./REP. OF : AL120ID-01-8

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1041

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1100

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1104

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-2D

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1104

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1108

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1112

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1102

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1106

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1110

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-02-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1114

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1145

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-1D

SAMPLING METHOD G DUP./REP. OF : AL120ID-03-1

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1145

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1133

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1137

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1141

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID- 03-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1147

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1135

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1139

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-03-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1143

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (Y)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1203

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1207

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (✓)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1211

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1217

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1205

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1209

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES (X) NO ~~(X)~~ AF

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1213

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-04-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1219

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DIRECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1230

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (Y)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1234

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (x)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1238

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-3D

SAMPLING METHOD G DUP./REP. OF : AL120ID-05-3

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1238

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (✓)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1242

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-055

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1232

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1236

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1240

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL120 PROJECT : Kirtland AFB

SITE: Isleta Drop Zone

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL120ID-05-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/3/08 TIME: 1244

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-01-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1226

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 02-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 0952

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 02-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1006

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-02-~~3~~ AF 2D

SAMPLING METHOD G DUP./REP. OF : AL771-02-2

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1006

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-02-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1001

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-02-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 0957

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-025

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 48°F

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-02-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1008

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-02-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1003

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-02-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1000

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1019

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-1D

SAMPLING METHOD G DUP./REP. OF : AL771-03-1

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1019

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1023

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 03 - 3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1027

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1031

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1021

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1025

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1029

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-03-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1033

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 04-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1040

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1052

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1048

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1044

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1042

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1054

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1051

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-7D

SAMPLING METHOD G DUP./REP. OF : AL771-04-7

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1051

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-04-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1046

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-05-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1109

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 54°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 05-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1113

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION S AMBIENT TEMP 54°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 05-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1118

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 54°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-05-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1122

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 54°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 05-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1111

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 54° F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 05-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1115

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 54°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 05-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1120

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 54°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 05-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1124

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 54°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-001

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1135

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-06-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1139

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 06-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1145

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-06-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1148

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-06-5

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1137

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 06-6

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1142

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-06-6D

SAMPLING METHOD G DUP./REP. OF : AL771-06-6

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1142

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771 - 06-7

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1147

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: AL771 PROJECT : Kirtland AFB

SITE: Old Cable Site

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: AL771-06-8

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1149

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 56°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

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FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-01-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1253

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-01-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1257

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	C001 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X ____ HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-01-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES (X) NO ( )

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1301

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-01-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 7/29/08 TIME: 1303

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MP

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-02-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1310

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-02-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1312

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-02-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1315

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-02-3D

SAMPLING METHOD G DUP./REP. OF : ML25A1-02-3

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1315

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-02-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 7/29/08 TIME: 1317

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 55°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: HF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-03-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1324

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	Metals: SO, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-03-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1326

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-03-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1328

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B/7471A	6010B/7471A	Metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America-Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-03-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1331

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-04-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1337

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-04-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1339

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-04-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1341

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-04-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1343

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-05-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1347

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A1-05-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1349

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-05-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (y)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1351

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MW

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-05-4D

SAMPLING METHOD G DUP./REP. OF : ML25A1-05-4

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1353

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4° C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 1

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A1-05-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1353

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MJD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 2

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A2-06-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (x)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1250

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 2

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A2-07-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/1/08 TIME: 1255

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-08-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1130

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-08-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1134

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-08-2D

SAMPLING METHOD G DUP./REP. OF : ML125A3-08-2

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1134

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1136

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA-	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-08-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1138

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-09-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1107

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-09-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1109

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-09-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1111

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-09-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1113

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-10-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1045

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-10-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1047

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-10-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1049

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DIRECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 3

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A3-10-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 2/29/08 TIME: 1051

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A4-11-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1210

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A4-11-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1212

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-11-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1214

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A4-11-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (y)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1217

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A4-12-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1155

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A4-12-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1157

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-12-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1200

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-12-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1202

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-13-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 0947

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 45°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-13-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 0949

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 45°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-13-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 0952

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 45°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-13-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 0954

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 45°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A4-14-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1230

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-14-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1233

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-14-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1236

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-14-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1239

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A4-15-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1310

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-15-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1313

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-15-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1316

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-15-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1319

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-15-4D

SAMPLING METHOD G DUP./REP. OF : ML125A4-15-4

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (x)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1319

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-16-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1405

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	COOL 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-16-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1410

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-16-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1415

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 4

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A4-16-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 2/28/08 TIME: 1420

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B/7471A	6010B/7471A	metals: Sb, Cu, Pb, Zn
					Cd, Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A5-01-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1020

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	3050B	6010B	Metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 80°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: JW OBSERVER: MP

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125-01-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1023

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 80°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MP

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A5-01-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1028

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 80°F

SHIPMENT VIA: FED-X ____ HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: JW OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A5-01-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1038

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 80°F

SHIPMENT VIA: FED-X ____ HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: _____

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125AS-02-1

SAMPLING METHOD G DUP./REP. OF : ML125AS-02-1D

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/2/08 TIME: 1527

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 90°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125AS-02-1D

SAMPLING METHOD G DUP./REP. OF : ML125AS-02-1

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1527

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity_____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 90°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25AS-02-Z

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1532

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 90°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125AS-02-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1535

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 90°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A5-02-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1538

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 90°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25AS-03-1

SAMPLING METHOD G DUP./REP. OF : ML25AS-03-1D

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 0950

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 78°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A5-03-1D

SAMPLING METHOD G DUP./REP. OF : ML125A5-03-1

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 0950

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 78°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A5-03-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 0953

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	Metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 78°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A5-03-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 0956

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 78°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America Chicago

COMMENTS:

SAMPLER: JW OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 5

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A5-03-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 0959

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 78°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 6

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A6-9-1

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1329

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	COOL 4° C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 85°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 6

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML25A6-01-2

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1334

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 85°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America Chicago

COMMENTS:

SAMPLER: JW OBSERVER: MP

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 6

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A6-01-3

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1337

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 85°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: ML125 PROJECT : Kirtland AFB

SITE: Field Firing Range Area 6

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ML125A6-01-4

SAMPLING METHOD G DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 5/21/08 TIME: 1340

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals: Sb, Cu, Pb, Zn, Cd
			7471A	7471A	Hg
			8330	8330	Explosives

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 85°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: JW OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 50 CAL Range PROJECT : Kirtland AFB CSE Phase II SARs

SITE: 50 CAL Range

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: 50CAL- 001

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/30/07 TIME: 1145

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <20.1
2nd	ODOR:	<25.8
	OTHER:	<27.2
		AVG = <24.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 65°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 50 CAL Range

PROJECT : Kirtland AFB CSE Phase II SARs

SITE: 50 CAL Range

SAMPLE INFORMATION

MATRIX Soil

SAMPLE ID: 50CAL-001D

SAMPLING METHOD

DUP./REP. OF : 50CAL-001

BEGINNING DEPTH 0

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( )

DATE: 10/30/07 TIME: 1145

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <20.1
2nd	ODOR:	<25.8
	OTHER:	<27.2
		AVG = 24.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 65°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 50 CAL Range

PROJECT : Kirtland AFB CSE Phase II SARs

SITE: 50 CAL Range

SAMPLE INFORMATION

MATRIX Soil

SAMPLE ID: 50CAL- 002

SAMPLING METHOD

DUP./REP. OF :

BEGINNING DEPTH 0

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( )

DATE: 10/30/07 TIME: 1148

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <19.9
2nd	ODOR:	<23.6
	OTHER:	<19.0
		AVG = <20.8

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 65°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 50 CAL Range

PROJECT : Kirtland AFB CSE Phase II SARs

SITE: 50 CAL Range

SAMPLE INFORMATION

MATRIX Soil

SAMPLE ID: 50CAL- 003

SAMPLING METHOD

DUP./REP. OF :

BEGINNING DEPTH 0

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( )

DATE: 10/30/07 TIME: 1150

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <23.6
2nd	ODOR:	<22.2
	OTHER:	29.1 ± 14.3
		AVG = 25.0 ± 14.3

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 65°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 50 CAL Range

PROJECT : Kirtland AFB CSE Phase II SARs

SITE: 50 CAL Range

SAMPLE INFORMATION

MATRIX Soil

SAMPLE ID: 50CAL- 004

SAMPLING METHOD

DUP./REP. OF :

BEGINNING DEPTH 0

END DEPTH 6"

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES (X) NO ( )

GRAB (X) COMPOSITE ( )

DATE: 10/30/07 TIME: 1154

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <20.3
2nd	ODOR:	<22.7
	OTHER:	<21.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 65°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: 50 CAL Range PROJECT : Kirtland AFB CSE Phase II SARs

SITE: 50 CAL Range

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: 50CAL- 005

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/5/08 TIME: 1138

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <50.4
2nd	ODOR:	<30.1, <44.6
	OTHER:	AVG = <41.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 48°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 001

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/29/07 TIME: 1325

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 32.4 ± 10.4
2nd	ODOR:	<21.7
	OTHER:	<22
		AVG = 25.4 ± 10.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 70°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER:

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 002

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/29/07 TIME: 1355

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	Metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 50.2 ± 15.4
2nd	ODOR:	<26.2
	OTHER:	39.3 ± 12.5
		AVG = 38.6 ± 14

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION SW AMBIENT TEMP 70°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: _____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 003

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/29/07 TIME: 1305

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	XRF = 117.8 ± 21.7
2nd	ODOR:	90.4 ± 18.2
	OTHER:	68.6 ± 19.7
		AVG = 92.3 ± 19.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 70°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: _____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 004

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/29/07 TIME: 1250

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 33 ± 9.9
2nd	ODOR:	33.4 ± 9.8
	OTHER:	32.4 ± 9.6
		AVG = 32.9 ± 9.8

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 70°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: _____

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 005

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/29/07 TIME: 1555

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	Metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 91.3 ± 18.4
2nd	ODOR:	101 ± 20.2
	OTHER:	106.1 ± 20.4
		AVG = 99.5 ± 19.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: GW

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 006

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/29/07 TIME: 1600

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 116.3 ± 21.7
2nd	ODOR:	109.6 ± 19
	OTHER:	117.8 ± 17
		AVG = 114.6 ± 19.2

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: GW

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 007

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES (X) NO ~~(X)~~ AF

GRAB (X) COMPOSITE ( ) DATE: 10/29/07 TIME: 1605

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 64.7 ± 12.1
2nd	ODOR:	59.8 ± 11.3
	OTHER:	68.3 ± 15.5
		AVG = 64.3 ± 13

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: GW

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR763 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR763

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR763- 008

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/5/08 TIME: 1425

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	xrf = <58.1
2nd	ODOR:	<43.7, <61.3
	OTHER:	AVG = <54.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 001

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0835

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <21.2
2nd	ODOR:	27.1 ± 9.5
	OTHER:	<19.5
		AVG = 22.6 ± 9.5

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 002

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0840

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 29.5 ± 9.9
2nd	ODOR:	32.2 ± 12.8
	OTHER:	50.8 ± 11.6
		AVG = 37.5 ± 11.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 003

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0844

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 48.4 ± 16.6
2nd	ODOR:	31.9 ± 14.5
	OTHER:	47.4 ± 10.7
		AVG = 42.6 ± 13.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 004

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0846

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 26.1 ± 12.5
2nd	ODOR:	28.6 ± 10.2
	OTHER:	30.3 ± 10.6
		AVG = 28.3 ± 11.1

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 005

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (x)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0850

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <18
2nd	ODOR:	<24.3
	OTHER:	<17.7
		AVG = <20

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 006

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (x)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0904

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 31.2 ± 11.3
2nd	ODOR:	25.7 ± 9.8
	OTHER:	29.2 ± 10.3
		AVG = 28.7 ± 10.5

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 007

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0907

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 29.9 ± 9.5
2nd	ODOR:	27.4 ± 10.9
	OTHER:	29.3 ± 10.5
		AVG = 28.9 ± 10.3

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764-008

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0908

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 27.5 ± 10.4
2nd	ODOR:	29.4 ± 9.4
	OTHER:	19.4 ± 11.6
		AVG = 25.4 ± 10.5

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 009

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0910

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st UA	COLOR:	XRF = 29.7 ± 12.5
2nd	ODOR:	26.8 ± 9.1
	OTHER:	34.6 ± 8.8
		AVG = 30.4 ± 10.1

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 010

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0913

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 24.4 ± 8.8
2nd	ODOR:	20.4 ± 9.5
	OTHER:	27.3 ± 9.4
		Avg = 24 ± 9.2

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 010 D

SAMPLING METHOD DUP./REP. OF : SR764-010

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0913

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 24.4 ± 8.8
2nd	ODOR:	20.4 ± 9.5
	OTHER:	27.3 ± 9.4
		AVG = 24 ± 9.2

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 011

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0925

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 50.1 ± 11.3
2nd	ODOR:	36.3 ± 11.9
	OTHER:	37.1 ± 10.4
		AVG = 41.2 ± 11.12

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 012

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0927

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 27.3 ± 12.5
2nd	ODOR:	26.7 ± 10.1
	OTHER:	33.2 ± 11.4
		AVG = 29.1 ± 11.13

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 013

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 0930

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 38.2 ± 10.6
2nd	ODOR:	42.1 ± 11.2
	OTHER:	37.3 ± 9.8
		AVG = 30.0 ± 10.5

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 52°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 014

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/25/07 TIME: 1515

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 37.4 ± 15.9
2nd	ODOR:	33.4 ± 14.4
	OTHER:	27.2 ± 13.7
		AVG = 32.7 ± 14.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION N AMBIENT TEMP 74°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: TZ

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR764 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR764

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR764- 015

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/5/08 TIME: 1550

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8oz glass	1	cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st N/A	COLOR:	xrf = <48.3
2nd	ODOR:	<47.6
	OTHER:	<58.2
		AVG = <51.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION S AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR765 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR765

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR765- 001

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES (X) NO (X) AF

GRAB (X) COMPOSITE ( ) DATE: 10/30/07 TIME: 1510

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 33.3 ± 7.8
2nd	ODOR:	38.2 ± 12
	OTHER:	37.7 ± 13.8
		ABG = 36.4 ± 11.2

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 70°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: GW

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR765 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR765

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR765- 002

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/30/07 TIME: 1512

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 31.3 ± 12.5
2nd	ODOR:	30.2 ± 10.3
	OTHER:	42.4 ± 11.1
		AVG = 34.6 ± 11.3

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 70°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: GW

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR765 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR765

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR765- 003

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/30/07 TIME: 1508

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st LA	COLOR:	XRF = 72.0 ± 20.9
2nd	ODOR:	79.9 ± 22.2
	OTHER:	67.4 ± 18
		AVG = 73.1 ± 20.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION SW AMBIENT TEMP 70°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: GW

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR765 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR765

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR765-005

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES (X) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/4/08 TIME: 1020

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <36.9
2nd	ODOR:	<49.6, <41.7
	OTHER:	AVG = <42.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 45°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR766 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR766

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR766- 001

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (x)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1003

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 24.8 ± 14
2nd	ODOR:	27.2 ± 13.5
	OTHER:	175.8 ± 22.9
		AVG = 76.0 ± 16.8

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Var AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR766 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR766

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR766- 002

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1007

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 26.7 ± 16.2
2nd	ODOR:	24.5 ± 13
	OTHER:	24.7 ± 11.5
		AVG = 25.3 ± 13.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Var AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR766 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR766

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR766- 003

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1010

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 21.3 ± 13.9
2nd	ODOR:	21.2 ± 10.3
	OTHER:	29.6 ± 12.7
		AVG = 24.0 ± 12.3

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Var AMBIENT TEMP 50°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

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FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 001

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 1420

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 28.8 ± 10.2
2nd	ODOR:	34.4 ± 12.7
	OTHER:	45.3 ± 14.3
		AVG = 34.2 ± 12.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 002

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 1424

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 21.5 ± 13.4
2nd	ODOR:	31.6 ± 13.4
	OTHER:	<19.9
		AVG = 24.3 ± 13.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 003

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 1426

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 26.6 ± 13.9
2nd	ODOR:	28.8 ± 12.3
	OTHER:	33.1 ± 16.4
		AVG = 29.5 ± 14.2

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 004

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 1428

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st MA	COLOR:	XRF = 40.1 ± 12.1
2nd	ODOR:	47.1 ± 10.8
	OTHER:	42.6 ± 12.9
		AVG = 43.3 ± 11.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 005

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 1430

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <18.6
2nd	ODOR:	20.4 ± 11.1
	OTHER:	31.9 ± 13.6
		AVG = 23.6 ± 12.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION calm AMBIENT TEMP 72° F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 006

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 1431

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 45.2 ± 12.2
2nd	ODOR:	59.4 ± 14.5
	OTHER:	52.2 ± 14.1
		AVG = 52.3 ± 13.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 006D

SAMPLING METHOD DUP./REP. OF : SR767-006

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/26/07 TIME: 1431

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 45.2 ± 13.2
2nd	ODOR:	59.4 ± 14.5
	OTHER:	52.2 ± 14.1
		AVG = 52.3 ± 13.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 72°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SR767 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR SR767

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: SR767- 007

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/4/08 TIME: 1153

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	metals - shortlist
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <54.9
2nd	ODOR:	<40.5, <44.6
	OTHER:	AVG = <46.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION NW AMBIENT TEMP 46°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775-001

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1236

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	COOL 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 34.1 ± 13.8
2nd	ODOR:	21.7 ± 12.3
	OTHER:	21.9 ± 12.1
		AVG = 25.9 ± 12.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775-002

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1238

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	COOL 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 92.4 ± 18
2nd	ODOR:	155.6 ± 18.1
	OTHER:	172.3 ± 23.8
		AVG = 140.1 ± 20

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775- 003

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1247

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	COOL 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 109.9 ± 19
2nd	ODOR:	105.3 ± 22.3
	OTHER:	64.8 ± 17.7
		AVG = 93.3 ± 19.7

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775-004

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1241

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775- 005

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1245

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775- 006

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1302

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775-006D

SAMPLING METHOD DUP./REP. OF : TS775-006

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1302

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775-007

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1300

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775- 008

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1256

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775-009

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1258

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775-010

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 11/13/07 TIME: 1251

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st LA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION Calm AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775- 011D

SAMPLING METHOD DUP./REP. OF : TS775-011

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/6/08 TIME: 0955

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	COOL 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			~~3541~~	~~8270C~~	~~PAHs~~ AF

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <30.4
2nd	ODOR:	<47.1 <34.5
	OTHER:	AVG = <37.3

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS775 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS775

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS775- 011

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/6/08 TIME: 0955

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			~~3541~~	~~8270C~~	~~PAHs~~ AF

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st MA	COLOR:	XRF = <30.4
2nd	ODOR:	<47.1, <34.5
	OTHER:	AVG = <37.3

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 38°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

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FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776-D01

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1058

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 357.4 ± 44.1
2nd	ODOR:	365.5 ± 44.5
	OTHER:	373.9 ± 44.6
		AVG = 356.6 ± 44.6

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 002

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1116

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 221.4 ± 37
2nd	ODOR:	213 ± 38.8
	OTHER:	206.7 ± 38
		AVG = 213.5 ± 37.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 003

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1140

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 73.2 ± 21.3
2nd	ODOR:	82.5 ± 22.4
	OTHER:	64.8 ± 22.9
		AVG = 73.5 ± 22.2

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776-004

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1145

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 42.5 ± 12.5
2nd	ODOR:	54.6 ± 14.8
	OTHER:	<33.2
		AVG = 43.4 ± 13.8

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 005

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1148

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 47.3 ± 14.8
2nd	ODOR:	75.5 ± 19.4
	OTHER:	58.3 ± 22.6
		AVG = 60.4 ± 18.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 006

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1153

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st LA	COLOR:	XRF = 898.4 ± 65.1
2nd	ODOR:	1121 ± 113
	OTHER:	444.9 ± 83
		AVG = 821.4 ± 87

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 007

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1201

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 70.1 ± 19.2
2nd	ODOR:	51.0 ± 15.4
	OTHER:	63.1 ± 17.5
		AVG = 61.4 ± 17.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 031

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6

GRAB (X) COMPOSITE ( ) DATE: 11/14/07 TIME: 1057

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 46.3 ± 14.4
2nd	ODOR:	66.2 ± 17.9
	OTHER:	121 ± 21
		AVG = 77.8 ± 17.8

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION N AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 032

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/14/07 TIME: 1100

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 95.4 ± 18.2
2nd	ODOR:	79.9 ± 15.2
	OTHER:	76.5 ± 15.7
		AVG = 83.9 ± 16.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION N AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: KLO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 032D

SAMPLING METHOD DUP./REP. OF : TS776-032

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/14/07 TIME: 1100

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 95.4 ± 18.2
2nd	ODOR:	79.9 ± 15.2
	OTHER:	76.5 ± 15.7
		AVG = 83.9 ± 16.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION N AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 033

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 11/14/07 TIME: 1055

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4° C	3050B	6010B	metals - short list
					Sb, Ba, Cu, Fe, Pb, Mg, Zn
			3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 52 ± 14.8
2nd	ODOR:	69 ± 17.3
	OTHER:	60.3 ± 14
		AVG = 60.4 ± 15.4

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION N AMBIENT TEMP 57°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica - Chicago

COMMENTS:

SAMPLER: AF OBSERVER: KG

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 008

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1102

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 009

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1104

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MP

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 010

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1106

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 010D

SAMPLING METHOD DUP./REP. OF : TS776-010

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1106

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 011

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1108

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 012

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1109

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st LA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 013

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1111

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 014

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1112

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR Y OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 015

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1114

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 016

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1118

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 017

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1121

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776-018

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1123

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776

PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil

SAMPLE ID: TS776- 019

SAMPLING METHOD

DUP./REP. OF :

BEGINNING DEPTH 0

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( )

DATE: 10/27/07 TIME: 1126

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 020

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1128

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 020D

SAMPLING METHOD DUP./REP. OF : TS776-020

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1128

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776-021

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1141

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 022

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1143

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 60°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 023

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1149

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776

PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil

SAMPLE ID: TS776- 024

SAMPLING METHOD

DUP./REP. OF :

BEGINNING DEPTH 0

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( )

DATE: 10/27/07 TIME: 1150

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 025

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1156

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 026

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1158

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 027

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1203

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 028

SAMPLING METHOD DUP./REP. OF :

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1205

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 029

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1207

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN _____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: TestAmerica- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: mp

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 030

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH 6" YES ( ) NO (X)

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1208

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America- Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: MO

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 030D

SAMPLING METHOD DUP./REP. OF : TS776-030

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

YES ( ) NO ( )

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 10/27/07 TIME: 1208

CONTAINER SIZE/TYPE	CONTAINER #	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3541	8270C	PAHs

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	
2nd	ODOR:	
	OTHER:	

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR X OVERCAST/RAIN ____ WIND DRIECTION E AMBIENT TEMP 62°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: TestAmerica- Chicago

COMMENTS:

SAMPLER: AF OBSERVER: MD

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776- 034

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/6/08 TIME: 1225

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	Metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = <48.1
2nd	ODOR:	<48.0, <36.2
	OTHER:	AVG = <44.1

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ____ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 40°F

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: TS776 PROJECT : Kirtland AFB CSE Phase II SARs

SITE: SAR TS776

SAMPLE INFORMATION

MATRIX Soil SAMPLE ID: TS776-035

SAMPLING METHOD _____ DUP./REP. OF : _____

BEGINNING DEPTH 0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES ( ) NO (X)

END DEPTH 6"

GRAB (X) COMPOSITE ( ) DATE: 3/6/08 TIME: 1635

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
8 oz glass	1	Cool 4°C	3050B	6010B	Metals - Short list
					Sb, Ba, Cu, Fe, Pb, Mg
					Zn

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st NA	COLOR:	XRF = 210 ± 70
2nd	ODOR:	71.2 ± 45.7
	OTHER:	1118 ± 145
		AVG = 466.4 ± 86.9

pH _____ Temperature _____ Dissolved oxygen _____ Specific Conductivity _____

GENERAL INFORMATION

WEATHER: SUN/CLEAR ~ OVERCAST/RAIN X WIND DRIECTION NW AMBIENT TEMP 42°F

SHIPMENT VIA: FED-X X HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Test America - Chicago

COMMENTS: _____

SAMPLER: AF OBSERVER: LS

MATRIX TYPE CODES

DC=DRILL CUTTINGS
WG=GROUND WATER
LH=HAZARDOUS LIQUID WASTE
SH=HAZARDOUS SOLID WASTE
SE=SEDIMENT
SL=SLUDGE
SO=SOIL
GS=SOIL GAS
WS=SURFACE WATER
SW=SWAP\WIPE

SAMPLING METHOD CODES

B=BAILER
BR=BRASS RING
CS=COMPOSITE SAMPLE
C=CONTINUOUS FLIGHT AUGER
DT=DRIVEN TUBE
W=SWAB\WIPE
G=GRAB
HA=HAND AUGER
H=HOLLOW STEM AUGER
HP=HYDRO PUNCH
SS=SPLIT SPOON
SP=SUBMERSIBLE PUMP

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Custody Record

Severn Trent Laboratories, Inc.

500 - 7478

STL-4124 (0901)

Client: HGL	Project Manager: Miguelitter Rochford	Date: 10/29/07	Chain of Custody Number: 359741
Address: 8245 Nieman Rd Ste 101	Telephone Number (Area Code)/Fax Number: 970-243-3893	Lab Number:	Page 1 of 2
City: Lenexa; State: KS; Zip Code: 66214	Site Contact: Andrea Fletcher	Lab Contact:	
Project Name and Location (State): Kirtland AFB, Albuquerque, NM	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed): TPH mg 1x16 bottle/none

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		TPH mg 1x16 bottle/none
1 SR7634-001	10/24/07	0835				X		X							X
2 SR7634-002	↓	0840				↓		↓							↓
3 SR7634-003		0844													
4 SR7634-004		0846													
5 SR7634-005		0850													
6 SR7634-006		0904													
7 SR7634-007		0907													
8 SR7634-008		0908													
9 SR7634-009		0910													
10 SR7634-010		0913													
11 SR7634-010D		0923													
12 SR7634-011	↓	0925				↓		↓							↓

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other____

QC Requirements (Specify):

1. Relinquished By: Andrea Fletcher	Date: 10/29/07	Time: 1600	1. Received By: [signature] TAC	Date: 10/30/07	Time: 105
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Custody Record

Severn Trent Laboratories, Inc.

1410

506-~~1242~~

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
HGL	Miguelle Rochford	10/29/07	359776

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 2 of 2
8245 Nieman Rd Ste 101	703-243-3893		

City	State	Zip Code	Site Contact	Lab Contact
Lenexa	KS	66214	Andrea Fletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB Albuquerque NM	

Contract/Purchase Order/Quote No.

Analysis (Attach list if more space is needed): TPH/Metals 6010/7000

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		TPH/Metals 6010/7000	Special Instructions/ Conditions of Receipt
13 SR7634-012	10/26/07	0927				X		X							X	
14 SR7634-013	↓	0930				↓		↓							↓	
15 SR7634-014	10/25/07	1515														
16 SR767-001	10/26/07	1420														
17 SR767-002		1424														
18 SR767-003		1426														
19 SR767-004		1428														
20 SR767-005		1430														
21 SR767-006		1431														
22 SR767-006D	↓	~~1431~~ 1431	AF			↓		↓							↓	
AFletcher	10/29/07															

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	10/29/07	1600	1. Received By: [signature] TAL	10/30/07	1015
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample. PINK - Field Copy

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

00-7501-1

STL-4124 (0901)

Client: HGL	Project Manager: Miguelle Rochford	Date: 10/30/07	Chain of Custody Number: 359777
Address: 8245 Nieman Rd Ste 101	Telephone Number (Area Code)/Fax Number: 970-243-3893	Lab Number	Page 1 of 2
City: Lenexa; State: KS; Zip Code: 66214	Site Contact: Andrea Fletcher; Lab Contact		
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): TPH metals w/ Hg/TCLP; CrH_2 & 2TCLP

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sold.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	TPH metals w/ Hg/TCLP	CrH_2 & 2TCLP
1 TS776-001	10/27/07	1058				X	X						X	
2 TS776-002		1116												
3 TS776-003		1140												
4 TS776-004		1145												
5 TS776-005		1148												
6 TS776-006		1153												
7 TS776-007		1201											X	
8 TS776-008		1102												
9 TS776-009		1104												
10 TS776-010		1106												
11 TS776-010D		1106												
12 TS776-011		1108												

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	10/30/07	0740	1. Received By: [signature] TM	10/31/07	915
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

500-7501-1

Client: HGL	Project Manager: Miquette Rochford	Date: 10/30/07	Chain of Custody Number: 359778
Address: 8245 Nieman Rd Ste 100	Telephone/Number (Area Code)/Fax Number: 970-243-3893	Lab Number	Page 2 of 2
City: Lenexa; State: KS; Zip Code: 66214	Site Contact: Andrea Fletcher	Lab Contact	
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): 8270 Full Scan

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	8270 Full Scan
13 TS776-012	10/27/07	1109				X	X						X
14 TS776-013		1111											
15 TS776-014		1112											
16 TS776-015		1114											
17 TS776-016		1118											
18 TS776-017		1121											
19 TS776-018		1123											
20 TS776-019		1124											
21 TS776-020		1128											
22 TS776-020D		1128											

Andrea Fletcher 10/30/07

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	10/30/07	0740	1. Received By: [signature] TAL	10/30/07	0915
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

Severn Trent Laboratories, Inc.

500-7537

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
HGL	Miquette Rochford	10/30/07	359779

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 2
8245 Nieman Rd			

City	State	Zip Code	Site Contact	Lab Contact
Lenexa	KS	66214	Andrea Fletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB	

Contract/Purchase Order/Quote No.

Analysis (Attach list if more space is needed): PAH 8270

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PAH 8270
1	TS776-021	10/27/07	1141				X	X						X
2	TS776-022		1143											
3	TS776-023		1149											
4	TS776-024		1150											
5	TS776-025		1156											
6	TS776-026		1158											
7	TS776-027		1203											
8	TS776-028		1205											
9	TS776-029		1207											
10	TS776-030		1208											
11	TS776-030D		1208											X
12	SB76-43-001	10/27/07	1325											

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	10/31/07	1430	1. Received By: [illegible]	11/1/07	1000
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: 3.1°C

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

Severn Trent Laboratories, Inc.

5007537

STL-4124 (090-1)

Client	Project Manager	Date	Chain of Custody Number
HCL	Miguelle Rochford	10/31/07	359780

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 2 of 2
8245 Nieman Rd Ste 101	913-243-3893		

City	State	Zip Code	Site Contact	Lab Contact
Lenexa	KS	66214	Andrea Fletcher	

Project Name and Location (State):

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed): TAL Metals Low/Trace

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	TAL Metals Low/Trace	Special Instructions/ Conditions of Receipt
3 SR7644 002	10/29/07	1325				X	X						X	
4 SR7644 003	10/29/07	1305												
5 SR7644 004	10/29/07	1250												
6 SR7644-005	10/29/07	1555												
7 SR7644 006	10/29/07	1600												
8 SR7644 007	10/29/07	1605				X	X						X	MS/MSD analyse

ASFletcher 10/31/07

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	10/31/07	1430	1. Received By: [signature] STL	11/1/07	1000
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

500-7845

STL-4124 (0901)

Client: HGL	Project Manager: Miguette Rochford	Date: 11/14/07	Chain of Custody Number: 359781
Address: 8245 Nieman Rd Ste 101	Telephone Number (Area Code)/Fax Number: 913-243-3893	Lab Number	Page 1 of 3
City: Lenexa; State: KS; Zip Code: 66214	Site Contact: Andrea Flutcher	Lab Contact	
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): VOC/TPH-GRO	Special Instructions/ Conditions of Receipt
1 SR765-001	10/30/07	1510				X	X						X	MS/MSD Analyses
2 SR765-002		1512												
3 SR765-003		1508												
4 SR765-004		1506												
5 50CAL-001		1145												
6 50CAL-0010		1145												
7 50CAL-002		1148												
8 50CAL-003		1150												
9 50CAL-004		1154												
10 50CAL-004MS		1154												
11 50CAL-004MSD		1154												
12 SR766-001	11/13/07	1003											X	

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea D Fletcher	11/14/07	1500	1. Received By: [signature] THL	11/15/07	1020
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

500-7845

Client: HGL	Project Manager: Miguette Rochford	Date: 11/14/07	Chain of Custody Number: 359782
Address: 8245 Nieman Road Ste 101	Telephone Number (Area Code)/Fax Number: 970-243-3893	Lab Number:	Page 2 of 3
City: Lenexa; State: KS; Zip Code: 66205	Site Contact: Andrea Flether	Lab Contact:	
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): Metals 6010	PHC's 8270	Special Instructions/ Conditions of Receipt
SB766-002	11/13/07	1007				X	X						X		
2 SB766-003		1010											X		
3 TS775-001		1236											X	X	
4 TS775-002		1238											X	X	
5 TS775-003		1247											X	X	
6 TS775-004		1241												X	
7 TS775-005		1245												X	
8 TS775-006		1302												X	
9 TS775-006D		1302												X	
10 TS775-007		1300												X	
11 TS775-008		1256												X	
12 TS775-009		1258				X	X							X	

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☒ 21 Days ☐ Other _____

QC Requirements (Specify):

1. Relinquished By: Andrea Flether	Date: 11/14/07	Time: 1500	1. Received By: [signature] TAL	Date: 11/15/07	Time: 1020
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample. PINK - Field Copy

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

500-7845

STL-4124 (0901)

Client: HGL	Project Manager: Miquette Rochford	Date: 11/14/07	Chain of Custody Number: 359783
Address: 8245 Nieman Road Ste 101	Telephone Number (Area Code)/Fax Number: 970-243-3893	Lab Number:	Page 3 of 3
City: Lenexa; State: KS; Zip Code: 66205	Site Contact: Andrea Fletcher	Lab Contact:	
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis: Naphthalene (8310)	Analysis: PAHs 8270	Special Instructions/ Conditions of Receipt
3 TS775-010	11/13/07	1251				X	X								X	
5 TS776-031	11/14/07	1057												X	X	
TS776-032		1100												X	X	
6 TS776-032D		1100												X	X	
7 TS776-033		1055				X	X							X	X	

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [ ] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [X] 21 Days [ ] Other ____

QC Requirements (Specify):

1. Relinquished By: Andrea Fletcher	Date: 11/14/07	Time: 1500	1. Received By: [signature] TAL	Date: 11/15/07	Time: 1020
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

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Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0801)

500-9780

Client	Project Manager	Date	Chain of Custody Number
HGL	Miguelite Rochford	2/28/08	359786
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 3
8245 Nieman Rd Ste 101	970-243-3893		

City	State	Zip Code	Site Contact	Lab Contact
Lenexa	KS	66214	Andrea Fletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB	

Contract/Purchase Order/Quote No.

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): 6010B Metals	8330 Explosives										Special Instructions/ Conditions of Receipt
1 ML125A4-11-1	2/28/08	1210				X		X							X	X										
2 ML125A4-11-2		1212																								
3 ML125A4-11-3		1214																								
4 ML125A4-11-4		1217																								
5 ML125A4-12-1		1155																								
6 ML125A4-12-2		1157																								
7 ML125A4-12-3		1200																								
8 ML125A4-12-4		1202																								
9 ML125A4-13-1		0947																								MS/MSD Analysis
10 ML125A4-13-2		0949																								
11 ML125A4-13-3		0952																								
12 ML125A4-13-4		0954				X		X							X	X										

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

Relinquished By	Date	Time	Received By	Date	Time
1. Andrea Fletcher	2/28/08	1800	1. [signature]	2/29/08	1015
2.			2.		
3.			3.		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

500-9780

Client	Project Manager	Date	Chain of Custody Number
HGL	Miquette Rochford	2/28/08	359785
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 3**
See page 1	970-243-3893		

City	State	Zip Code	Site Contact	Lab Contact
			Andrea Fletcher	

Project Name and Location (State): Kirtland AFB

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed): Total Metals; 8330 Explosives

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed	Soil	Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Total Metals	8330 Explosives
3	ML125A4-14-1	2/28/08	1230				X	X						X	X
4	ML125A4-14-2		1233												
5	ML125A4-14-3		1236												
6	ML125A4-14-4		1239												
7	ML125A4-15-1		1310												
8	ML125A4-15-2		1313												
9	ML125A4-15-3		1316												
10	ML125A4-15-4		1319												
11	ML125A4-15-4D		1319												
12	ML125A4-16-1		1405												
13	ML125A4-16-2		1410												
14	ML125A4-16-3	↓	1415				X	X						X	X

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

Relinquished By	Date	Time	Received By	Date	Time
1. Michael Hatcher	2/28/08	1500	1. [signature]	2/28/08	1015
2.			2.		
3.			3.		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

500-9780

Client	Project Manager	Date	Chain of Custody Number
HGL		2/28/08	359784
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 3 of 3
see page 1			

City	State	Zip Code	Site Contact	Lab Contact

Project Name and Location (State): Kirtland AFB

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed): WCICP metals; 8330 Explosives

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		WCICP metals	8330 Explosives
5 ML125A4-16-4	2/28/08	1420				X		X							X	X

Attempted 2/28/08

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Andrea D Fletcher	2/28/08	1800	1. Received By: [signature]	2/29/08	1015
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TRENT **STL**

Severn Trent Laboratories, Inc.

STL-4124 (0901)

500-9798

Client	Project Manager	Date	Chain of Custody Number
HGL	Miguette Rochford	2/29/08	359787

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page
8245 Nieman Rd Ste 101	970-243-3893		1 of 4

City	State	Zip Code	Site Contact	Lab Contact
Lenexa	KS	66214	Andrea Fletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB	

Contract/Purchase Order/Quote No.

Analysis (Attach list if more space is needed): 6010B/7000 metals; 8330 explosives

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	6010B/7000 metals	8330 explosives	Special Instructions/ Conditions of Receipt
1	AL120A1-1	2/29/08	1015				X	X						X	X	
2	AL120A1-2		1017													
3	AL120A1-3		1019													
4	AL120A1-4		1021													
5	ML125A3-08-1		1130													
6	ML125A3-08-2		1134													
7	ML125A3-08-3 MS2D		1134													
8	ML125A3-08-3		1136													
9	ML125A3-08-4		1138													
10	ML125A3-09-1		1107													
11	ML125A3-09-2		1109													
12	ML125A3-09-3		1111				X	X						X	X	MS/MSD analyze

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	2/29/08	1800	1. Received By: [illegible]	3/6/08	0940
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TEST AMERICA
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4142 (0907)

500-9798

Client	Project Manager	Date	Chain of Custody Number
HGL		2/29/08	383332
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 4**
See page 1			

City	State	Zip Code	Site Contact	Lab Contact
			Andrea Fletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB	

Contract/Purchase Order/Quote No.

Analysis (Attach list if more space is needed): 6010B/7000 metals; 8330 Explosives

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		6010B/7000 metals	8330 Explosives	Special Instructions/ Conditions of Receipt
13 ML125A3-09-4		1013				X		X							X	X	
14 ML125A3-10-1		1045															
15 ML125A3-10-2		1047															
16 ML125A3-10-3		1049															
17 ML125A3-10-4		1051															
18 ML125A1-01-1		1253															
19 ML125A1-01-2		1257															
20 ML125A1-01-3		1301															MS/MSD analys
21 ML125A1-01-4		1303															
22 ML125A1-02-1		1310															
23 ML125A1-02-2		1312															
24 ML125A1-02-3		1315				X		X							X	X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	2/29/08	1800	1. Received By: [illegible]	2/1/08	0940
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TEST AMERICA
THE LEADER IN ENVIRONMENTAL TESTING

500-9799

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
HGL		2/29/08	383333
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 3 of 4**
See page 1			

City	State	Zip Code	Site Contact	Lab Contact
			Andrea Pletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB	

Contract/Purchase Order/Quote No.

Analysis (Attach list if more space is needed): 6010B/7000 Metals; 8330 Explosives

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		6010B/7000 Metals	8330 Explosives
1	ML125A1-02-3D		1315				X		X							X	X
2	ML125A1-02-4		1317														
3	ML125A1-03-1		1324														
4	ML125A1-03-2		1326														
5	ML125A1-03-3		1328														
6	ML125A1-03-4		1331														
7	ML125A1-04-1		1337														
8	ML125A1-04-2		1339														
9	ML125A1-04-3		1341														
10	ML125A1-04-4		1343														
11	ML125A1-05-1		1347														
12	ML125A1-05-2		1349				X		X							X	X

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Pletcher	2/29/08	1800	1. Received By: [signature]	3/1/08	0940
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TEST AMERICA

THE LEADER IN ENVIRONMENTAL TESTING

TAL-4142 (0907)

500-9799

Client	Project Manager	Date	Chain of Custody Number
HGL		2/29/08	383334
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 4 of 4**
See page 1			

City	State	Zip Code	Site Contact	Lab Contact
			Andrea Fletcher	

Project Name and Location (State): Kirtland AFB

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): 6010B Total Metals	8330 Explosives	Special Instructions/ Conditions of Receipt
13 ML125A1-05-3		1351				X		X							X	X	
14 ML125A1-05-4		1353				|		|							|	
15 ML125A1-05-4D		1353				X		X							X	X	

AFletcher 2/29/08

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Andrea D Fletcher	2/29/08	1800	1. Received By:	3/1/08	0940
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TEST AMERICA
THE LEADER IN ENVIRONMENTAL TESTING

University Park, IL 60466. 500-9830

TAL-4142 (0907)

Client: HGL	Project Manager: Miquette Rochford	Date: 3/1/08	Chain of Custody Number: 383335
Address: 8245 Nieman Rd Ste 101	Telephone Number (Area Code)/Fax Number: 970-243-3893	Lab Number:	Page 1 of 4
City: Lenexa; State: KS; Zip Code: 66214	Site Contact: Andrea Fletcher	Lab Contact:	
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 8330 Explosives	Special Instructions/ Conditions of Receipt
1	AL771-02-1	3/1/08	0952				X	X						X	
2	AL771-02-2	↓	1006				↓	↓						↓	
3	AL771-02-2D		1006												
4	AL771-02-3		1001												
5	AL771-02-4		0957												
6	AL771-02-5		0955												
7	AL771-02-6		1008												
8	AL771-02-7		1003												
9	AL771-02-8		1000												
10	AL771-03-1		1019												
11	AL771-03-1D		1019												
12	AL771-03-2	↓	1023				X	X						X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

1. Relinquished By: Andrea Fletcher	Date: 3/3/08	Time: 1730	1. Received By: JL	Date: 3/4/08	Time: 1010
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

03/26/2008

Page 124 of 127

Chain of Custody Record

TESTAMERICA
THE LEADER IN ENVIRONMENTAL TESTING

University Park, IL
500-9830 (630/6

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
HGL		3/1/08	383336
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 4**
See page 1			

City	State	Zip Code	Site Contact	Lab Contact

Project Name and Location (State): Kirtland AFB

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed): 8330 Explosives

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	Zn/Ac NaOH		8330 Explosives	Special Instructions/ Conditions of Receipt
13	AL771-03-3	3/1/08	1027				X		X							X	
14	AL771-03-4		1031														
15	AL771-03-5		1021														
16	AL771-03-6		1025														
17	AL771-03-7		1029														
18	AL771-03-8		1033														
19	AL771-04-1		1040														
20	AL771-04-2		1052														
21	AL771-04-3		1048														ms/msD analysis
22	AL771-04-4		1044														
23	AL771-04-5		1042														
24	AL771-04-6		1054				X		X							X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	3/3/08	1730	1. Received By: [signature]	3/4/08	1010
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

03/26/2008

Chain of Custody Record

TESTAMERICA
THE LEADER IN ENVIRONMENTAL TESTING

University Park, IL 60466
500-9831

TAL-4142 (0807)

Client: HGL	Project Manager:	Date: 3/1/08	Chain of Custody Number: 383337
Address: see page 1	Telephone Number (Area Code)/Fax Number:	Lab Number:	Page 3 of 4
City:	State:	Zip Code:	
Site Contact:	Lab Contact:		
Project Name and Location (State): KiMand AFB	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): 8330 Explosives	Special Instructions/ Conditions of Receipt
1	AL771-04-7	3/1/08	1051				X	X						X	
2	AL771-04-7D		1051												
3	AL771-04-8		1046												
4	AL771-05-1		1109												
5	AL771-05-2		1113												
6	AL771-05-3		1118												
7	AL771-05-4		1122												
8	AL771-05-5		1111												
9	AL771-05-6		1115												
10	AL771-05-7		1120												
11	AL771-05-8		1124												
12	AL771-06-1		1135				X	X						X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

1. Relinquished By: Andrea O'Hether	Date: 3/3/08	Time: 1730	1. Received By: [signature]	Date: 3/4/08	Time: 1010
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

03/14/2008

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

University Park, IL
500-9831 60466.

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
HGL			383338
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 4 of 4**
See page 1			

City	State	Zip Code	Site Contact	Lab Contact

Project Name and Location (State): Kirtland AFB

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed): 8330 Explosives

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil		Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		8330 Explosives	Special Instructions/ Conditions of Receipt
13	AL771-06-2	3/1/08	1139				X		X							X	
14	AL771-06-3		1145														
15	AL771-06-4		1148														
16	AL771-06-5		1137														
17	AL771-06-6		1142														
18	AL771-06-6D		1142														
19	AL771-06-7		1147														ms/msd analysis
20	AL771-06-8		1149														
21	AL771-01-1		1226														
22	ML125A2-06-1		1250														
23	ML125A2-07-1		1255				X		X							X	
	~~[illegible]~~		3/1/08														

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	3/3/08	1730	1. Received By: [signature]	3/4/08	1010
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

03/14/2008

Page 107 of 109

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

University Park, IL
500-9832 60466

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
HGL	Miguelle Rochford	3/3/08	383342
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 4**
8245 Nieman Rd Ste 101	970-243-3893		
City / State / Zip Code	**Site Contact / Lab Contact**		
Lenexa / KS / 66214	Andrea Fletcher		
Project Name and Location (State)	**Carrier/Waybill Number**		
Kirtland AFB			
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): 8330 Explosives

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed	Soil	Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	8330 Explosives	
1	AL120ID-01-1	3/3/08	1024				X	X						X	
2	AL120ID-01-2		1031												
3	AL120ID-01-3		1035												
4	AL120ID-01-4		1039												
5	AL120ID-01-5		1029												
6	AL120ID-01-6		1033												
7	AL120ID-01-7		1037												
8	AL120ID-01-8		1041												
9	AL120ID-01-8D		1041												
10	AL120ID-02-1		1100												
11	AL120ID-02-2		1104												
12	AL120ID-02-2D		1104				X	X						X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	3/3/08	1730	1. Received By: JK	3/4/08	1010
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

03/24/2008

Chain of Custody Record

TAL-4142 (0907)

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

University Park, IL 500-9832 60466

Client	Project Manager	Date	Chain of Custody Number
HGL		3/3/08	383339
Address: See page 1	Telephone Number (Area Code)/Fax Number	Lab Number	Page 2 of 4
City / State / Zip Code	Site Contact: Andrea Fletcher	Lab Contact	
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): 8330 Explosives

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	8330 Explosives	Special Instructions/ Conditions of Receipt
13	AL120ID-02-3	3/3/08	1108				X	X						X	
14	AL120ID-02-4		1112												
15	AL120ID-02-5		1102												
16	AL120ID-02-6		1106												MS/MSD analysis
17	AL120ID-02-7		1110												
18	AL120ID-02-8		1114												
19	AL120ID-03-1		1145												
20	AL120ID-03-2 ID		1145												
21	AL120ID-03-3		1137												
22	AL120ID-03-4		1141												
23	AL120ID-03-5		1147												
24	AL120ID-03-6		1135				X	X						X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	3/3/08	1730	1. Received By: [signature]	3/4/08	1010
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

University Park, FL 60448
500-9833

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
HGL		3/3/08	383340

Address	Telephone Number (Area Code)/Fax Number	Lab Number	
see page 1			Page 3 of 4

City	State	Zip Code	Site Contact	Lab Contact
			Andrea Fletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB	

Contract/Purchase Order/Quote No.

Analysis (Attach list if more space is needed): 8330 Explosives

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	8330 Explosives	Special Instructions/ Conditions of Receipt
1	AL120ID-02-7	3/3/08	1139				X	X						X	
2	AL120ID-03-8	↓	1143												
3	AL120ID-04-1		1203												
4	AL120ID-04-2		1207												
5	AL120ID-04-3		1211												
6	AL120ID-04-4		1217												
7	AL120ID-04-5		1205												
8	AL120ID-04-6		1209												
9	AL120ID-04-7		1213												MS/MSD analysis
10	AL120ID-04-8		1219												
11	AL120ID-05-1		1230												
12	AL120ID-05-2	↓	1234				X	X						X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	3/3/08	1730	1. Received By: JL	3/4/08	1010
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

5475 Dorr St
University Park, FL
500-9833 60/60

TAL-4142 (0907)

Client	Project Manager	Date	Chain of Custody Number
HGL		3/3/08	383341

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 4 of 4
See page 1			

City	State	Zip Code	Site Contact	Lab Contact
			Andrea Fletcher	

Project Name and Location (State)	Carrier/Waybill Number
Kirtland AFB	

Contract/Purchase Order/Quote No.

Analysis (Attach list if more space is needed): $330 Explosives

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	$330 Explosives	Special Instructions/ Conditions of Receipt
3 AL120ID-05-3	3/3/08	1238				X	X						X	
4 AL120ID-05-4		1242												
5 AL120ID-05-4D		1242												
6 AL120ID-05-5		1232												
7 AL120ID-05-6		1236												
8 AL120ID-05-7		1240												
9 AL120ID-05-8		1244				X	X						X	
10 AL120ID-03-2	3/3/08	1133											X	added by TAL

AFletcher

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea D Fletcher	3/3/08	1730	1. Received By: [signature]	3/4/08	1010
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

03/26/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica
2417 Bond Street
University Park, IL 60466
708.534.5200

TAL-4124-500 (1107)

Sampler ID _____

Temperature on Receipt 2.8

Drinking Water? Yes ☐ No ☐

Chain of Custody Record

500-9913

Client: HBL	Project Manager: Miguelle Rochford	Date: 3/6/08	Chain of Custody Number:
Address: 8245 Nieman Rd Ste 101	Telephone Number (Area Code)/Fax Number: 970-243-3893	Lab Number:	Page 1 of 1
City: Lenexa; State: KS; Zip Code: 66205	Site Contact: Andrea Fletcher; Lab Contact:		
Project Name and Location (State): Kirtland AFB	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): 6010 Bmetals

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	6010 Bmetals	Special Instructions
1	SR765-005	3/4/08	1020				X	X						X	MS/MSD analyses
2	SR767-007	3/4/08	1153												
3	50CAL-005	3/5/08	1138												
4	SR763-008	3/5/08	1425												
5	SR764-015	3/5/08	1550												
6	TS775-011	3/6/08	0955												
7	TS775-011D	3/6/08	0955												
8	TS776-034	3/6/08	1225												
9	TS776-035	3/6/08	1635				X	X						X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Andrea Fletcher	3/6/08	1800	1. Received By:	3/7/08	1010
2. Relinquished By:			2. Received By:		
3. Relinquished By:			3. Received By:		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica
2417 Bond Street
University Park, IL 60466
708.534.5200

TAL-4124-500 (1107)

Sampler ID _____

Temperature on Receipt 3.2

Drinking Water? Yes ☐ No ☒

Chain of Custody Record

500-11524

Client	Project Manager	Date	Chain of Custody Number
HGL	Andrea Fletcher	5/21/08	
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	
8245 Nieman Rd. Suite 101	913-647-2537 HS		Page 1 of 2
City / State / Zip Code	**Site Contact / Lab Contact**		
Lenexa / KS / 66214			
Project Name and Location (State)	**Carrier/Waybill Number**		
Kirtland AFB, NM			
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): LeDIOB TAL; 8330; 7471A - Hg

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Unspec.	LeDIOB TAL	8330	7471A - Hg	Special Instructions
1	ML125A5-01-1	5/21/08	1020				X							1	X	X	X	
2	ML125A5-01-2		1023				X							1	X	X	X	
3	ML125A5-01-3		1028				X							1	X	X	X	
4	ML125A5-01-4		1038				X							1	X	X	X	
5	ML125A5-02-1 MW		1527				X							1	X	X	X	
6	ML125A5-02-1D		1527				X							1	X	X	X	
7	ML125A5-02-2		1532				X							1	X	X	X	
8	ML125A5-02-3		1535				X							2	X	X	X	MS/MSD
9	ML125A5-02-4		1538				X							1	X	X	X	
10	ML125A5-03-1		0950				X							1	X	X	X	
11	ML125A5-03-1D		0950				X							1	X	X	X	
12	ML125A5-03-2	↓	0953				X							1	X	X	X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☒ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

Relinquished By	Date	Time	Received By	Date	Time
1. [signature]	5/21/08	1700	1. [signature]	5/22/08	1020
2.			2.		
3.			3.		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica
2417 Bond Street
University Park, IL 60466
708.534.5200

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

Chain of Custody Record

500-11524

TAL-4124-500 (1107)

Client	Project Manager	Date	Chain of Custody Number
HGL	Andrea Fletcher	5/21/08	
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	
8245 Nieman Rd. Suite 104	913-647-2537		Page 2 of 2
City / **State** / **Zip Code**	**Site Contact** / **Lab Contact**		
Lenexa / KS / 66214			
Project Name and Location (State)	**Carrier/Waybill Number**		
Kirtland AFB, NM			
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): 6010B-TAL Metals-Hg; 8330; 7471A-Hg

Special Instructions/ Conditions of Receipt

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Unpres	6010B-TAL Metals-Hg	8330	7471A-Hg								
3	ML125A5-03-3	5/21/08	0956				X							2	X	X	X								MS/MSD
4	ML125A5-03-4		0959				X							1	X	X	X								
5	ML125A6-01-1		1329				X							1	X	X	X								
6	ML125A6-01-2		1334				X							1	X	X	X								
7	ML125A6-01-3		1337				X							1	X	X	X								
8	ML125A6-01-4		1340				X							1	X	X	X								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☒ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: A Wheeler	5/21/08	1700	1. Received By: [signature]	5/22/08	1020
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

APPENDIX F

Ordnance Technical Data Sheets

SMALL-ARMS AMMUNITION

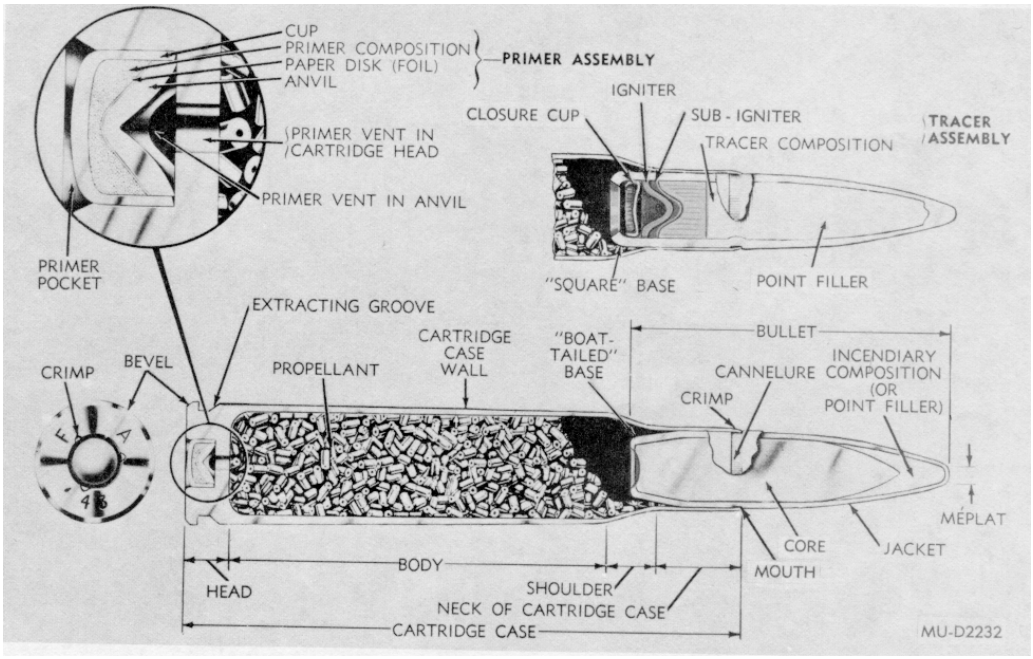


Figure 1. Typical cartridge (sectional)

General. Small-arms ammunition, as used herein, describes a cartridge or families of cartridges intended for use in various types of hand-held or mounted weapons through 30 millimeter. Within a caliber designation, these weapons may include one or more of the following: rifles (except recoilless), carbines, pistols, revolvers, machineguns and shotguns. For purposes of this publication, small-arms ammunition may be grouped as cartridges intended primarily for combat or training purposes (API, HEI, tracer or ball); for training purposes only (blank or dummy); or for special purposes (rifle grenade or spotter-tracer). Refer to TM 9-1306-200 for more detailed information on small-arms ammunition.

Cartridges. In general, a small-arms cartridge is identified as an assembly of a cartridge case, primer, a quantity of propellant within the cartridge case, and a bullet or projectile. Blank and rifle grenade cartridges are sealed with paper closure disks in lieu of bullets. Dummy cartridges are composed of a cartridge case and a bullet. Some dummy cartridges contain inert granular materials to simulate the weight and balance of live cartridges. A typical cartridge and the terminology of its components are shown in figure 1.

Case. Although steel, aluminum, zinc and plastic materials have been used experimentally, brass, a composition of 70 percent copper and 30 percent zinc, is the most commonly used material for cartridge cases. Steel, as well as brass, is an approved material for caliber .45 cartridge cases. Brass, paper and plastic are used for 12 gage shotshell bodies. Aluminum is used for military-type .410 gage shotshell bodies.

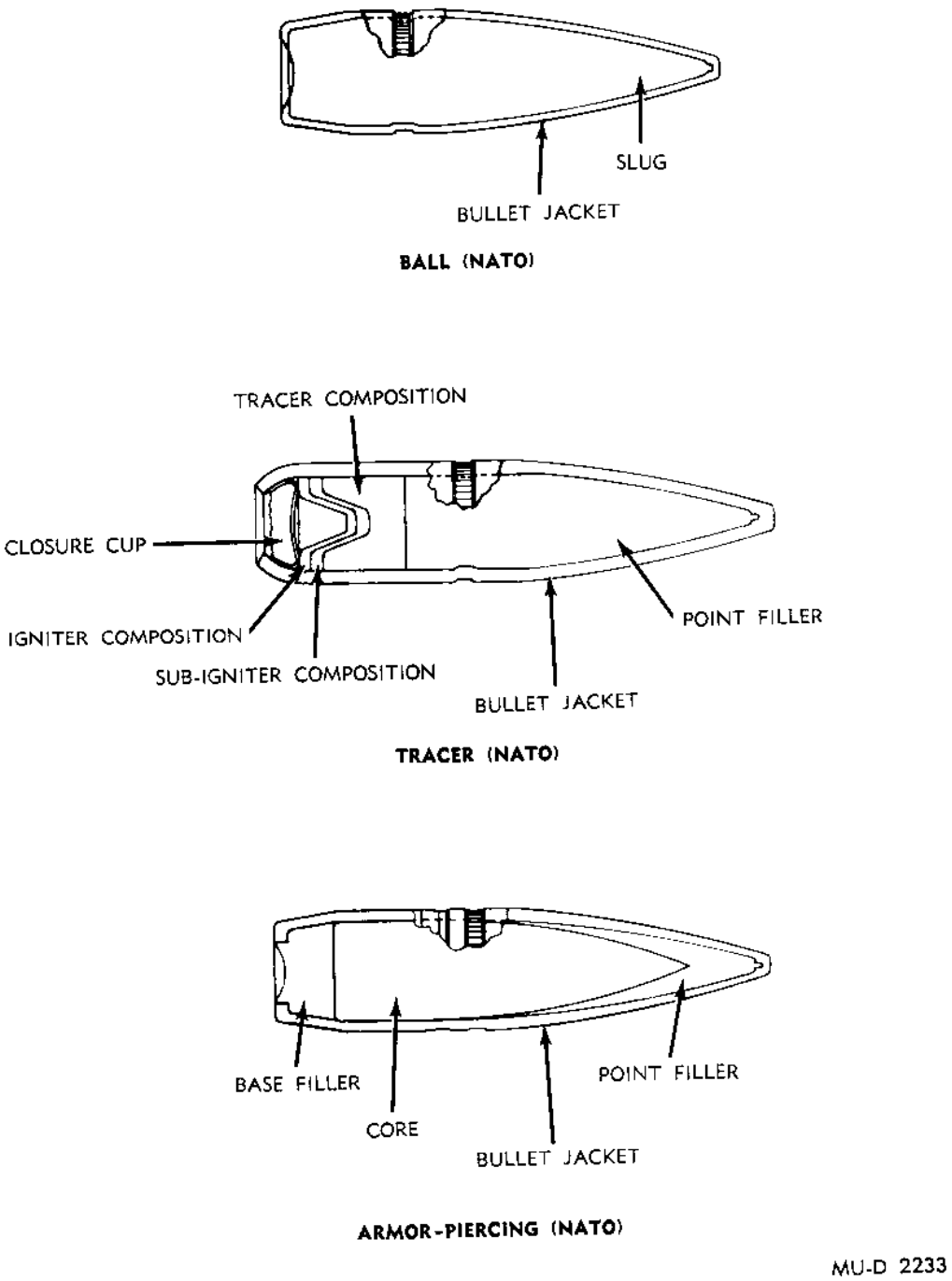


Figure 2. 7.62 mm bullets (sectional)

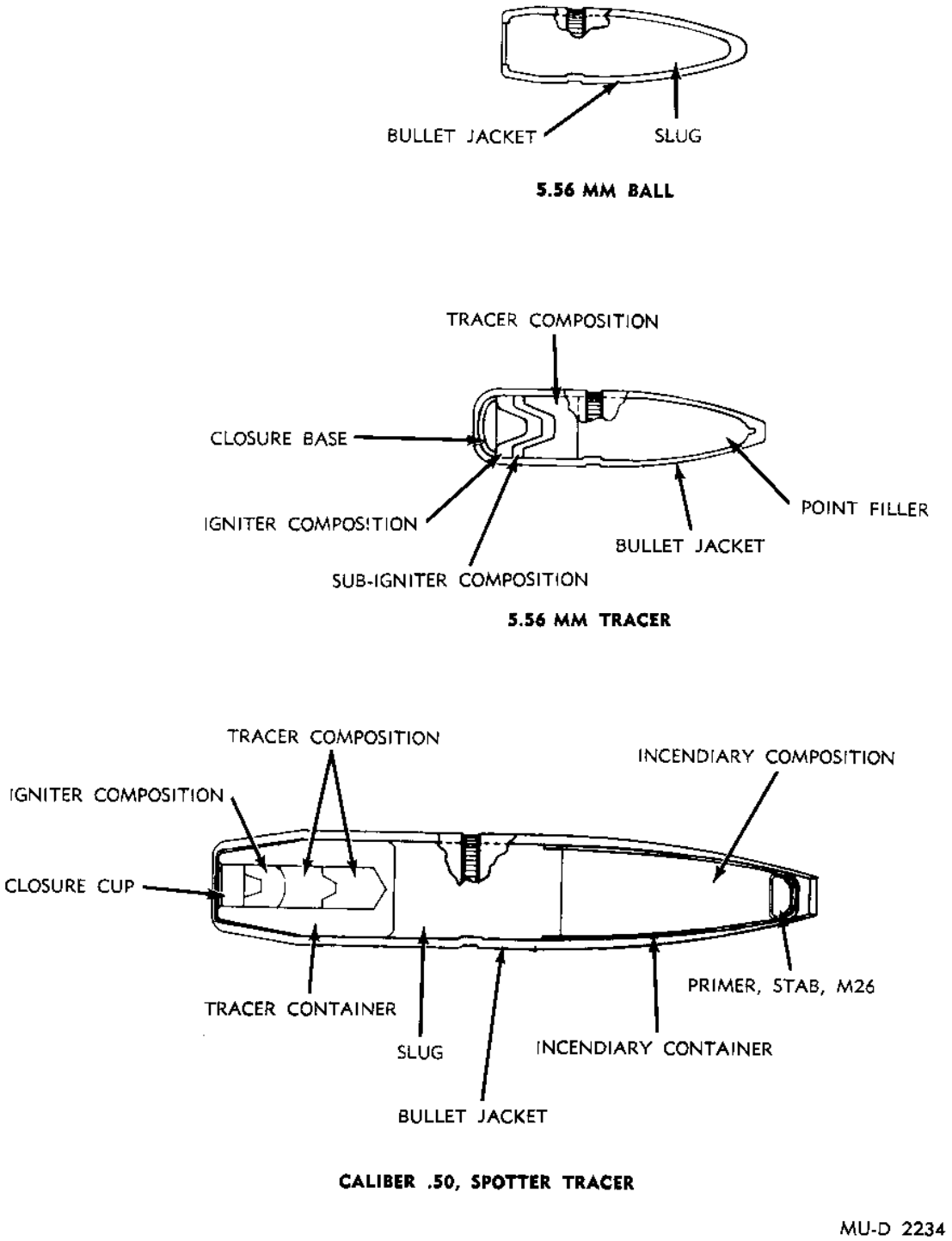


Figure 3. 5.56mm and caliber .50 spotter tracer bullets (sectioned).

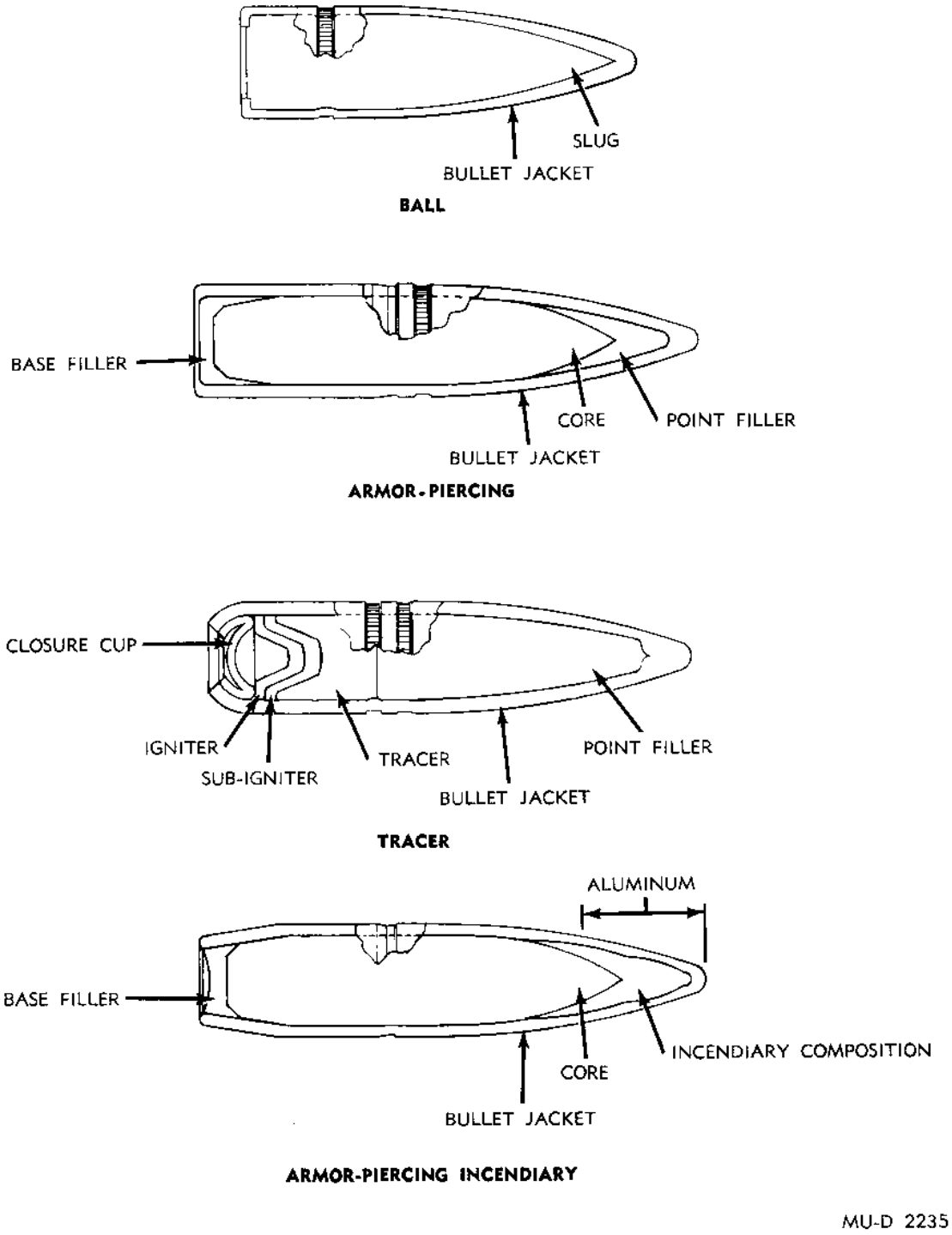


Figure 4. Caliber .30 bullets (sectional).

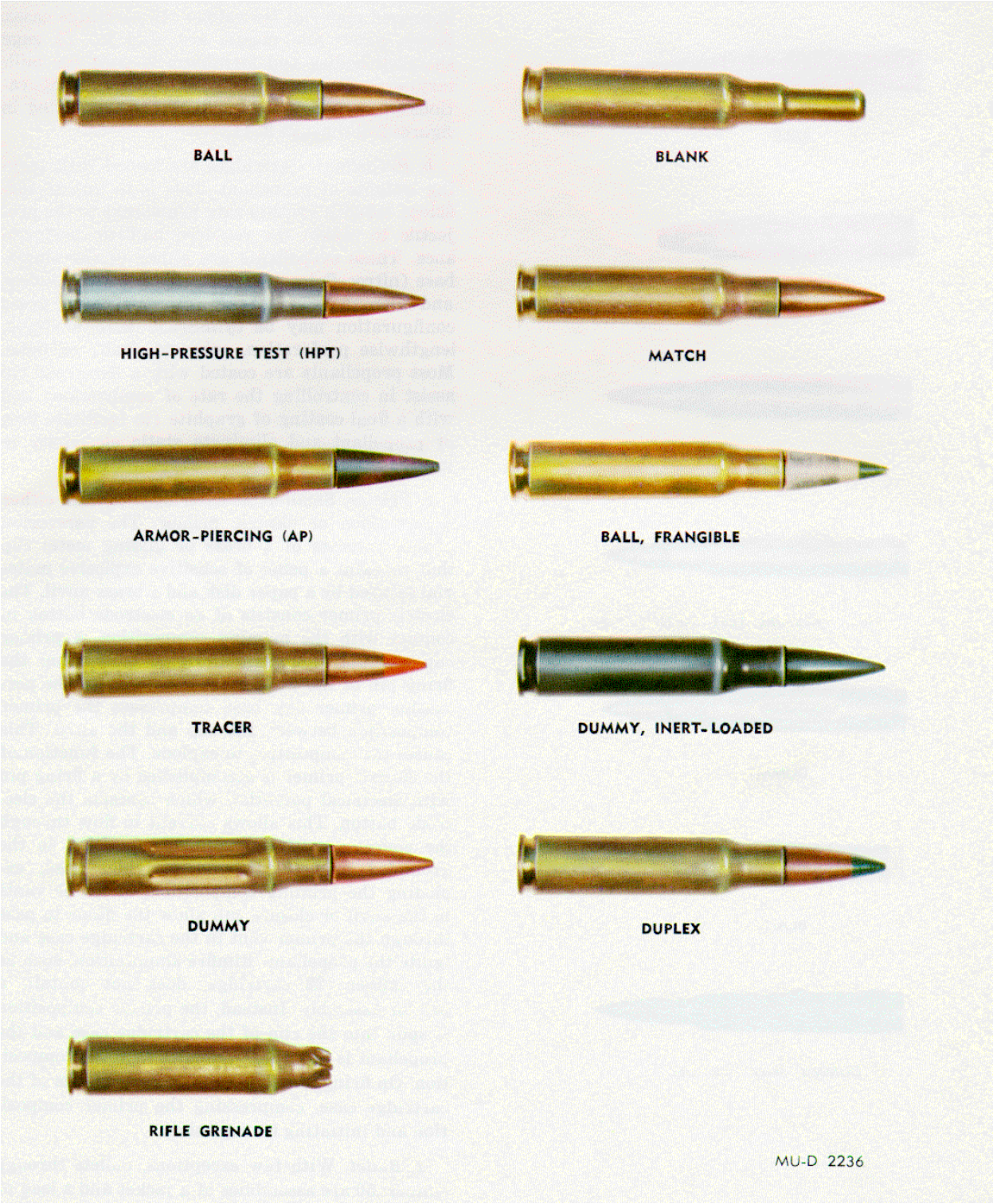


Figure 5. 7.62mm cartridges

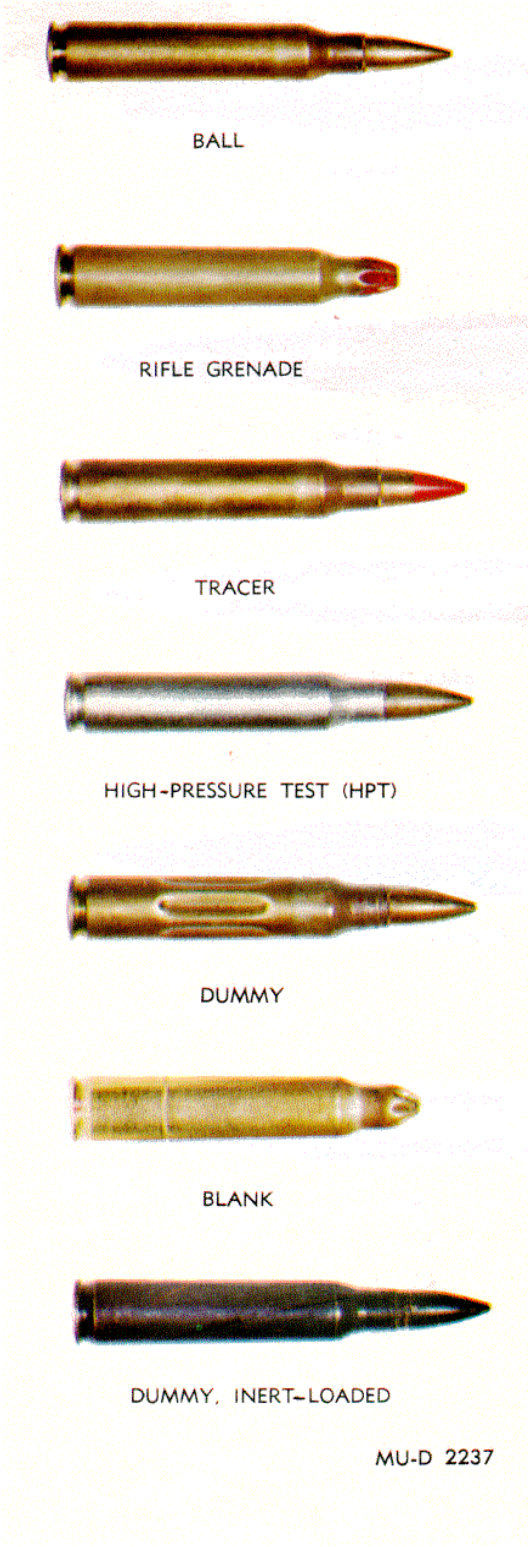


Figure 6. 5.56mm cartridges

Propellant. Cartridges are loaded with varying weights of propellant. This is to impart sufficient velocity (within safe pressures) to the projectile to obtain the required ballistic performance. These propellants are either of the single-base (nitrocellulose) or double-base (nitrocellulose and nitroglycerine) type. The propellant grain configuration may be cylindrical with a single, lengthwise perforation, spheroid (ball) or flake. Most propellants are coated with a deterrent (to assist in controlling the rate of combustion) and with a final coating of graphite (to facilitate flow of propellant and eliminate static electricity in loading cartridges).

Primer. Small-arms cartridges contain either a percussion or electric primer. The percussion primer consists of a brass or gilding metal cup that contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil. The electric primer consists of an electrode button in contact with the priming composition, a primer cup assembly and insulator. A blow from the firing pin of the weapon on the center of the percussion primer cup base compresses the primer composition between the cup and the anvil. This causes the composition to explode. The function of the electric primer is accomplished by a firing pin with electrical potential, which contacts the electrode button. This allows current to flow through the energy-sensitive priming composition to the grounded primer cup and cartridge case, exploding the priming composition. Holes or vents in the anvil or closure cup allow the flame to pass through the primer vent in the cartridge case and ignite the propellant. Rimfire ammunition, such as the caliber .22 cartridge, does not contain a primer assembly. Instead, the primer composition is spun into the rim of the cartridge case and the propellant is in intimate contact with the composition. On firing, the firing pin strikes the rim of the cartridge case, compressing the primer composition and initiating its explosion.

Bullet. With few exceptions, bullets through caliber .50 are assemblies of a jacket and a lead or

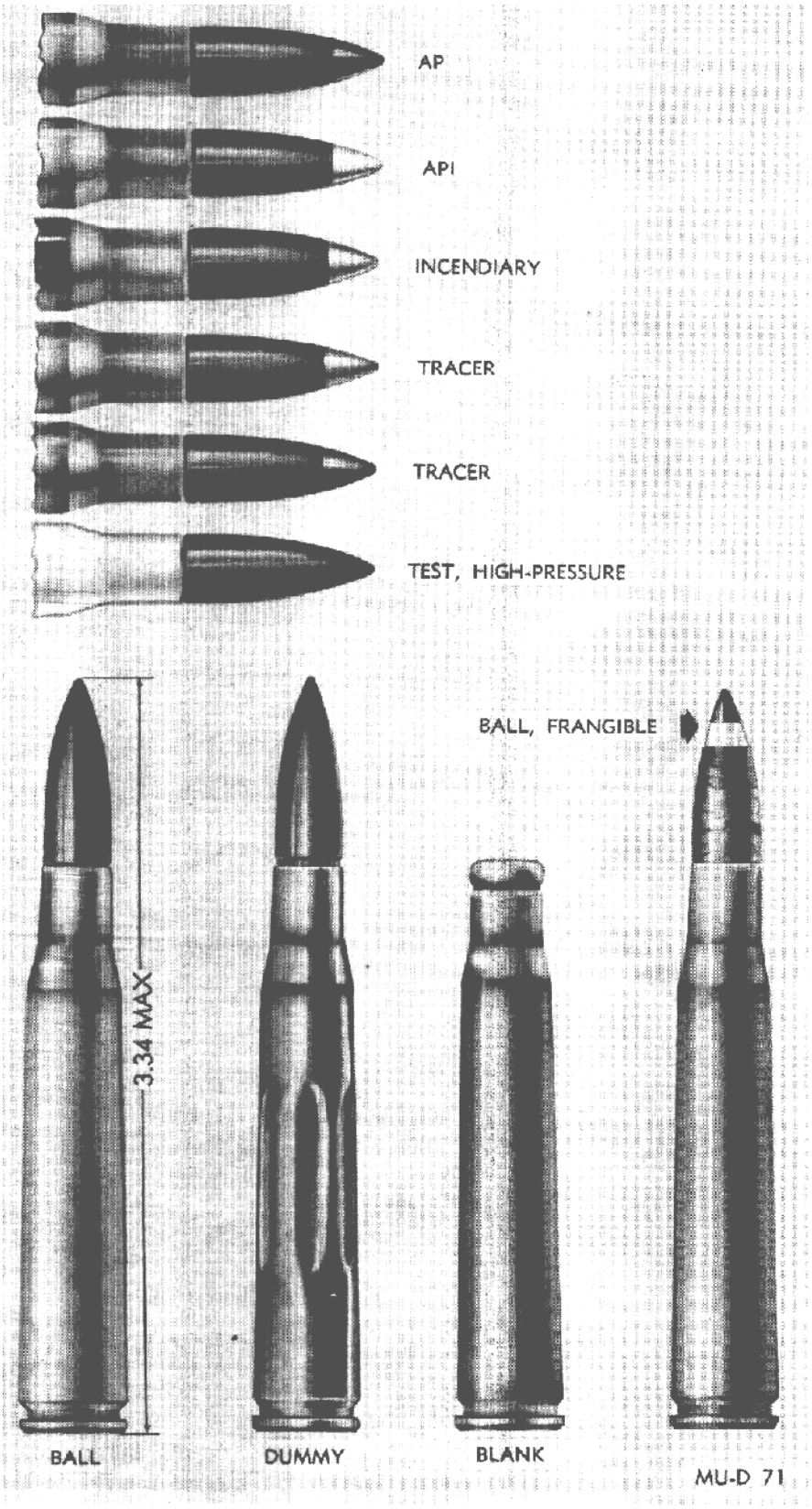


Figure 7. Caliber .30 cartridges

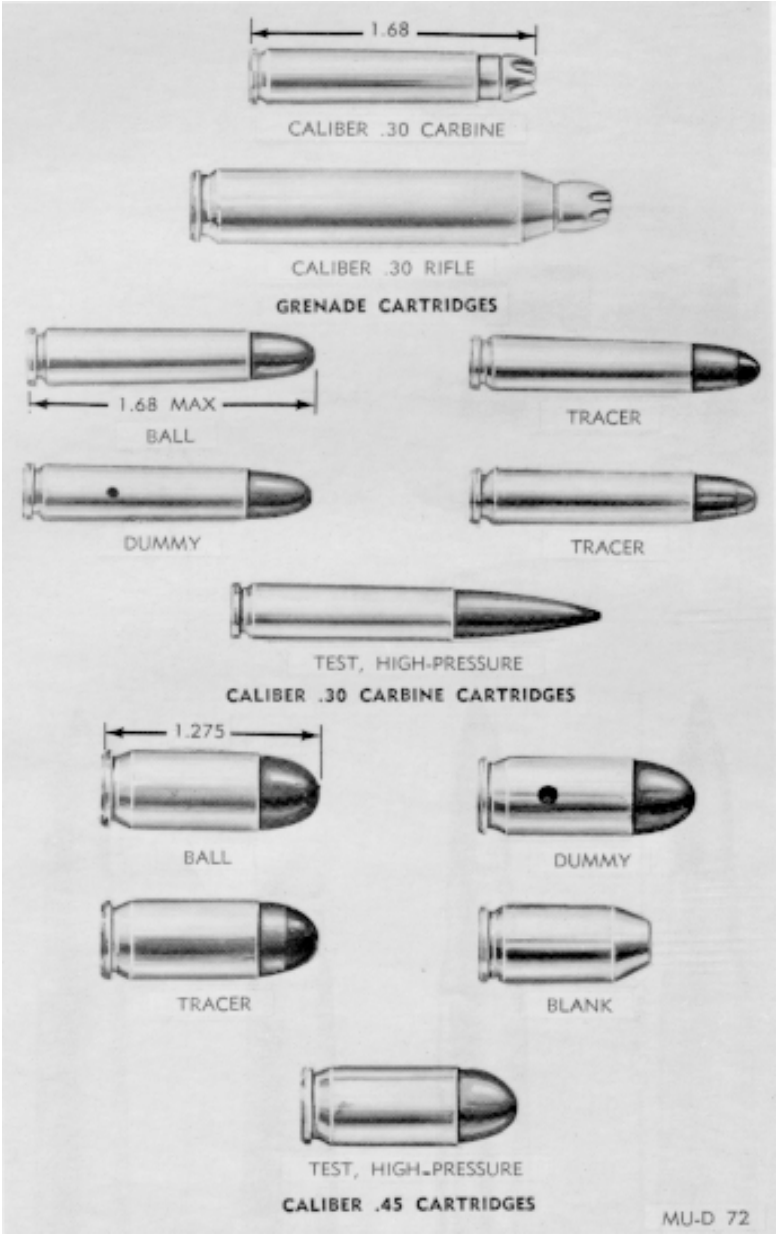


Figure 8. Caliber .30 carbine and caliber .45 cartridges

steel core. They may contain other components or chemicals which provide the terminal ballistic characteristics of the bullet type. The bullet jacket may be either gliding metal, gliding-metal clad steel, or copper plated steel. Caliber .30 and 7.62mm frangible bullets are molded of powdered lead and a friable plastic which pulverizes into dust upon impact with the target. The pellets used in the shotgun shells are spheres of lead alloys varying from 0.08 inch to 0.33 inch in diameter

Figure 9. Caliber .50 cartridges

Ball Cartridge. The ball cartridge is intended for use in rifles, carbines, pistols, revolvers and/or machineguns against personnel and unarmored targets. The bullet, as designed for general purpose combat and training requirements, normally consists of a metal jacket and a lead slug. Caliber .60 ball bullet and 7.62-mm, ball M59 bullet contain soft steel cores.

Tracer Cartridge. By means of a trail of flame and smoke, the tracer cartridge is intended to permit visible observation of the bullet's in-flight path or trajectory and the point of impact. It is used primarily to observe the line of fire. It may also be used to pinpoint enemy targets to ignite flammable materials and for signaling purposes. The tracer element consists of a compressed, flammable, pyrotechnic composition in the base of the bullet. This composition is ignited by the propellant when the cartridge is fired. In flight, the bullet emits a bright flame which is visible to the gunner. Trace burnout occurs at a range between 400 and 1,600 yards, depending upon the caliber of ammunition.

Match Cartridge. The match cartridge is used in National and International Match Shooting competitions. The bullet consists of a gliding-metal jacket over a lead slug. The cartridges are identified on the head face with the designation NM (National Match) or Match.

Armor-Piercing Cartridges. The armor-piercing cartridge is intended for use in machine-guns or rifles against personnel and light armored and unarmored targets, concrete shelters, and similar bullet-resisting targets. The bullet consists of a metal jacket and a hardened steel-alloy core. In addition, it may have a base filler and/or a point filler of lead.

Armor-Piercing-Incendiary Cartridge. The armor-piercing-incendiary cartridge is used in rifles or machineguns as a single combination cartridge in lieu of separate armor-piercing and incendiary cartridges. The bullet is similar to the armor-piercing bullet, except that the point filler is incendiary mixture instead of lead. Upon impact with the target, the incendiary mixture burst into flame and ignites flammable material.

Armor-Piercing-Incendiary Tracer Cartridge. The bullet of the armor-piercing- incendiary-tracer cartridge combines the features of the armor-piercing, incendiary, and tracer bullets and may be used to replace those cartridges. The bullet consists of a hard steel core with compressed pyrotechnic mixture in the cavity in the base of the core. The core is covered by a gilding-metal jacket with incendiary mixture between the core point and jacket. This cartridge is for use in caliber .50 weapons only.

Duplex Cartridge. The duplex cartridge contains two special ball type bullets in tandem. The front bullet is positioned partially in the case neck, similarly to a standard ball bullet. The rear bullet, positioned completely within the case, is held in position by a compressed propellant charge. The base of the rear bullet is angled so that in flight, it follows a path slightly dispersed from that of the front bullet

Spotter-Tracer Cartridge. The spotter-tracer cartridge is intended for use in coaxially mounted caliber .50 spotting rifles. The bullet trajectory closely approximates that of 106mm projectiles. Thus, this cartridge serves as a fire control device to verify weapon sight settings before firing 106mm weapons. The bullet contains an impact detonator and incendiary composition which identify the point of impact by flash and smoke.

Blank Cartridge. The blank cartridge is distinguished by absence of a bullet. It is used for simulated fire, in training maneuvers, and for saluting purposes. It is fired in rifles and machineguns equipped with blank firing attachments.

Grenade Cartridge. The grenade cartridge is used to propel rifle grenades and ground signals from launchers attached to rifles or carbines. All rifle grenade cartridges are distinguished by the

rose petal (rosette crimp) closure of the case mouth.

Frangible Cartridge. The caliber .30 frangible cartridge, designed for aerial target training purposes, is also used in rifles and machineguns for target shooting. Caliber .30 and 7.62mm frangible cartridges are used in tank machineguns, firing single shot, for training in tank gunnery. At its normal velocity, the bullet, which is composed of powdered lead and friable plastic, will completely disintegrate upon striking a 3/16-inch aluminum alloy plate at 100 yards from the muzzle of the gun. These cartridges are not to be used on any but well ventilated indoor ranges to preclude buildup of toxic bullet dust. Inhalation of bullet dust may be injurious to health

Incendiary Cartridge. The incendiary cartridge was designed for aircraft and ground weapon use to ignite combustible targets (e.g., vehicular and aircraft fuel tanks). The bullet contains a compressed incendiary mixture which ignites upon impact with the target. The incendiary cartridge has been superseded by the API and APIT cartridges because of their improved terminal ballistic effects

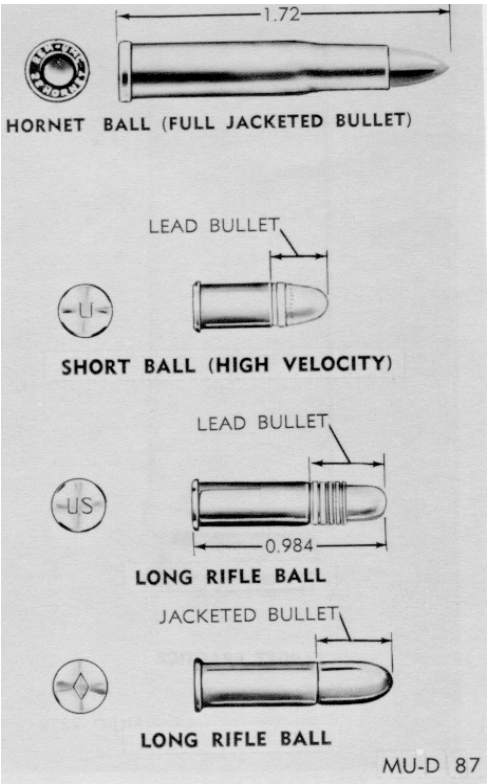


Figure 10. Caliber .22 cartridges

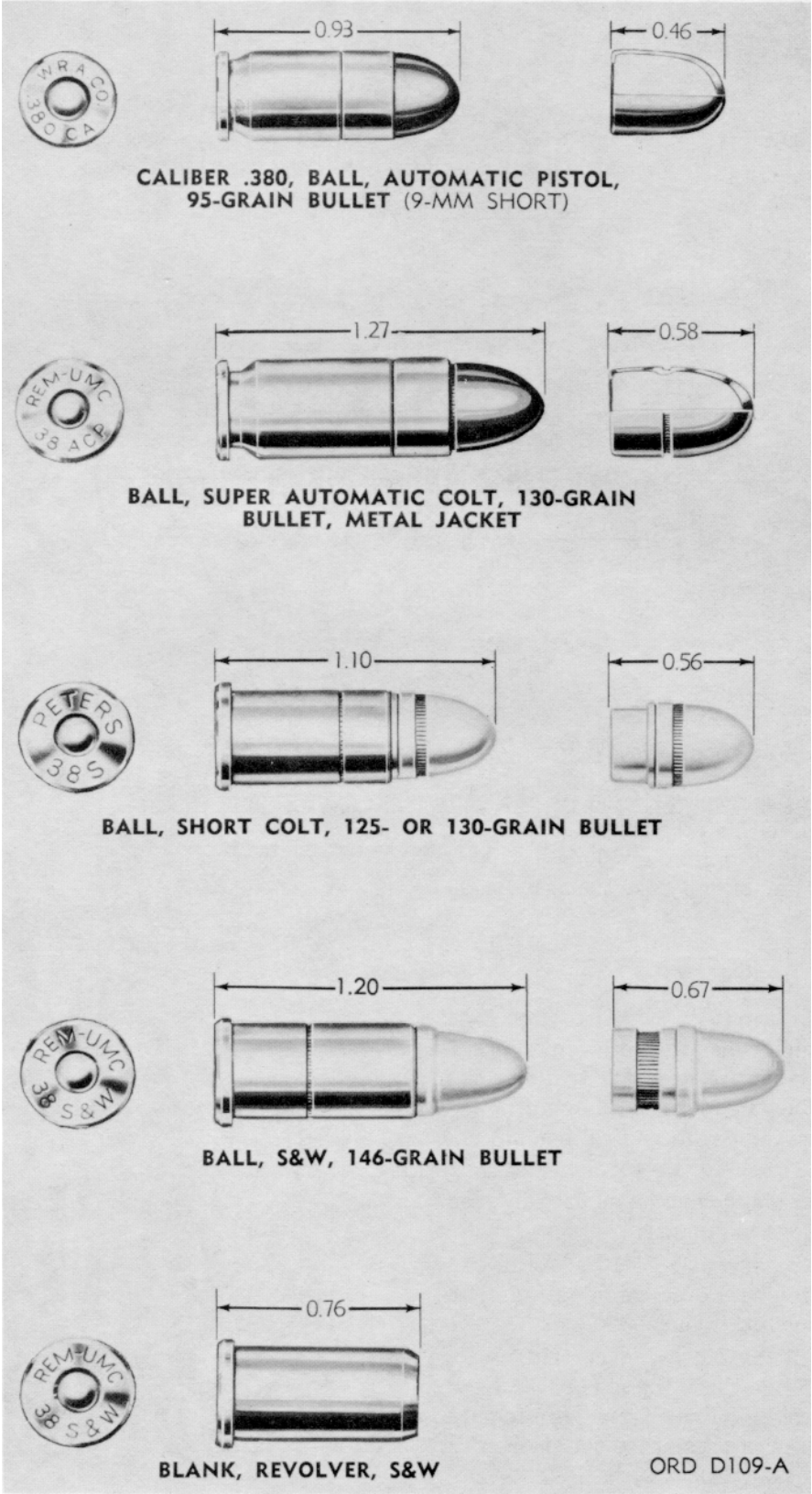


Figure 11. Caliber .38 cartridges.

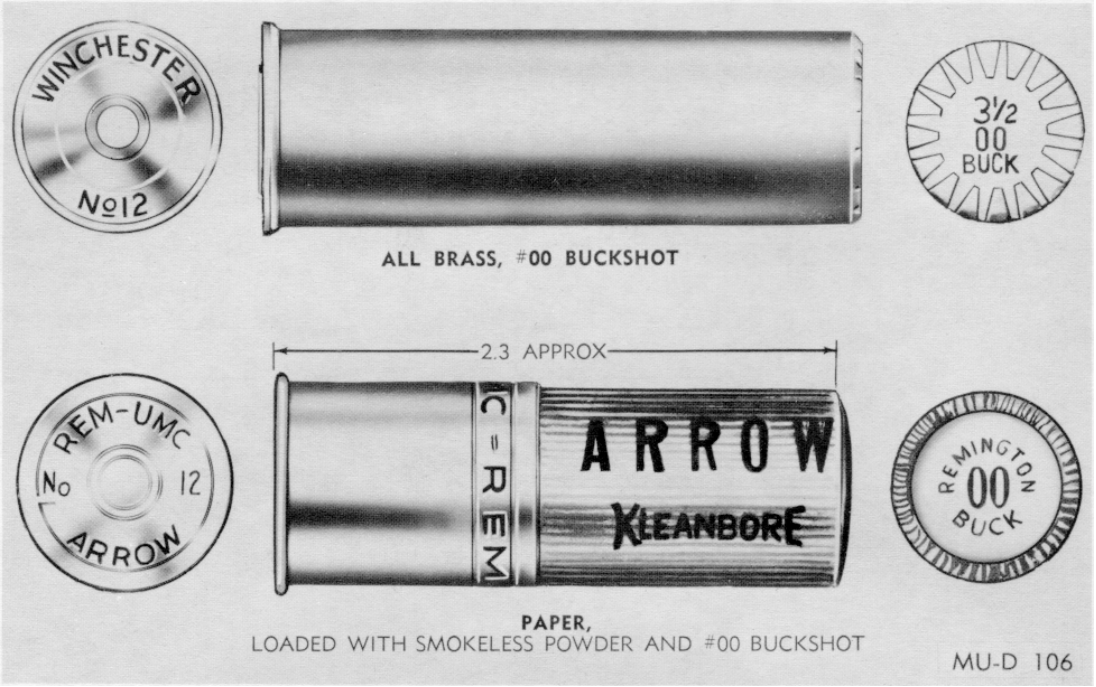


Figure 12. 12 gage shotgun shells.

Target-Practice Cartridge. The 20mm target-practice cartridge is the conventional steel shell with steel nose plug. It is used primarily for training purposes. This is not a combat cartridge; hence, no fuze is used in the assembly.

Special Purpose Cartridge.

Cartridges of various calibers. (fig. 10 through 12), which consist of different types of projectiles and bullets, are used for training and special purposes. They include the following:

(1) Caliber .22 long rifle and caliber .38 and .45 wad-cutter cartridge for target shooting.

(2) Caliber .45 blank cartridges fired in exercises to condition dogs to gun fire.

(3) Caliber .22 hornet and .410 shotgun cartridges for firing in Air Force combination (survival) weapons for hunting purposes.

(4) Caliber.45 line-throwing cartridges for firing in caliber .45 line-throwing rifles. The Navy uses these for throwing lines from ship-to-ship. The Army Signal Corps uses these for projecting signal wires over elevated terrain

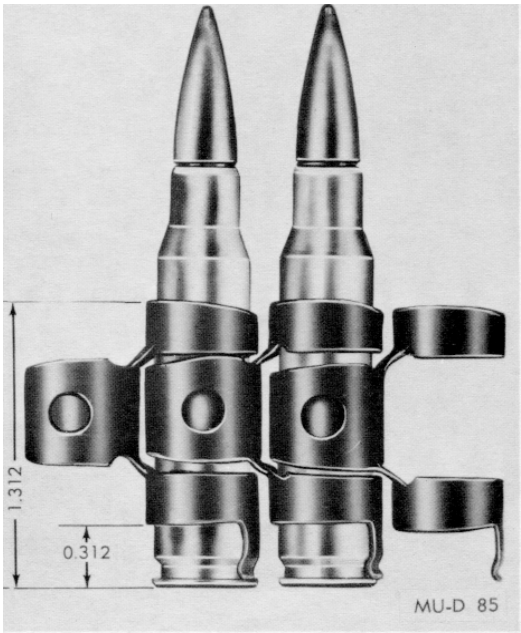


Figure 13. Linked 7.62-mm cartridge

(5) Shotshells containing the designated shot sizes as required for the following:

(a) 12 gage #00 Buck for guard duty
(b) 12 gage #4 Buck for guerrilla purposes.
(c) 12 gage #6, 7½ and 8 shot for clay target shooting for training purposes.
(d) .410 gage #7 shot for caliber .22/.410 survival weapons maintained by aircraft.

Special purpose cartridges. These also include the following types of military cartridges:
(1) Dummy. The dummy cartridge is used for practice in loading weapons and simulated firing to detect flinching of personnel when firing weapons. It consists of a cartridge case and a ball bullet. Cartridge identification is by means of holes through the side of the case or longitudinal corrugations in the case and by the empty primer pocket.
(2) Dummy inert-loaded. This cartridge consists of a cartridge case, a ball bullet and inert granular material in the case simulating the weight and balance of a live cartridge. The exterior of the cartridge is identified by a black chemical finish and by the absence of a primer. This cartridge is used by installations for testing weapon function, linkage and feed chutes.
(3) High-pressure test. High-pressure test ammunition is specially loaded to produce pressures substantially in excess of the maximum average or individual pressures of the corresponding service cartridge. This cartridge is not for field issue. It is used only by armorers and weapons mechanics for proof firing of weapons (rifles, pistols, machine guns) at place of manufacture, test and repair. Because of excessive pressures developed by this type of ammunition, and the potential danger involved in firing, proofing of weapons is conducted only by authorized personnel from fixed and shielded rests by means of a lanyard or other remote control methods.

Metallic Links and Clip.

Metallic links. (fig. 13 and 14) are used with caliber .30, caliber .50, 5.56mm, 7.62mm and 20mm cartridges in machine guns. The links are made of steel, surface treated for rust prevention. They are used to assemble cartridges into linked belts of 100 to 750 cartridges per belt. The links must meet specific test and dimension requirements to assure satisfactory ammunition feed and functioning in the machine gun under all training and combat service conditions.

Different configurations of cartridge clips. These permit unitized packages of ammunition. This facilitates transfer of cartridges to appropriate magazines for caliber .30, 7.62mm and 5.56mm rifles. The caliber .30 eight-round clip feeds eight cartridges as a unit into the receiver of the rifle. The caliber .45 clip feeds three cartridges as a unit into the revolver cylinder. Five-round and eight-round clips are used with caliber .30 cartridges; five-round clips with 7.62mm cartridges; ten- round clips with caliber .30 carbine and 5.56-mm cartridges; and three-round clips with caliber .45 cartridges

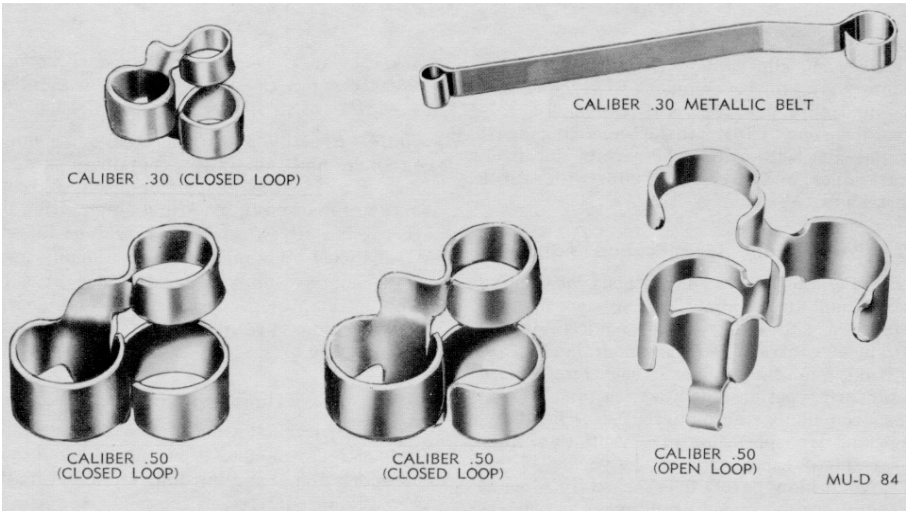


Figure 14. *Links for*

caliber .30 and caliber .50 ammunition

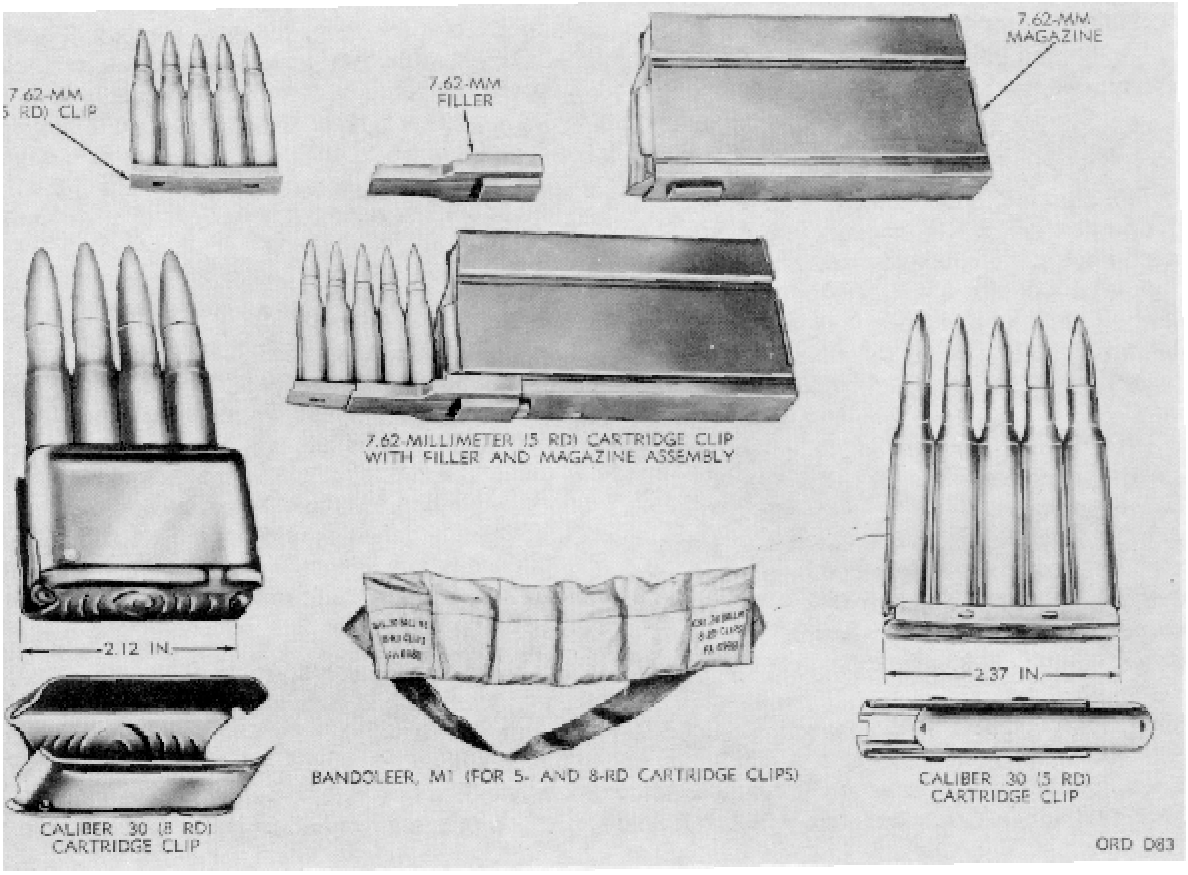


Figure 15. Cartridges in 20-round cartons in ammunition box

Packing and Identification Marking.

Packing. These containers and methods for packing military small-arms ammunition are specified in drawings, specifications or, as required, in the procurement contract. Military containers presently being manufactured have been limited to a few standard types designed to withstand all conditions commonly encountered in handling, storage and transportation of ammunition. Military cartridges, except 20mm, are packed in metallic ammunition boxes, over- packed in wooden wire-bound crates. Twenty millimeter cartridges are packed in ammunition boxes only. When commercial cartridges are not packed in a military pack, they are packed in accordance with standard commercial practices.

Identification Markings. Each outer shipping container and all inner containers are fully marked to identify the ammunition. Wire- bound boxes are marked in black and ammunition boxes are painted olive drab, with markings in yellow. When linked ammunition is functionally packed, component lot numbers are replaced by a functional lot number. Typical packing and identification markings are illustrated in figures 15 and 16.

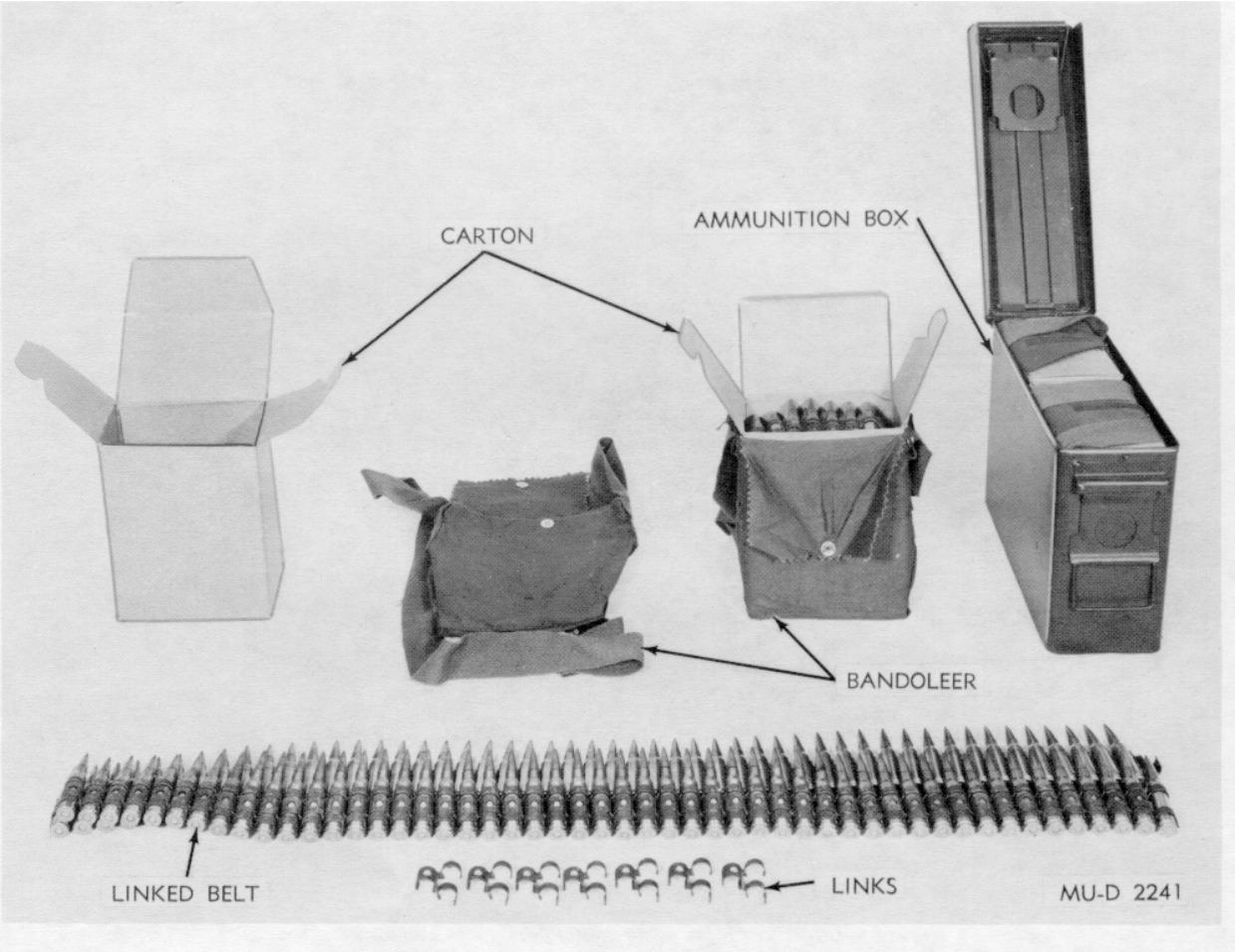


Figure 16. Cartridges, link belt, cartons, bandoleers and ammunition box.

Care, Handling and Preservation.
Small-arms ammunition is comparatively safe to handle. It is packed to withstand transportation, handling and storage conditions normally encountered in the field. However, consideration should be given to general handling precautions pertaining to ammunition and explosives.

Reference: This data is a reprint of Chapter 3, TM 9-1300-200, *Ammunition General, October 1969,* excluding information on 20mm and 30mm ammunition.

CARTRIDGE, CALIBER .50

General. In general, a small-arms cartridge is identified as an assembly of a cartridge case, primer, a quantity of propellant within the cartridge case, and a bullet or projectile. Blank cartridges are sealed with paper closure disks in lieu of bullets. Dummy cartridges are composed of a cartridge case and a bullet.

Case. Although steel, aluminum, zinc and plastic materials have been used experimentally, brass, a composition of 70 % copper and 30% zinc, is the most commonly used material for cartridge cases.

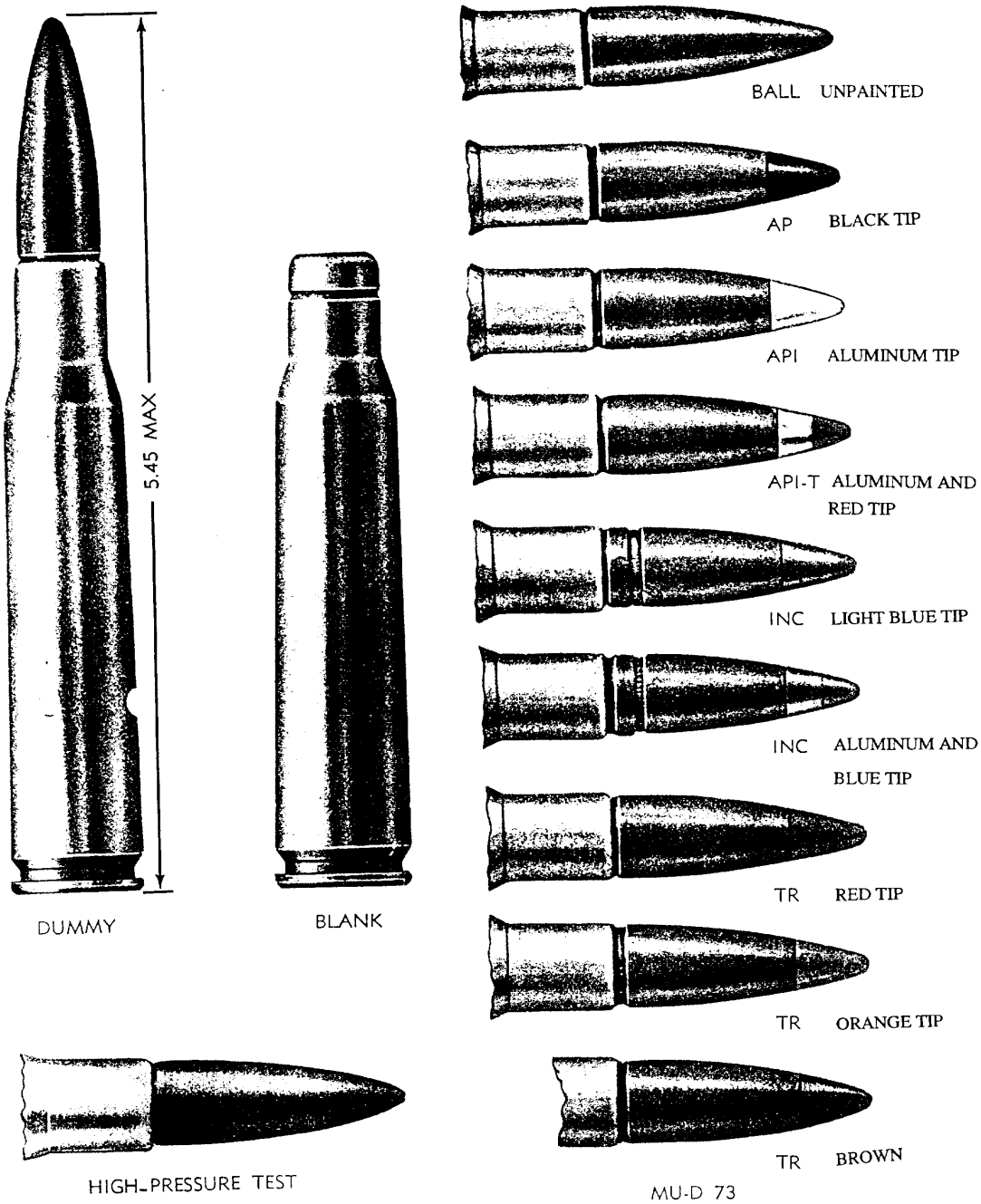
Propellant. Cartridges are loaded with varying weights of propellant. This is to impart sufficient velocity to the projectile to obtain the required ballistic performance. These propellants are either of the single base (nitrocellulose) or double base (nitrocellulose & nitroglycerine) type. The propellant grain configuration may be cylindrical with a single, lengthwise perforation, spheroid (ball) or flake. Most propellants are coated with a deterrent (to assist in controlling the rate of combustion) and with a final coating of graphite (to facilitate flow of propellant and eliminate static electricity in loading cartridges).

Primer. Cartridges contain percussion primer. The percussion primer of brass or gliding metal cup that contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil.

Bullets.

> *Ball.* The bullet consists of three parts: a gliding metal jacket, a soft steel core, and a point filler of antimony-lead alloy. The bullet is unpainted.
>
> *Tracer.* The bullet is the similar to the M1 with the addition of a tracer and igniter composition. The tip is painted orange.
>
> *Blank.* No bullet
>
> *Incendiary.* The bullet consists of four parts: a gliding metal jacket, a hollow steel cylindric al core, an incendiary composition, and a lead base filler. The tip is painted light blue.
>
> *Armor-Piercing.* The bullet consists of three parts: a gliding metal jacket, a tungsten-chrome steel core, and a point filler of lead hardened with antimony. The tip is painted black.
>
> *Armor-Piercing Incendiary.* The bullet is similar to the armor-piercing bullet, except that the point filler is incendiary mixture instead of lead. The tip is painted aluminum.
>
> *Armor-Piercing Incendiary Tracer.* The bullet consists of a hard steel core with compressed pyrotechnic mixture in the cavity in the base of the core, The core is covered by a gliding-metal jacket with incendiary mixture between the core point and jacket. The tip is painted aluminum and red
>
> *Dummy.* The complete cartridge is inert. The cartridge case is tin-coated, has three holes drilled in the side and an empty primer pocket. The bullet may be tin-coated.
>
> *High Pressure Test.* The cartridge case is distinguished from other cartridges by the tinned cartridge case. The bullet consists of a gliding metal jacket and a core made up of 2 slugs, a front and rear slug.

References: TM 9-1900, *Ammunition General*, June 1956; TM 43-0001-27, *Army Ammunition Data Sheets*, Small Arms, June 1981


5.45 MAX
DUMMY
BLANK
BALL UNPAINTED
AP BLACK TIP
API ALUMINUM TIP
API-T ALUMINUM AND RED TIP
INC LIGHT BLUE TIP
INC ALUMINUM AND BLUE TIP
TR RED TIP
TR ORANGE TIP
TR BROWN
HIGH-PRESSURE TEST
MU-D 73

CARTRIDGE, 20mm, BALL, M55A1

Guns. The 20-mm guns M39 and M39A1 are automatic aircraft cannons for use against aircraft, ground, or sea-borne targets. These guns are gas-operated, belt-fed, electrically fired weapons having a high rate of fire. The cartridge is a training round intended as a substitute for a service round to be used in target practice.

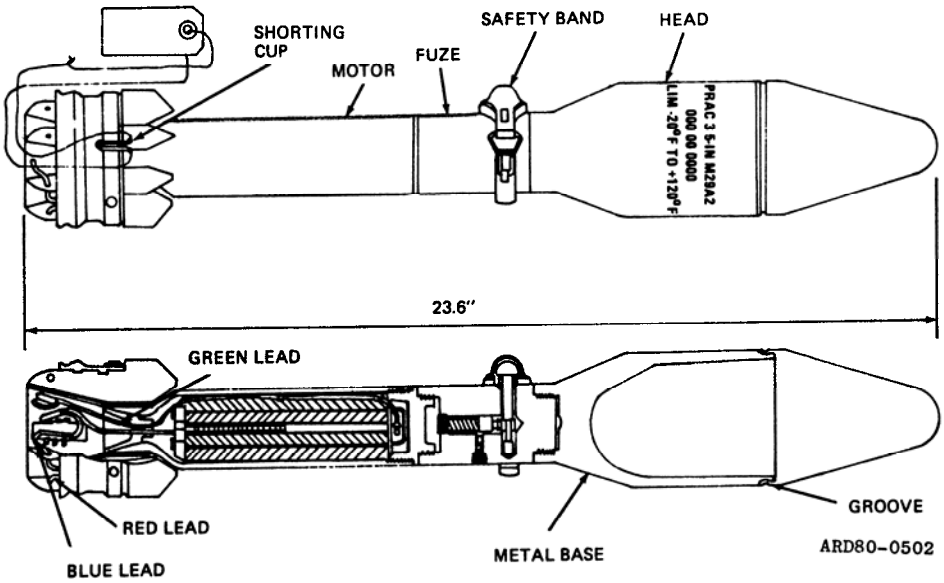
General. This cartridge is for use in practice firing; prior to standardization of the basic model, this type of cartridge was referred to as a target practice cartridge. The nomenclature has been changed to "ball" in order to have the designation conform to the small arms system. The projectile of this cartridge consists of body, nose, and rotating band. The body is made of steel; it is hollow and contains no filler. The nose, which may be assembled to the body with screw threads and a thermosetting resin or keyed to the body by swaging, is made of aluminum alloy and is solid. The cartridge case M103 loaded with approximately 0.084 pound of double-base propellant and the electric primer M52A3B1 are used in the cartridge.

Tabulated Data:

Weight of complete round ..... 0.56 pound
Length of projectile, as fired ..... 0.22 inch
Length of complete round ..... 6.165 inch (max)
Length of projectile ..... 2.98 inch
Length of cartridge case ..... 4.015 inch
Width of rotating band ..... 0.203 inch
Color ..... Black with white markings

Reference: TM 9-1901-1, *Ammunition for Aircraft Guns*, December 1957

ROCKET, PRACTICE, 3.5-INCH, M29

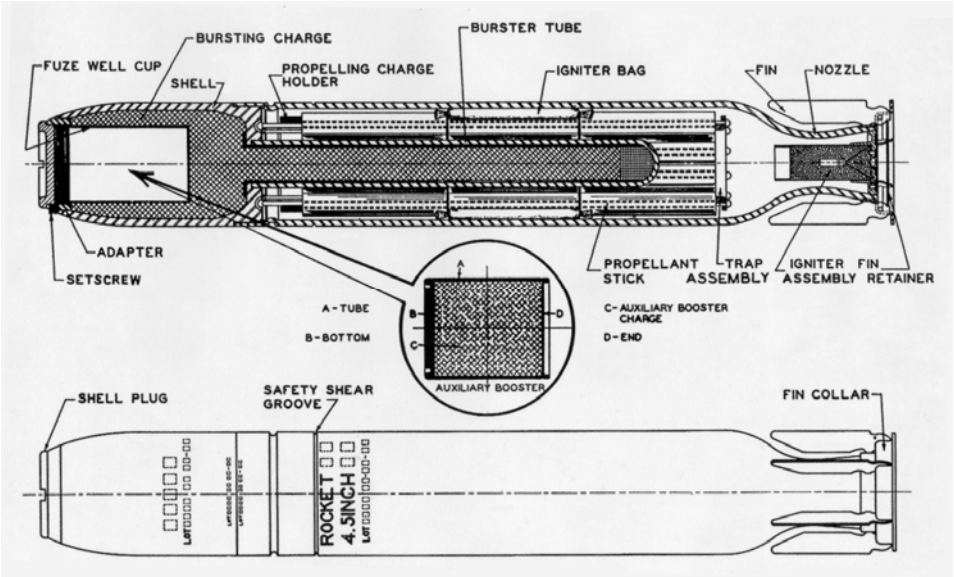


Description. This rocket generally is similar to the M28 High-explosive rocket except that it is provided with an inert bursting charge and the inert dummy fuze M405. The head is of light steel construction. It is cylindrical in shape, 3.5 inches in diameter, with a conically shaped ogive, and tapers to 2 inches in diameter at the rear. The rear of the head is threaded internally for attachment of dummy fuze M405. The rear of the fuze is threaded internally to receive the motor. The inert charge (plaster of paris and stearic acid) weighs 1.82 pounds. The motor consists of a body, closure, trap and spacer assembly, propellant, igniter with electric squib (cap) and leads, nozzle closure (blow out plug), and nozzle and fin assembly. Other characteristics are the same as for the M28.

Over-all Length ..... 23.67 inch
Diameter ..... 3.5 inch
Weight ..... 8.61 pound
Filler ..... Plaster of paris/stearic acid
Propellant ..... M7 propellant powder
Propellant weight ..... 12 grains
Igniter M20

Reference: TM 9-1950, *Rockets*, July 1950, TM 43-0001-30, *Army Data Sheets, Rockets, Rockets Systems, Rocket fuzes, Rocket Motors*, December 1981

ROCKET, HE 4.5 INCH, M8



General. This type of rocket is cylindrical except for the ogival nose and nozzle constriction at the tail. It is issued as unfuzed complete rounds.

Head. The head consists of a shell body and a burster tube. The burster tube extends about 15 inches from the base of the shell body into the motor. In addition to increasing the explosive capacity of the head, the burster tube has the advantage of using the motor as a n additional source of fragments. The bursting charge consists of 4.3 pounds of cast TNT.

Fuze. The standard impact fuze for the service rocket is a point-detonating rocket fuze M4A2 with auxiliary booster M1A1.

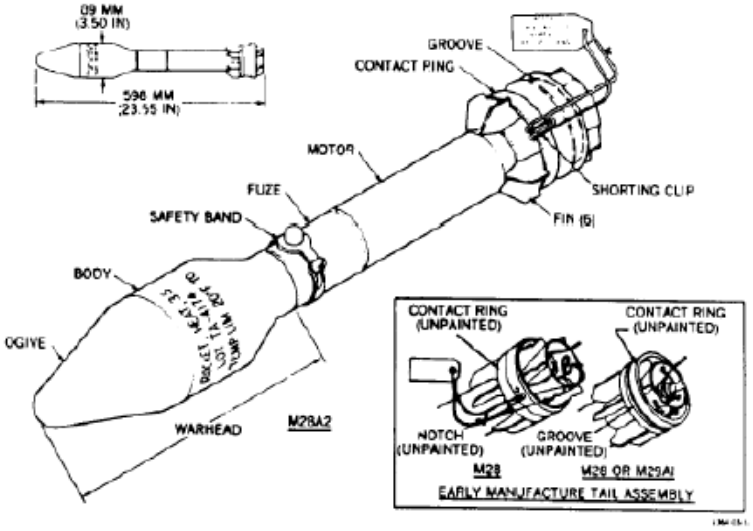
Motor. The basic components of the motor are the motor tube, propellant, the propellant support, and the igniter with electric squib and leads, nozzle closure, and nozzle and fin assembly.

Over-all length.....31.15 inches
Diameter.....4.5 inches
Weight.....38.1 pounds
Filler.....cast TNT
Propellant.....Double-base powder
Fuze.....M42A2, PD
Propellant.....Double-base powder
Propellant weight.....4.65 pounds
Igniter.....Electric Squib

Reference: TM 9-1950, *Rockets*, July 1945, OS 9-69 *Ordnance School Text, Rockets and Launchers, all types*, February 1944

Ordnance Technical Data Sheet

U.S. ROCKET, 3.5-INCH, HEAT, M28 & M28A2



Nomenclature:	U.S. ROCKET WARHEAD, 3.5-INCH SMOKE, HEAT, M28
Ordnance Family:	Rockets
DODIC:	Not Provided
Filler:	*Composition B
Filler weight:	853g
Item weight:	4.10 kg
Diameter:	89.00 mm (3.5 in)
Length:	598.00 mm (23.15 in)
Maximum Range:	1200 meters
Fuze:	M404A1 base detonating (BD)

Usage: These are ground-fired fixed-fin rockets, which use a setback-armed, base-detonating (BD), nondelay, impact-inertia-fired fuzes, and a high-explosive antitank (HEAT) shaped-charge warhead.

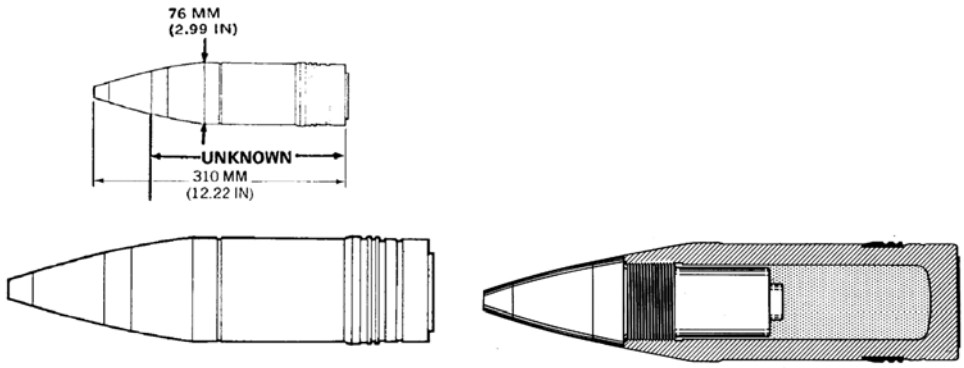
Description: The fuzes are painted olive drab or black, and have the designation and loading information stamped in the body. The M28 warhead is olive drab with yellow markings; the M28A2 may have an olive drab or black warhead with yellow markings. Some M28A2 warheads with fuzes may be inserted and painted blue. The rocket motor may be brown or olive drab with a brown band. The warhead and motor are steel, the fuze and fins are aluminum, and the contact ring is copper.

*Composition B (comp B) is a (59/40/1) mixture of RDX, TNT, and beeswax. Its color may vary from dirty white, light yellow to brownish yellow. It is less sensitive than tetryl but more sensitive than TNT. It is intermediate between TNT and RDX with respect to sensitivity and initiation. It is only inferior to tritonal and torpex with respect to blast

effect. Composition B is an authorized filling for Army-Navy (AN) standard aircraft bombs, mines, torpedoes, antitank artillery shells (76- and 105-millimeter), demolition charges, and in rockets. Composition B containing 60 percent RDX and 40 percent TNT, exclusive of wax, is known as composition B-2, a nonstandard explosive. Because of its greater sensitivity to impact, composition B-2 is not as suitable as composition B for use in bombs.

Reference: ORDATA.

Ordnance Technical Data Sheet
3” Projectile, Mk 31 Mod 1



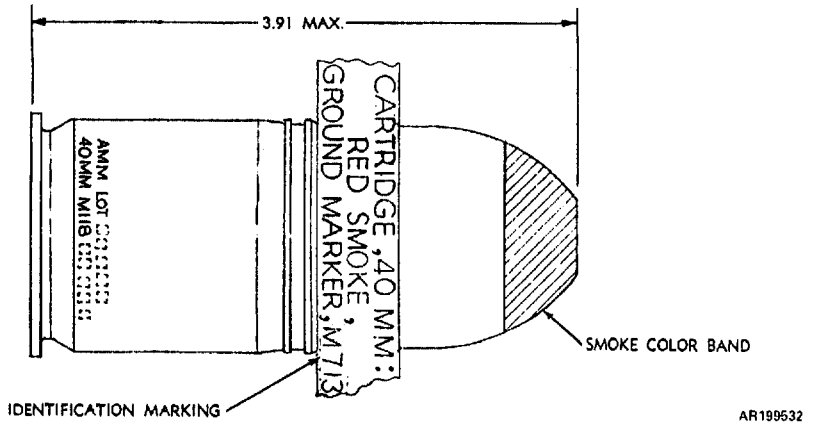
Nomenclature: **U.S. PROJECTILE, 3-IN, AA, MK 31 MOD 1**
Ordnance Family: Projectiles
DODIC:
Filler: Cast TNT
Filler weight: 0.24494 kg (0.54 lbs)
Item weight: 5.85 kg (12.90 lbs)
Diameter: 75.69 mm (2.98 in)
Length: 310.39 mm (12.22 in)
Maximum Range: Not provided
Fuze: Various (see below)

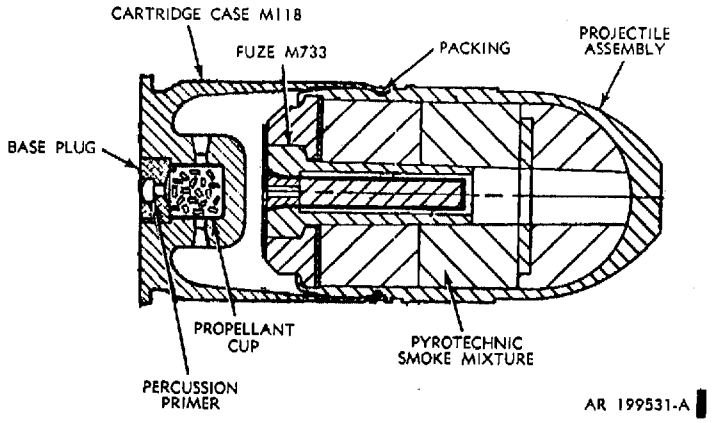
Usage: 3-inch A.A. Mk 31 Mod 1 are used in 3"/50.

Description: Its over-all length, with nose fuze is 12.22 inches; without nose fuze is 8.50 inches. The diameter of the base is 2.98 inches. The distance, base to band is 1.35 inches. The width of the band is 1.0 inch and the diameter at bourrelet is 2.985 inches. This projectile is specially cavitized to receive V.T. fuzes and their auxiliary detonating fuzes. No other fuzes may be assembled. Since V.T. fuzing is employed, no tracer is assembled; instead, the base is solid, and a special sheet-steel base cover plate is welded on, 0.031 inch thick and 2.50 inches in diameter. This projectile replaces the original Mk 31 Mod 0, which has been recalled from service use. The Mod 0 was cavitized to receive the V.T. Fuze Mk 45 Mod 11, which differed from the Mod 12 by having a longer stem and has been declared unserviceable. The Mk 31s over-all color is green. The projectile is made of steel.

Reference: ORDATA II

CARTRIDGE, 40-MILLIMETER: GROUND MARKER RED SMOKE M713; GREEN SMOKE, M715; AND YELLOW SMOKE, M716





Type Classification:

Std LCC-A, MSR 09766018

Use:

These cartridges are used to provide aerial identification and location of troops on the ground and are designed to be fired from 40mm Grenade Launchers M79 and M203 (attached to the M16 series rifle).

Description:

The cartridges consist of a cartridge case, a projectile with pyrotechnic smoke payload, and a pyrotechnic impact fuze. The cartridge case is a dual-chambered aluminum container housing a brass propellant cup. The propellant cup is held in the case by a crimped base plug which provides a pressure-type waterproof seal. The base plug houses a percussion primer. The projectiles utilize a one-piece aluminum body-ogive and a steel base. The payload consists of a pyrotechnic smoke mixture pressed into the body-ogive with a cylindrical cavity in the center. The fuze is cemented to the base of the projectile and protrudes into the cylindrical cavity of the smoke mixture. The fuze is designed to arm at a minimum of 15 meters and a maximum of 45 meters from the muzzle of the weapon.

Functioning:

Upon firing the primer ignites the propelling charge. In turn, the projectile is accelerated down the launcher barrel where a spin of 3,750 rpm is imparted by the barrel rifling. A muzzle velocity of approximately 250 fps is attained. In addition to launching the projectile, the propellant gases ignite the first fire mixture of the fuze in the base of the projectile. The first fire mixture ignites a high-temperature transfer mixture contained in the steel cup. The transfer mixture burns during the first 15 meters of projectile flight. When the projectile is between 15 and 45 meters from the launcher muzzle, heat transfer through the steel cup ignites the delay mixture. Upon impact, the delay casing breaks and the burning portion flies forward out of the fuze support, contacting and igniting the pyrotechnic smoke mixture. Ignition of the smoke mixture

causes a buildup of pressure which dislodges the fuze support at the aft end of the projectile thus allowing smoke to be emitted at the aft end of the projectile. Projectile impact prior to the minimum arming distance (15 meters) results in a dud. Between 15 and 45 meters from the launcher muzzle, the fuze may or may not function on impact. In the event the fuze fails to function upon impact, the output mixture provided in the front end of the delay casing acts as a backup to the impact feature. When the flame reaches this point (8 to 10 seconds after launch) the output mixture flashes and ignites the smoke mixture. The difference among the models is the color of the smoke.

Tabulated Data:

Complete round:	
Type	Ground marker smoke
Weight	0.49 lb
Length	3.91 in.
Weapons used with	M79 M203 40mm grenade launchers (attached to M16 series rifle).
Projectile:	
Body material	Aluminum
Color	Light green w/black markings
Filler and weight	Smoke mixture, 75 g
Fuze	Impact pyrotechnic M733
Propelling charge:	
Cartridge case	M118
Propellant	M9, 330 mg
Primer	Percussion, FED 100
Performnce:	
Maximum range	400 m
Muzzle velocity	76 mps (250 fp)

Temperature Limits:

Firing:	
Lower limit	-45°F
Upper limit	+125°F
Storage:	
Lower limit	-65°F
Upper limit	+165°F
*Packing	22 round per metal box; 2 metal boxes per wire-bound wooden box
*Packing Box:	
Weight	45.9 lb
Dimenslons	14-5/8 x 12-13/16 x 9-1/8 in.
Cube	1.0 cu ft

*NOTE: See DOD Consolidated Ammunition Catalog for complete packing data including NSN's.

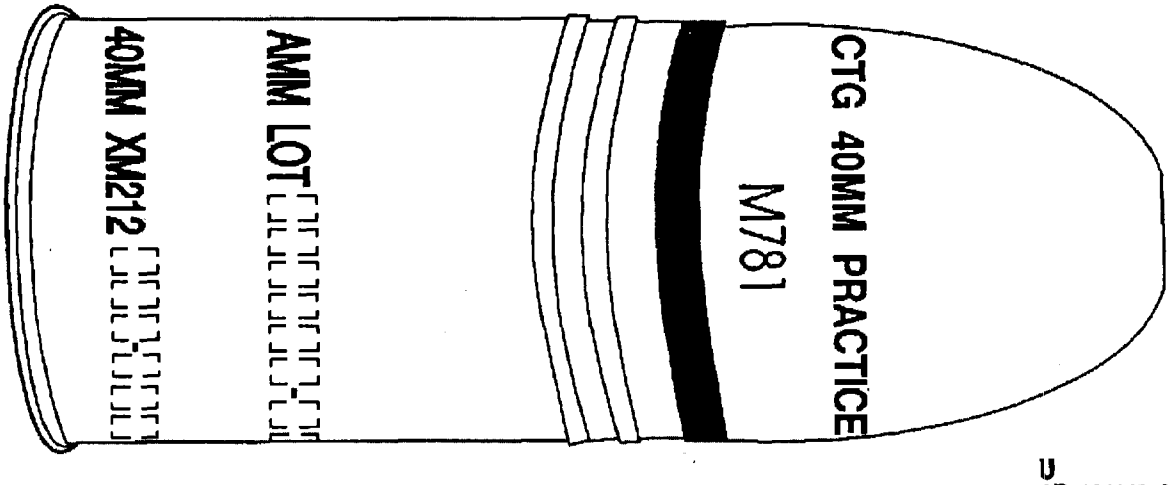
Shipping and Storage Data:

UNO serial number	0197
Hazard class/division and storage compatibility group	1.4 G
DOT class	Class C Explosive
DOT marking	SMOKE SIGNALS, HANDLE CAREFULLY - KEEP FIRE AWAY
DODAC	M713-1310-B506 M715-1310-B508 M716-1310-B509
Cartridge drawing number:	
M713	9323251
M715	9323261
M716	9323265
Packing drawing numbers	9209204, 9209205

References:

SB 700-20
TM 9-1010-205-10
TM 9-1010-221-10
TM 9-1300-251-20
TM 9-1300-251-34

CARTRIDGE, 40-MM: PRACTICE, M781



U
AR 101228-A

Type Classification:

Std LCC-A, MSR 05786002

Use:

This cartridge is a fixed, practice type ammunition designed to be fired from 40mm Grenade Launchers M79 and M203 (attached to the M16 series rifle).

Description:

This cartridge is a fixed round of ammunition consisting of a metal projectile body with a rotating band and a cartridge case assembly. A hollow plastic ogive is filled with a high visibility yellow-orange dye. The projectile assembly is attached to a cartridge case with an attached adhesive substance. The case is a hollow bichambered plastic cylinder. A .38 caliber blank cartridge is press-fitted into the base of the cartridge case and provides the gas pressure needed to propel the projectile through the launcher barrel.

Functioning:

The weapon firing pin strikes the .38 caliber blank cartridge primer igniting the propelling charge. The burning propelling charge generates sufficient pressure to release the expanding propellant gases through the vent hole into the low-pressure chamber. The rotating band around the projectile engages the rifling in the launcher tube imparting a spin of 3,600 rpm to the projectile. The pressure created by the expanding propellant gases in the low-pressure chamber, forces the projectile through the tube with a velocity of 76 meters per second. Upon impact with the target, the frangible ogive ruptures and releases the dye causing a puff of yellow-orange smoke which simulates explosive impact.

Tabulated Data:

NSN 1310-01-050-7967 - U.S. Army Pack
NSN 1310-01-148-8881 - U.S. Army Pack
NSN 1310-01-211-8073 - U.S. Army Pack
NSN 1310-01-107-5404 - U.S. Marine Corps Pack

Complete round:

Type	Practice
Weight	205 g
Length	4.05
Weapons	Used with M79, M203 (attached to M16 series rifle) 40mm grenade launchers

Projectile:

Body material	Zinc or aluminum
Color	Blue w/white markings
Filler and weight	Orange dye
Fuze	None

Propelling charge:

Cartridge case	M212
Propellant	M9, 340 mg
Primer number	1-1/2 (commercial)

Performance:

Maximum range	400 m (437.6 yd)
Muzzle velocity	76 mps (250 fps)

Temperature Limits:

Firing:

Lower limit	-25°F (-31.6°C)
Upper limit	+110°F (+43.3°C)

Storage:

Lower limit	-30°F (-34.4°C)
Upper limits	+145°F (+63°C)

U.S. Army Pack:

NSN 1310-01-148-8881:

*Packing	100 rounds per wood box
*Packing Box:	
Weight	64 lb
Dimensions	22-3/4 in. x 11-1/16 in. x 11-5/8 in.
Cube	1.7 cu ft
Packing drawing number	9325896

NSN 1310-01-050-7967:

*Packing	75 rounds per wood box
*Packing Box:	
Weight	53.2 lb
Dimensions	22-3/8 in. x 11-1/16 in. x 11-22/32 in.
Packing drawing number	9325896

NSN 1310-01-211-8073:

*Packing	100 rounds per wirebound box
*Packing Box:	
Dimensions	22-3/8 in. x 10-13/16 in. x 10-5/8 in.
Packing drawing number	9325896

U.S. Marine Corps Pack:

NSN 1310-01-107-5404:

*Packing	44 rounds per box
*Packing box:	
Weight	45.9 lb
Dimensions	14-5/8 in. x 12-13/16 in. x 9-1/8 in
Cube	1.0 cu ft
Packing drawing number	9209204, 9209205

*NOTE: See DOD Consolidated Ammunition Catalog for complete packing data.

Shipping and Storage Data:

UNO serial number	0339
Hazard class/division and storage compatibility group	1.4 C
DOT class	Class C Explosive
DOT marking	CARTRIDGES, PRACTICE AMMUNITION
DODAC	1310-B519
Cartridge drawing number	9322240

References:

SB 700-20
TM 9-1010-205-10
TM 9-1010-221-10
TM 9-1300-251-20
TM 9-1300-251-34

RA PD 80725

Figure 56 — CARTRIDGE, AP-T, M70, 57-mm Guns, M1 and 6 Pr. 7 Cwt. (British)

75. **CARTRIDGE, AP-T, M70, 57-MM GUNS, M1 AND 6 PR. 7 CWT. (BRITISH)** (fig. 56), like the armor-piercing-capped round, is intended for firing against armor-protected targets. Components assembled in the round are the same as for the M86, except for the projectile. The M70 Shot is a solid slug of hardened steel with a square base and a short ogival nose, and is inert except for a tracer held in a small cavity in the base. The tracer consists of three pellets of red tracer composition (73 grains) and one pellet of igniter charge, pressed into the cavity and sealed against moisture by a metal disk. Upon being ignited by the propelling charge, when the round is fired the composition burns for about 4.5 seconds, giving a visible trace for observation purposes over a range of about 2,600 yards. Since there is no armor-piercing cap, the projectile is not as well adapted for defeating face-hardened plate as the M86. However, it is at least equally as effective against homogeneous plate.

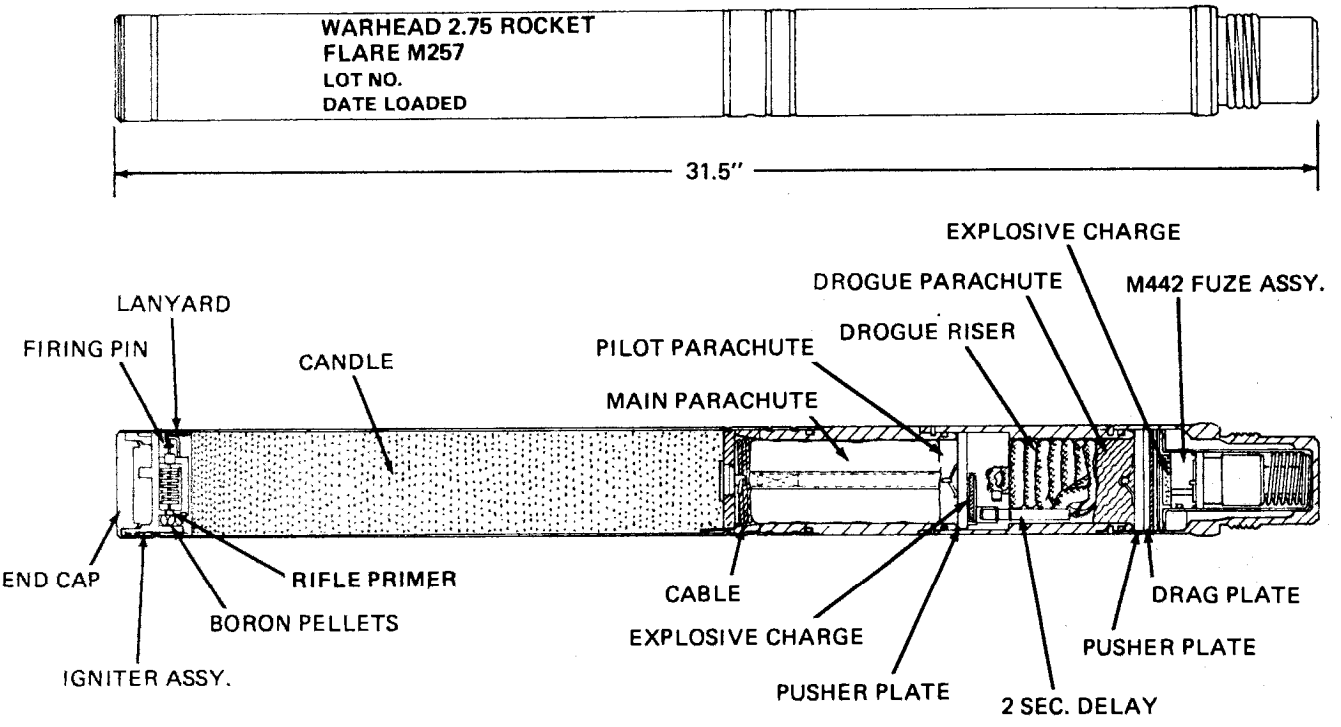
DATA

Weight of complete round	12.92 lb
Length of complete round	23.22 in.
Length of projectile	6.81 in.
Length of cartridge case	17.40 in.
Width of rotating band	0.79 in.
Type of base	Square
Radius of ogive	1.40 cal.
Muzzle velocity	2,950 ft per sec*
Maximum range	9,275 yd*
Penetration (in. at 0-deg obliquity of face-hardened plate at 1,000 yd)	2.7*
Penetration (in. at 0-deg obliquity of homogeneous plate at 1,000 yd)	3.4*

*—Data for projectile with muzzle velocity of 2,950 feet per second. Rounds of older manufacture had a muzzle velocity of 2,800 feet per second.

†—Muzzle velocity in the British 6 Pr. Mk. III Gun is 2,830 feet per second; muzzle velocity of older rounds, having 2,800 feet per second velocity in U. S. guns, is 2,700 feet per second in the British 6 Pr. Mk. III Gun

ROCKET, FLARE, 2.75-INCH W/M257 ILLUMINATING WARHEAD



AR 0524

Type Classification:

STD, LCC-A, TT, HQDA, Jan 76

Use:

To provide helicopters with target illuminating capability from a safe standoff distance in a hostile environment.

Description:

This flare rocket is an air-to-ground rocket primarily deployed from rotary-wing and other low-speed aircraft. It is employed with the low-spin folding-fin MK40 motor and with the spin stabilized wrap around fin MK66 motor Mods 1,2, and 3.

The M257 illuminating warhead consists of an ignition system, flare, main parachute, drogue parachute assembly and an integral fuze and delay assembly. The warhead is enclosed in an aluminum case.

The setback-actuated fixed time integral fuze provides a standoff' distance of approximately 3,000 meters. The arming fuze and delay assembly is actuated by motor acceleration.

The rocket motor is described in Chapter 5.

Differences between Models N/A

Functioning

The rocket with warhead, flare, M257, is fired from helicopter with standard 2.75-in. motor MK40 or MK66 to attain elevation between 2000 and 4000 ft at 3000 m downrange, Upon rocket launch, the M442 fuze arms upon acceleration (17 G's approximately required). After 1.5 seconds (at motor burnout), the fuze functions initiating delay train, After nine seconds, delay ignites first expulsion charge in fuze assembly. Gas pressure forces pusher plate forward, shears pin.

separates motor and adapter section from remainder of warhead. Rocket velocity is now 800 fps approximately.

The deflector plate, attached by cable to motor adapter, is extended into airstream, deflects path of motor and adapter. Pusher plate, attached to drogue chute, deploys drogue, Rocket warhead velocity then decreases to 200 fps, approximately, during the next two seconds.

Upon deployment of drogue chute, the gas generator is activated by pull on lanyard attached to drogue. After two seconds, tile gas generator functions the second expulsion charge located in retainer block of drogue housing. Gas pressure forces pusher plate forward, shearing pins and separating drogue housing from main chute insert and candle assembly,

The pusher plate is attached by a threadline to the pilot chute. The pilot chute is deployed, and, in turn, pulls bag off main chute. The main chute now deploys the steel cable which is attached to the main chute shroud lines on one end, and, in turn, pulls a lanyard attached to candle igniter assembly.

The pull on the lanyard rotates a bellcrank, releasing the firing pin. The firing pin fires a rifle primer, which fires boron pellets. The boron pellets ignite a propellant wafer. Propellant ignites the candle. Ignition gases pressurize nose cap, blowing it free.

The candle, suspended from the main chute, is now burning. During the first 15 seconds, the igniter housing is burned away, The candle descends at 15 fps, burns for 100 seconds with a minimum light output of one million candle power (CP).

Tabulated Data:

Rocket:	
Type	MK40, Mod 3 MK66 Mod 1, 2. and 3
Diameter	2.75-in. nominal
Length (Max)	68.22 in. (w/MK40 Mod 3 motor) 70.975 in. (w/MK66 series motor)
Weight	21.8 lb (w/ MK40 Mod 3 motor) 24.0 lb (w/MK66 series motor)
Performance:	
Operating temperature limits	-25° to + 140°F (-31.35° to +59.40°C)
Maximum velocity	1600 fps (488 mps)
Warhead:	
Model	M257
Type	Flare
Body	Aluminum
Color	Olive drab w/white markings
Diameter	2.75-in.
Length	31.5-in.
Weight	10.8 lb
Candle characteristics:	
Burn time	120 sec nominal
Light output	1 mil cp min
Parachute descent rate	15 fps approx
Composition	Magnesium Sodium Nitrate
Weight	5.44 lb (2.47 kg)
Fuze:	
Model	M442
Type	Setback actuated, fixed time
Diameter	1-5-in.
Length:	
Overall	3.1-in.
Weight	0.6 lb
Arming time	1.1 sec

Packing ---------- 1 warhead per fiber container, 1 motor per fiber container, unassembled

Box:
Weight w/contents
(6 fiber containers w/3 warheads and 3 motors. unassembled ---------- 131 lb (58950 g) W/ MK40 Mod 3 motor 132,5 lb (60101 g) w/MK66 Series motor

Dimensions ---------- 46-3/16 in. x 11-7/8 in. x 9-9/32 in. w/ MK40 Mod 3 motor 48-1/16 in. x 12-1/4 in. x 9-3/8 in. w/MK 66 series motor

Cubic contents (with fiber container) ---------- 3 ft^3

Shipping and storage data:
Storage class/SCG ---------- 1.2G (08)
DOT shipping class -------- A
DOT designation ---------- ROCKET AMMUNITION WITH ILLUMINATING PROJECTILE

Field storage ---------- Group D

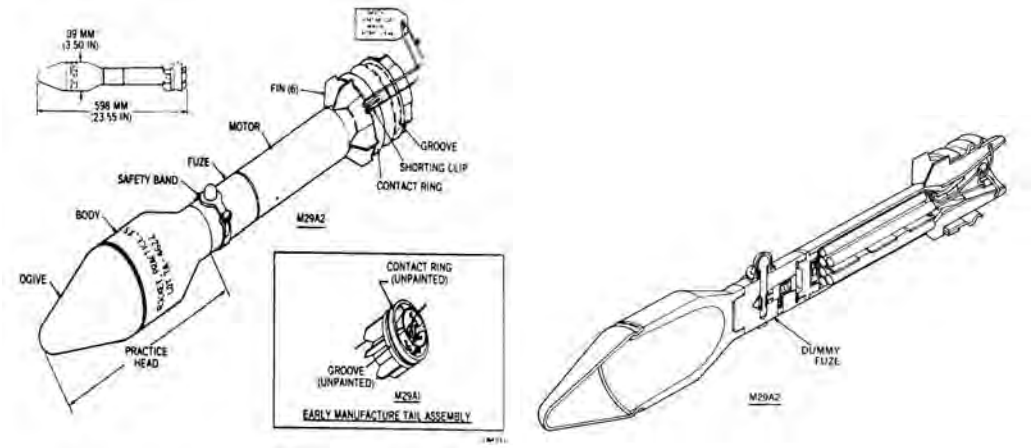
DODAC ---------- 1340 -H180 w/ MK40 Mod 3 motor
1340-H181 w/ MK66 Mod 1 motor
1340-H182 w/ MK66 Mod 2 motor
1340-H183 w/ MK66 Mod 3 motor

Drawings:
M257 WHD ----------9332220
w/MK40 - 3 motor ------- 10399105
w/MK66 - 1 motor ------- 13058370-5
w/MK66 - 2 motor ------- 13058370-6
w/MK66 - 3 motor ------- 13058370-7
Packing:
w/MK40 - 3 motor ------- 9294492
w/MK66 series motor --- 9357963

References:
TM 9-1340-222-20
TM 9-1340-222-34

Ordnance Technical Data Sheet

U.S. ROCKET, 3.5-INCH, PRACTICE, M29, M29A1, & M29A2



Nomenclature:	3.5-INCH, PRACTICE, M29, M29A1, & M29A2
Ordnance Family:	Rockets
DODIC:	Not Provided
Filler:	None
Filler weight:	N/A
Item weight:	3.90 kg (8.6 lbs)
Diameter:	89.00 mm (3.5 in)
Length:	598.00 mm (23.54 in)
Maximum Range:	Not Provided
Fuze:	None

Usage: The M29-series rockets are inert and are used for training. The M29A2 rocket is modified for use in the M69 practice landmine system.

Description: The fuzes are painted olive drab or black, and have the designation and loading information stamped in the body. The M29 warhead and rocket motor are blue. The M29A1 and M29A2 warheads are blue, and the rocket motors are brown, or olive drab with brown bands. The M29-series practice heads have white markings. The contact ring and groove or notch on all the rockets are unpainted.

Reference: ORDATA Online.

Velocity, maximum	940 fps
Temperature limits	—20° F. to 120° F.
Burning time	
—20° F.	0.34 sec
120° F.	0.10 sec
Burnout point (ft from launcher)	80 ft
Weight of HE filler (including suppl chg)	4.0 lb
Weight of propellant	4.81 lb

34. Rocket, High-Explosive, 4.5-Inch: M32

a. General. This rocket (fig. 21) provides greater maximum range, improved accuracy, and greater lethality than the earlier HE rockets of the M16 series. The rocket is spin stabilized and has a relatively thin-walled high-explosive head designed for blast effect. Front and rear bourrelets on the cylindrical rocket motor provide bearing surfaces for the travel of the rocket through the launcher. This rocket is issued unfuzed with a plastic nose plug in lieu of fuze and with a supplementary charge in place. With supplementary charge in place, the rocket is adapted for point detonating fuze M81 or M81A1. With supplementary charge removed, the rocket can accommodate VT fuze M402, or M402A1.

b. Data.

Length (unfuzed)	30.22 in.
Weight (as fired)	42.0 lb
Range (at 45° elevation)	9,100 yd
Velocity	1,250 fps
Temperature limits	—65° F. to 140° F.
Burning time	
—65° F.	0.95 sec
140° F.	0.35 sec
Weight of high-explosive filler	6.1 lb
Weight of propellant	7.78 lb

35. Rocket, Practice, 4.5-Inch: M17

This inert-loaded rocket is similar to the rocket described in paragraph 36. It differs principally in the presence of a burster tube filled with inert material attached to the base of the head and extending into the motor.

36. Rocket, Practice, 4.5-Inch: M17A1

This rocket is similar in external contour to the high-explosive rocket M16A1 described in paragraph 33. It differs from the high-explosive rocket in the inert loaded head, the shallow fuze cavity, and the dummy fuze M73. All ballistic and physical data for this rocket matches that for the high-explosive rocket M16A1.

37. Rocket, Practice, 4.5-Inch: M33

a. General. This rocket (fig. 22) has the same external contour

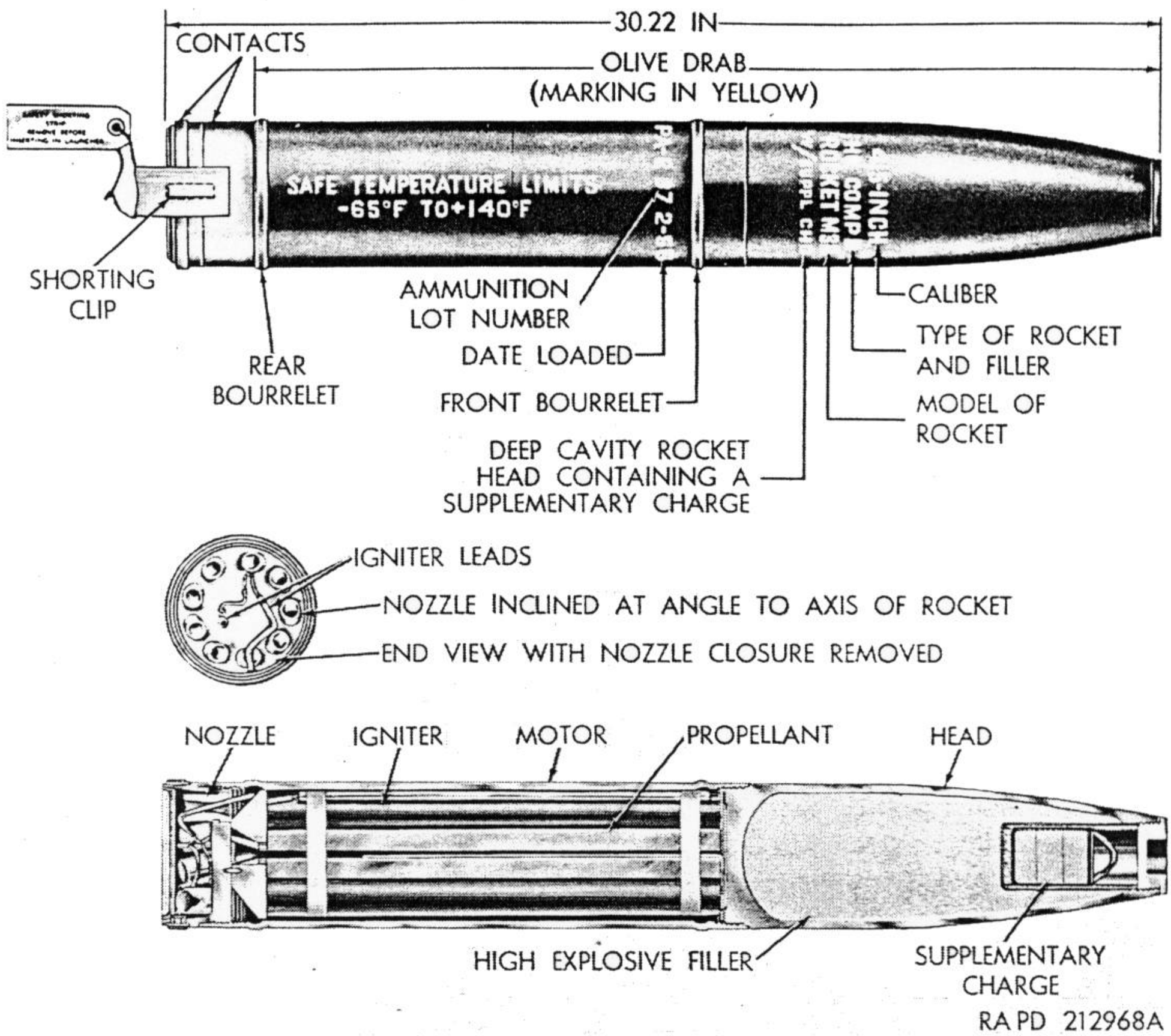


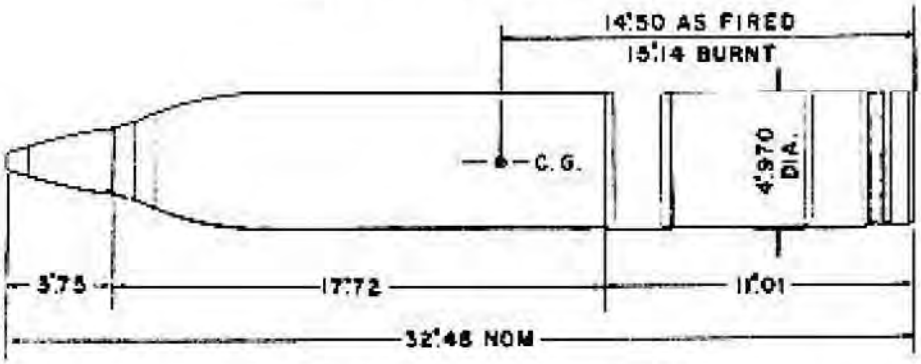
Figure 21. Rocket, high-explosive, 4.5-inch: M32.

as the high-explosive rocket M32 (par. 34). It differs principally from the HE rocket M32 in the shallow fuze cavity (no supplementary charge) and the inert filler which matches the weight of the high-explosive filler and supplementary charge. Inert fuze M73 is fitted to the nose of this rocket.

b. Data.

Length, unfuzed	30.22 in.
Weight, as fired	42.0 lb
Range, maximum (at 45° elevation)	9,100 yd
Velocity	1,250 fps
Temperature limits	—65° F. to 140° F.
Burning time	
—65° F.	0.95 sec
140° F.	0.35 sec
Weight of propellant	7.78 lb

5"0 ROCKET MK 16 MOD 0
(SURFACE, HE, SS)



PURPOSE Fired from Surface Craft, PT, LSMR, and IFS ships, from trainable and automatic rocket launchers, against shore installations and for bombardment or barrage purposes to cover landings.

PERFORMANCE- W/ZERO LAUNCHER VELOCITY, AND PROPELLANT AT 70° F

RANGE (MAX)	1480 YDS
BURNT VELOCITY	400 F/S
BURNING TIME	.93 SEC
THRUST	687 LBS
WT (AS FIRED)	54.30 LBS
WT (BURNT)	50.70 LBS

REFERENCES

ORDNANCE PAMPHLETS

ROCKETS - OP 1260

FUZES - OP 1017

LAUNCHERS OP 1244 (MK 50 MOD 0, 1), OP 1246 (MK 51 MOD 0), OP 1424 (MK 102 MOD 0), OP 2110 (MK 105 MOD 2), OP 1304, OP 1855, (LAUNCHERS GENERAL)

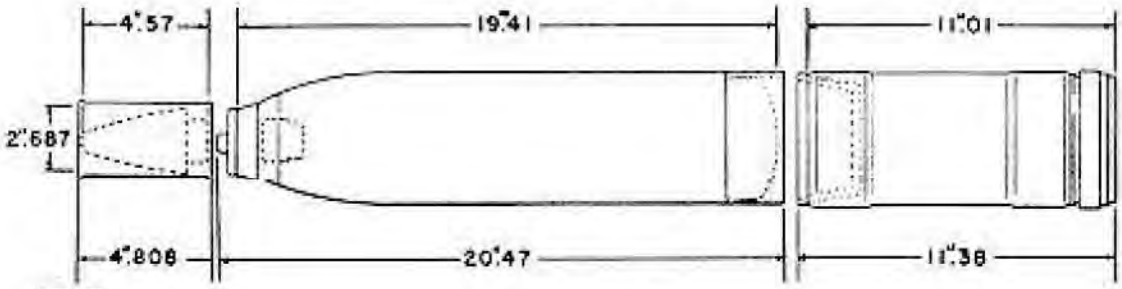
RANGE TABLE OP 1498

BUORD DRAWINGS (OUTLINE DWG 467156)

COMPLETE ROUND		FUZE		ADF	HEAD	MOTOR	
MK & MOD	16-0	30-3	30-4	52-2	13-0	6-1	6-4
LOADED							
LIST OF DWGS	---	109113	165551	165988	---	166377	174615
GEN ARRGT	456155	422326	562339	563653	---	467160	655926
EMPTY							
LIST OF DWGS	---	---	---	---	164358	166376	174616
INERT PARTS	---	---	---	---	467143	467159	655927
CONTAINER	*10-0	19-0		---	24-0	25-0	

*FOR SERVICE ISSUE

5.0 ROCKET MK 16 MOD 0 (Cont'd)



HEAD

AMM LOT PREFIX, RHCW	MK & MOD	DWG	WEIGHTS AS FIRED	WEIGHTS LOADED	WEIGHTS INERT PARTS
SHIPPING PLUG	— — —	434039	— — —	.92	.92
GASKET	— — —	483480	— — —	— — —	— — —
HOSE FUZE	30-3 30-4	422326 562339	1.38	— — —	— — —
AUX DETONATOR	52-2	563653	0.50	0.50	— — —
NOSE ADAPTER	— — —	451314	0.76	0.76	.76
HEAD (EMPTY)	— — —	467144	21.25	21.25	21.25
EXPLOSIVE (TNT)	— — —	— — —	13.50	13.50	— — —
THREAD PROT	— — —	434529	— — —	1.25	1.25
TOTAL WEIGHTS	— — —	— — —	37.39	38.18	24.18

MOTOR

AMM LOT PREFIX, RMDE	DRAWING MK 6-1	DRAWING MK 6-4	WEIGHTS AS FIRED	WEIGHTS LOADED	WEIGHTS INERT PARTS
THREAD PROTECTOR	451340 457385	451340 457385	— — —	2.76	2.76
MOTOR (EMPTY)	467159	655927	13.18	13.18	13.18
SHORT CIRCUIT BAND	454636	454636	— — —	0.06	— — —
REAR CLOSURE	454632	454632	0.06	0.06	— — —
CONNECTORS	483533	736576	— — —	— — —	— — —
PROPELLANT GRAIN MK 25-0 25-1 25-2	467154 — — — — — —	— — — 655898 — — —	3.24	3.24	— — —
IGNITER MK 120-0 120-1 120-2	462632 556524 656720	462632 556524 656720	0.12	0.12	— — —
FELT DISK	483514 — — —	483514 446791	0.01	0.01	— — —
FELT WASHER	446794 483513	446794 483513	0.09	0.09	— — —
FRONT CLOSURE	451303	451303	0.19	0.19	— — —
FELT WASHER ¼	483523	483523	0.01	0.01	— — —
FELT WASHER 1/8	483524	483524	0.01	0.01	— — —
TOTAL WEIGHTS	— — —	— — —	16.91	19.73	15.94

b. Fuze. The 5.0-inch HVAR head Mk 6 Mods is permanently fuzed with base fuze Mk 159 Mod 1 or Mk 164 and Mods. The heads Mk 6 and Mods and Mk 25 Mod 1 receive nose fuze Mk 149 Mod 0 or 1 after removal of the nose shipping cap. Head Mk 6 Mod 4 receives VT fuze M403 or M403E2 (Mk 172 Mod 2).

c. Identification. Painting and marking for identification are in accordance with the scheme prescribed in TM 9–1900.

d. Packing. The 5.0-inch HVAR head Mk 6 and Mods is packed two per wooden box or 48 per pallet (except Mk 6 Mod 4). The head Mk 25 Mod is packed one per wooden box with two lug bands, with or without arming wire. Nose and VT fuzes are packed 20 per wooden box. VT fuzes are packed one per metal can, nine cans per wooden box. Packing and shipping data appear in SM 9–5–1340.

73. 5.0-Inch Rocket Motors

Listed below are various similar 5.0-inch rocket motors which are assembled with 5.0-inch HVAR heads to form complete rockets as indicated in tables II and III. The motor Mk 10 differs from the motor Mk 2 principally in having an Army igniter plug instead of a Navy (bayonet-type) plug. The 5.0-inch motor is externally threaded at the forward end to engage the head. It consists of the motor tube, front closure disk, igniter, propellant, nozzle plate, suspension lugs and fin assembly. The motor contains the igniter, propellant and grid to position the propellant. Assembled to the motor tube are the nozzle, fin assembly and suspension lugs.

MOTOR, 5.0-INCH ROCKET: Mk 2 Mod 3.

MOTOR, 5.0-INCH ROCKET: Mk 2 Mod 3 (w/bayonet-type connector plug).

MOTOR, 5.0-INCH ROCKET: Mk 10 Mods 4 and 5.

MOTOR, 5.0-INCH ROCKET: Mk 10 Mods 4 and 5 (w/electrical connector Mk 11 Mod 5 or M3).

MOTOR, 5.0-INCH ROCKET: Mk 10 Mod 7 (w/o fin).

MOTOR, 5.0-INCH ROCKET, EMPTY: Mk 2 Mod 3.

MOTOR, 5.0-INCH ROCKET, INERT: Mk 2 Mod 3.

a. Fin Assembly. The fin assembly, which is clamped to the rear end of the motor, is a sleeve with four equally spaced rectangular fins extending radially.

b. Propellant. The propellant is a single grain Mk 18 Mod 0 of ballistite. Refer to chapter 4.

c. Igniter. The igniter is a metal can containing 55 grains of black powder and an electric squib. Two lead wires from the squib extend from the igniter passing through the perforation in the pro-

pellent grain to the nozzle where they are connected to the electrical cable and igniter plug (connector).

d. Identification. The motor is identified by the two suspension lugs (fig. 37). Painting and marking for identification are in accordance with the scheme for Navy rockets prescribed in TM 9–1900.

e. Packing. Inert or propellant loaded motors are packed (with or without fins) one per wooden box. Empty motors are packed three per wooden box. Packing and shipping data appear in SM 9–5–1340.

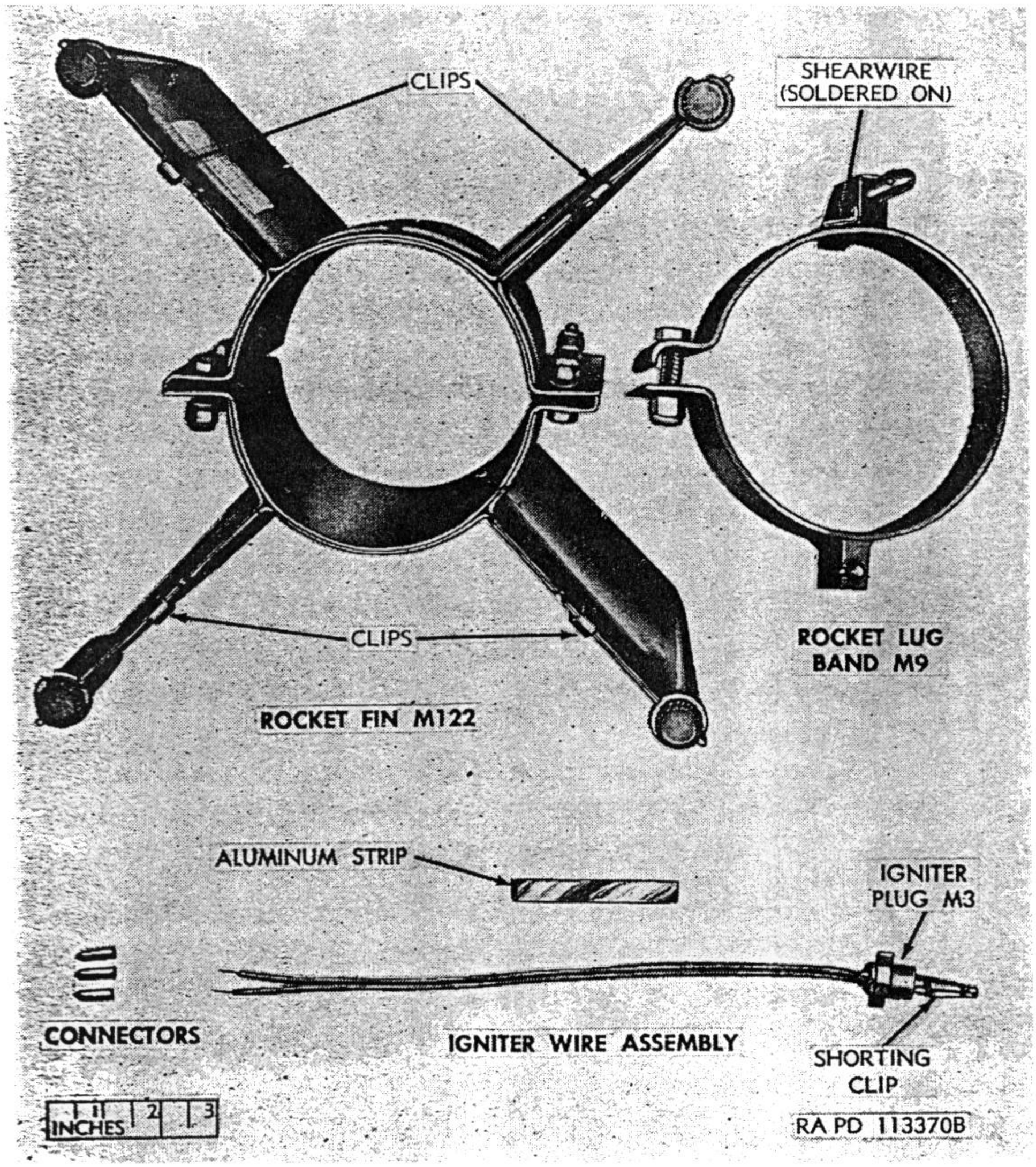


Figure 38. Fin assembly kit, 5.0-inch rocket: M34 (T38) for 5.0-inch high-velocity aircraft rocket (Navy).

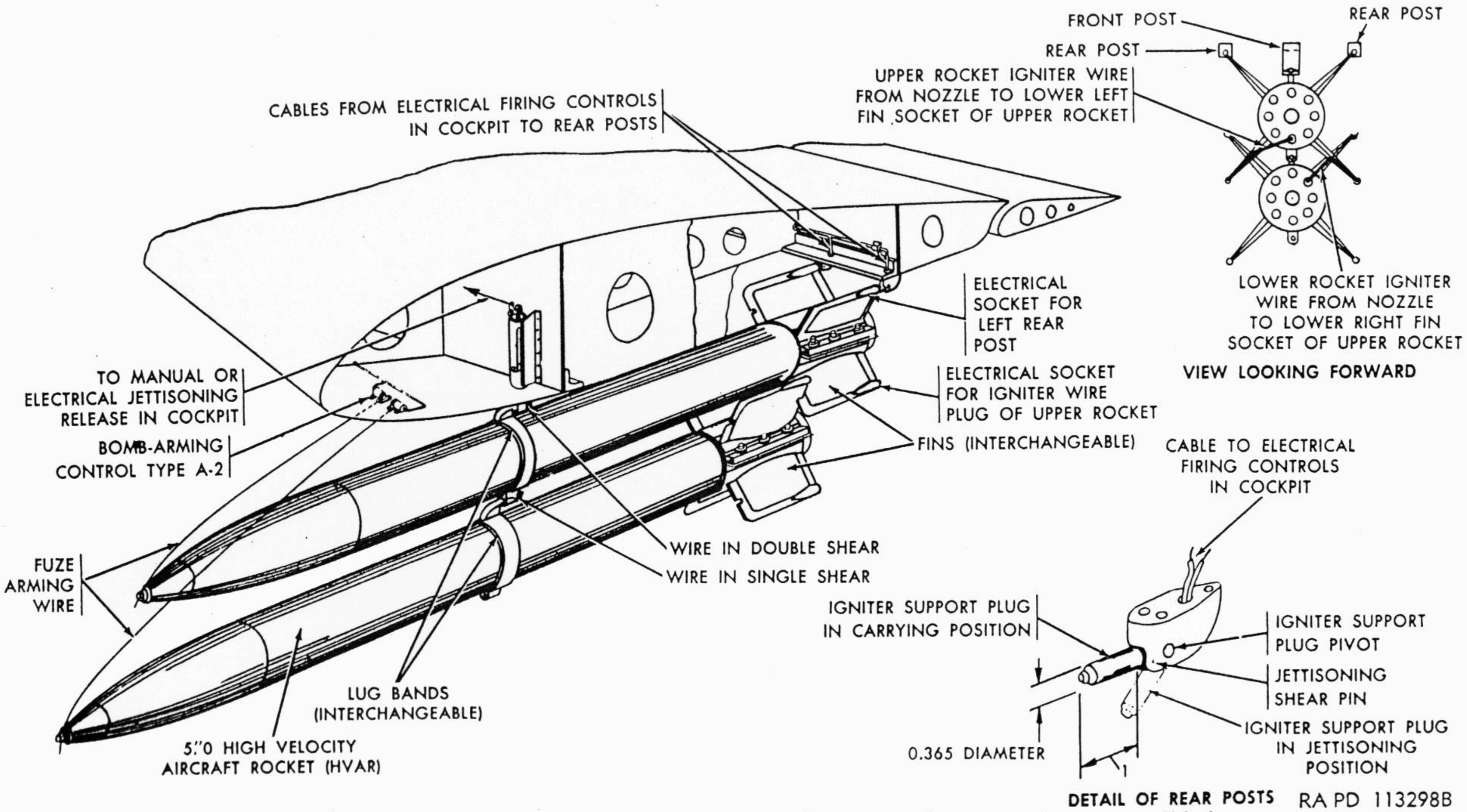


Figure 39. Schematic arrangement of 5.0-inch high-velocity aircraft rocket, as modified by rocket kit M34, installed in retractable jettisoning aircraft launcher.

b. DATA.

Weight of complete round	13.73 lb
Length of complete round	26.72 in
Length of fuzed projectile	11.24 in
Length of cartridge case	17.40 in
Width of rotating band	0.79 in
Type of base	Square
Radius of ogive	7.13 cal.
Muzzle velocity	2,700 fps*
Maximum range	13,555 yd**
Penetration (at 0° obliquity of face-hardened plate at 1,000 yd)	3.6 in
Penetration (at 0° obliquity of homogeneous plate at 1,000 yd)	3.5 in

* Muzzle velocity in the British 6 Pr. Mk 3 gun is 2,580 fps.

** Maximum range in the British 6 Pr. Mk 3 gun is 13,100 yards.

56. Cartridge, HE-T, M303, w/Fuze, PD, M86, for 57-mm Guns (fig. 63)

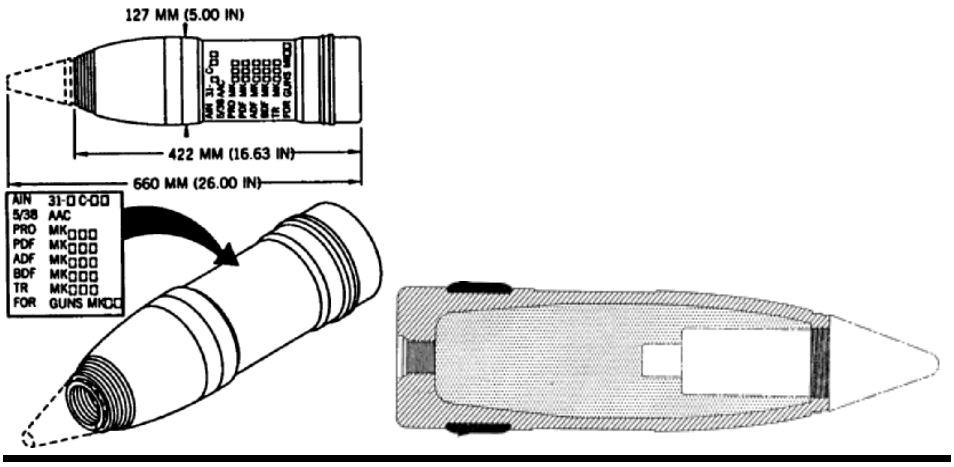
a. GENERAL. This cartridge provides for blast and fragmentation effect. The round, which is slightly longer than the APC-T round, consists of the M303 shell with assembled M86 fuze and a standard M23A2 or M23A2B1 cartridge case with M1B1A2 or alternative primers and a propellent charge of M1 powder for 2,720 fps muzzle velocity. At this velocity, the M303 shell has approximately the same ballistic values as the APC-T projectile up to about 1,500 yards range. The shell consists of a relatively thick-walled steel casing with deep cavity, holding a 0.44 pound TNT bursting charge. The comparatively heavy base contains a red tracer which, upon initiation as the round is fired, burns for approximately 6½ seconds, equivalent to about 4,000 yards range. The M86 fuze provides for superquick action with supersensitive effect on comparatively light impact.

b. DATA.

Weight of complete round	12.88 lb
Length of complete round	26.99 in
Length of fuzed projectile	10.63 in
Length of cartridge case	17.40 in
Width of rotating band	0.79 in
Type of base	Square
Radius of ogive	4.47 cal.
Muzzle velocity	2,720 fps
Maximum range	12,670 yd

Figure 63. Cartridge, HE-T, M303, w/fuze, PD, M86, for 57-mm guns.

Ordnance Technical Data Sheet
5” Projectile, Mk 31 Mods 1-11



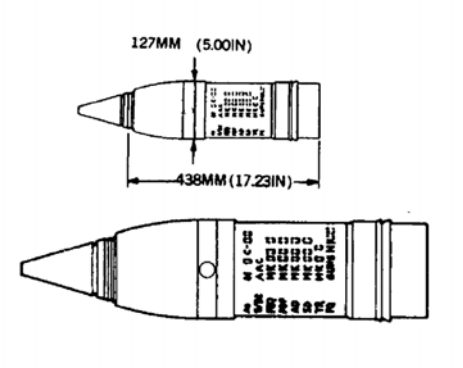
Nomenclature: **U.S. PROJECTILE, 5-IN, A.A.COMMON, MK 31 MODS 1-11**
Ordnance Family: Projectiles
DODIC:
Filler: Explosive D
Filler weight: 3.29 kg (7.25 lbs)
Item weight: 25.03 kg (55.12 lbs)
Diameter: 126.75 mm (5 in)
Length: 525.78 mm (20.7 in)
Maximum Range: Not provided
Fuze: Various – see below

Usage: This is a spin stabilized Anti-aircraft projectile. This projectile is for use against aircraft. These projectiles are similar in construction to high capacity projectiles, except that a nose time or variable time fuze is always assembled. It can be used for antiaircraft fire or, with the time fuze set on safe, used for bombardment.
The Mk 31 projectile was originally designed to receive the Mk 13 base fuze, then it became obsolete. Which at that time was fitted only with variable time fuzes and a plug in the base. The Mk 40 fuze replaced the Mk 32 and Mods. With these fuzes, the projectile adapter was removed, and the Mk54 auxiliary detonating fuze was installed, replacing the previously used Mk 17 and Mk 46 fuzes. When the Mk 53 variable time fuze was used, the projectile adapter was removed and the Mk 44 auxiliary detonating fuze employed. This projectile was also issued blind loaded and plugged or blind loaded with tracer with adapter and Mk 6 tracer (or cut off Mk 13 base fuze) for target practice. Variable time fuzing is indicated by a 1/2" red band painted around the projectile 1/2" below the fuze protective cap.

Description: The overall projectile color is green. The projectile is made of steel.

Reference: ORDATA II

Ordnance Technical Data Sheet
5” Projectile, Mk 35 Mods 1 -12



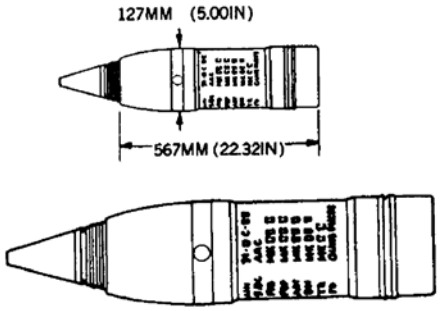
Nomenclature:	**U.S. PROJECTILE, 5-IN, A.A.COMMON, MK 35 MODS 1-12**
Ordnance Family:	Projectiles
DODIC:	
Filler:	Explosive D
Filler weight:	3.29 kg (7.25 lbs)
Item weight:	25.03 kg (55.18 lbs)
Diameter:	126.75 mm (4.99 in)
Length:	437.64 mm (17.23 in)
Maximum Range:	Not provided
Fuze:	Various – see below

Usage: In many cases, the same projectile body is used for many of the different specific types by being assembled with different types or combinations of types of fuzes. For example, the Mk 41 5-inch 54-caliber projectile body is assembled as an AAC, HC, HE-CVT, HE-IR, HE-PD, HE-VT-NSD, and HE-VT-SD projectile. Most nose fuzes and rotating bands are not painted. A color coding system is employed to indicate the projectile type, the presence of a hazardous (explosive, incendiary, irritant, or toxic) filler, and the presence and color of a tracer, dye load, color burst, or smoke. Markings are stamped and stenciled on projectiles to provide complete identification information. Projectiles are stamped on or near the rotating band and/or on the base with their nomenclature and manufacturing information. Stenciled markings on the projectile body include nomenclature of the projectile or cartridge of which it is a component, manufacturing information such as manufacturers identification, lot number, and date, and type of filler for projectiles 40 millimeters and larger. Additional stenciled markings include the type of weapon, stock code or number, weight information for nonfixed projectiles and, in some cases, information on the fuze(s) and other components assembled in the projectile. The color of the stenciled markings is in accordance with the prescribed color coding system.

Description: The overall projectile color is green. The projectile is made of steel.

Reference: ORDATA II

Ordnance Technical Data Sheet
5” Projectile, Mk 41 Mod 0



Nomenclature: **U.S. PROJECTILE, 5-IN, A.A.COMMON, MK 41 MOD 0**
Ordnance Family: Projectiles
DODIC:
Filler: Explosive D
Filler weight: 3.44 kg (7.58 lbs)
Item weight: Not Provided
Diameter: 127 mm (5.00 in)
Length: 567 mm (22.32 in)
Maximum Range: Not provided
Fuze: Various – see below

Usage: AAC projectiles are essentially HC projectiles with MT nose fuzes and are used against either aircraft or surface targets. AA projectiles are essentially AAC projectiles without base fuzes used strictly against aircraft. In many cases, the same projectile body is used for many of the different specific types by being assembled with different types or combinations of types of fuzes. For example, the Mk 41 5-inch 54-caliber projectile body is assembled as an AAC, HC, HE-CVT, HE-IR, HE-PD, HE-VT-NSD, and HE-VT-SD projectile. Most nose fuzes and rotating bands are not painted. A color coding system is employed to indicate the projectile type, the presence of a hazardous (explosive, incendiary, irritant, or toxic) filler, and the presence and color of a tracer, dye load, color burst, or smoke. Markings are stamped and stenciled on projectiles to provide complete identification information. Projectiles are stamped on or near the rotating band and/or on the base with their nomenclature and manufacturing information. The color of the stenciled markings is in accordance with the prescribed color coding system.

Description: The overall projectile color is green. The projectile is made of steel.

Reference: ORDATA II

Projectile	Abbreviation	DODIC
High explosive, point detonating	HE-PD	D330/D343
High explosive, mechanical time/point detonating	HE-MT/PD	D338/D340
High explosive, infrared	HE-IR	D342/D327
High explosive, variable time	HE-VT	D316/D317/ D331/D332
High-capacity (HE), point detonating	HC	D320/D339
Antiaircraft (HE), mechanical time	AAC	D319
Rocket assisted (HE), controlled variable time	RAP	D325
Common, base detonating, spotting dye	COM	D322
Illuminating, mechanical time	ILLUM	D328/D353
White phosphorus (smoke), mechanical time	WP w/MTF	D313
White phosphorus (smoke), point detonating	WP w/PDF	D314
Target practice (puff), mechanical time	TP-Puff	D291
Target practice (puff), point detonating	TP-Puff	D290
Target practice, nonfragmenting, variable time	VT-NONFRAG	D333/D334
Chaff dispensing, mechanical time	Chaff	D311/D312
Blind loaded and plugged	BL-P	D341/D349
Dummy	–	D336/D344

3-28.2. Propelling Charges. The basic configuration of 5-inch, 54-caliber propelling charges in the Navy cog inventory are as follows:

Propelling Charge	DODIC
Full charge, nonflashless, cork plug	D304
Full charge, flashless, cork plug	D305
Full charge, universal, cork plug	D324
Full charge, universal, poly plug	D326
Full charge,[1] flashless, cork plug	D300
Reduced charge, flashless, cork plug	D297
Dummy	D308

3-29. **AMMUNITION/INTERFACE.** The 5-inch, 54-caliber ammunition is used in the following mounts:

Mount	Type	Gun
Mk 39 Mods	Single mount, enclosed	Mk 18 Mods
Mk 42 Mods	Single mount, enclosed	Mk 18 Mods
Mk 45 Mods	Single (lightweight), enclosed	Mk 19 Mods

The Mk 39 mount has a firing rate of 15 to 18 rounds per minute, dependent on gun position. An important operational characteristic of Mk 42 and Mk 45 is that they have a high rate of fire with a small gun crew. The firing rates are as follows:

a. Mk 42 Gun Mount.

Two-sided (hoist) operation - 32 rounds per minute
One-sided (hoist) operation - 16 rounds per minute.

b. Mk 45 Gun Mount.

20 rounds per minute.

3-30. **AMMUNITION CHARACTERISTICS.** The 5-inch, 54-caliber ammunition has been upgraded through product improvement and developed for increased range, lethality (high-fragmentation steels), increased effectiveness with better fuzing, improved logistics by standardizing interfaces, and increased safety. Table 3-9 gives data on the projectiles.

3-30-1. Projectiles. The projectiles used in the 5-inch, 54-caliber ammunition are described in the following subordinate paragraphs.

3-30.1.1. High Explosive. These general purpose projectiles (figure 3-47) are used primarily to provide blast and fragmentation. In addition, the high-fragmentation projectile (Mk 55) has been optimized for use against soft targets (personnel in particular). The projectile can be fuzed with either an impact, a time, or a proximity fuze. The proximity-fuzed projectiles are fitted with fuze liners to permit interchanging of the nose fuze without remote equipment. The projectiles designated as HE-CVT, HE-PD, HE-MT/PD, HE-IR, or HE-VT do not have base fuzing. The weights of the projectiles will vary slightly depending upon explosive/fuze combinations used. The bodies of each of these projectiles are essentially the same except for the base. The Mk 41 and the Mk 42 have a 1.5-inch base fuze hole, whereas the Mk 55 and the Mk 61 have a 2.0-inch base fuze hole. The Mk 64 and the Mk 65 have a solid base. The bodies for the Mk 55 and the Mk 65 are made of a high-fragmentation steel, whereas the other bodies are made from a ductile steel having low-fragmentation characteristics. The principal variations in these high explosive projectiles are described below:

[1] Propelling charge for HI-FRAG projectile.

Table 3-9. 5-Inch, 54-Caliber Projectile Data

Projectile			Explosive		Fuze			Total weight (lb) (approx.)	DODIC
Type	Assembly	Body	Filler	Wt (lb)	Nose	ADF or booster	Base		
HE-CVT	—	Mk 41	A-3	8.64	Mk 360 (M514A1)	Mk 52	Plug	68.60	D350
	—	Mk 55	A-3	8.64	Mk 360 (M514A1)	Mk 52	Plug	68.60	D295
	—	Mk 64	A-3	8.64	Mk 360 (M514A1)	Mk 52	Solid	68.60	D295
	—	Mk 65	A-3	8.64	Mk 360 (M514A1)	Mk 52	Solid	68.60	D295
	Mk 81	Hi-Frag	PBXN-106	6.37	M732	—	Solid	68.49	—
	Mk 127	Mk 64	A-3	8.64	Mk 360/1 (M728)	—	Solid	68.02	D295
HE-PD	—	Mk 41	A-3/D	7.87	Mk 30	Mk 43	Plug	68.17	D330
	—	Mk 41	A-3/D	7.87	Mk 30	Mk 52/3	Plug	68.17	D330
	—	Mk 41	A-3/D	7.87	Mk 30	Mk 54	Plug	68.17	D330
	—	Mk 61	Expl-D	7.87	Mk 30	Mk 52/3	Plug	68.17	D330
	—	Mk 61	Expl-D	7.87	Mk 30	Mk 54	Plug	68.17	D330
	—	Mk 64	A-3/D	7.87	Mk 30	Mk 52/3	Solid	68.17	D330
	—	Mk 64	A-3/D	7.87	Mk 30	Mk 54	Solid	68.17	D330
	Mk 80	Mk 64	A-3	7.87	Mk 30/5	Mk 395	Solid	68.17	D330
	Mk 83	Hi-Frag	PBXN-106	6.37	Mk 407	—	Solid	68.83	D330
	—	Mk 64	A-3	7.87	Mk 407/1	—	Solid	68.17	—
HE-MT/PD	Mk 115	Mk 64	A-3	8.74	Mk 393	—	Solid	68.39	D338
	Mk 82	Hi-Frag	PBXN-106	6.37	Mk 393	—	Solid	67.68	D340
HE-IR	—	Mk 41	A-3	8.76	Mk 91	—	Plug	70.40	D327
	Mk 107	Mk 64	A-3	7.61	Mk 91	—	Solid	70.40	D327
	Mk 84	Hi-Frag	PBXN-106	6.37	Mk 404	—	Solid	70.40	D342
HE-VT-SD	—	Mk 41	A-3	7.76	Mk 73/2,4	Mk 44/&30	Plug	69.71	D316
-NSD	—	Mk 41	A-3	7.76	Mk 73/3,5	Mk 44/&30	Plug	69.71	D317
-SD	—	Mk 64	A-3	7.76	Mk 73/4	Mk 30 bstr	Solid	69.71	D331
-SD	—	Mk 64	A-3	7.76	Mk 73/8,10	Mk 39 bstr	Solid	69.71	D331
-NSD	—	Mk 64	A-3	7.76	Mk 73/5	Mk 30 bstr	Solid	69.71	D332
-NSD	Mk 116/0	Mk 64	A-3	7.76	Mk 73/9,11	Mk 39 bstr	Solid	69.71	D332
-NSD	Mk 116/1	Mk 64	A-3	7.76	Mk 73/13	Mk 39 bstr	Solid	69.71	D332
-NSD	Mk 86	Hi-Frag	PBXN-106	6.37	Mk 418	—	Solid	68.61	—
-SD	Mk 117/0	Mk 64	A-3	8.64	Mk 73/2,4,8,10	—	Solid	69.59	D331
HC	—	Mk 41	Expl-D	8.74	Mk 30	Mk 43/1	Plug	69.63	D320
	—	Mk 41	Expl-D	8.74	Mk 30	Mk 44/2	Plug	69.63	D320
	—	Mk 41	Expl-D	8.74	Mk 30	Mk 52/3	Mk 31/2	69.63	D320
	—	Mk 41	Expl-D	8.74	Mk 30	Mk 54/2	Mk 31/2	69.63	D320
	Mk 108/0	Mk 61	Expl-D	8.74	Mk 30/5	Mk 395	Mk 83	69.63	D320
	Mk 108/1	Mk 64	A-3	8.74	Mk 399/0	—	Solid	69.63	D339
	Mk 108/2	Mk 64	A-3	8.74	Mk 407/1	—	Solid	69.63	D339
AAC	—	Mk 41	Expl-D	7.38	Mk 25 or 342	Mk 43 or 54	Mk 28 or 31	67.31	D319
	—	Mk 41	Expl-D	7.38	Mk 25 or 342	Mk 43 or 54	Mk 28 or 31	67.31	D319
	—	Mk 41	A-3	7.38	Mk 342	Mk 52/3 or 54	Mk 31/2	67.31	D319
	Mk 121	Mk 61	Expl-D	7.38	Mk 342	Mk 395	Mk 83	67.31	D319
RAP	Mk 58	Mk 78	A-3	3.74	M514A1	Mk 52/0	—	62.00	D325
COM	—	Mk 42	Expl-D	2.14	—	—	Mk 64	70.00	D322

Table 3-9. 5-Inch, 54-Caliber Projectile Data—Continued

Projectile				Fuze			Total weight (lb) (approx.)	DODIC
Type	Assembly	Body	Filler	Nose	ADF or booster	Base		
ILLUM	—	Mk 48/0	Mk 4/7 Load	Mk 25	—	—	69.20	D328
	—	Mk 48/1	Mk 4/7 Load	Mk 25	Mk 89	—	69.20	D353
	—	Mk 48/1	Mk 11 Load	Mk 25	Mk 89	—	69.20	D353
	—	Mk 48/1	Mk 11 Load	Mk 342	Mk 89	—	69.20	D353
	Mk 88/0	Mk 48/1	Mk 11 Load	Mk 342	Mk 396	—	69.20	D353
	Mk 88/1	Mk 48/1	Mk 11 Load	Mk 342	Mk 396	—	69.20	D353
	Mk 88/1	Mk 48/1	Mk 11 Load	Mk 342	Mk 411	—	69.20	D353
	Mk 88/2	Mk 48/1	Mk 11 Load	Mk 342	Mk 396	—	69.20	D353
WP	—	Mk 48/1	Mk 14 Load	Mk 25	Mk 89	—	52.94	D313
	—	Mk 48/1	Mk 14 Load	Mk 342	Mk 89	—	52.94	D313
	Mk 89/0	Mk 48/1	Mk 14 Load	Mk 342	Mk 396	—		D313
	—	Mk 48/1	Mk 14 Load	Mk 30	Mk 89	—	52.94	D314
	Mk 90/0	Mk 48/1	Mk 14 Load	Mk 30/5	Mk 396	—	52.94	D314
	Mk 91/1	Mk 48/1	Mk 18 Load	Mk 342	Mk 396	—	63.92	D354
TP-Puff	—	Mk 41	Reactant Unit	Mk 342	Mk 54/2	Plug	69.36	D291
	Mk 96/1	Mk 61	Reactant Unit	Mk 342	Mk 54/2	Plug	69.36	D291
	—	Mk 41	Reactant Unit	Mk 30/3,5	Mk 54/2	Plug	69.36	D290
	Mk 97/1	Mk 61	Reactant Unit	Mk 30/3,5	Mk 54/2	Plug	69.36	D290
VT-NONFRAG-SD	—	Mk 41	Mk 2 Gray	Mk 73	—	Plug	69.19	D333
	—	Mk 41	Mk 3 Red	Mk 73	—	Plug	69.19	D333
	—	Mk 41	Mk 2/1 Yellow	Mk 73	—	Plug	69.19	D333
	—	Mk 64	Mk 2 Gray	Mk 73/4	Mk 30 bstr	Solid	69.19	D333
	—	Mk 64	Gray	Mk 73/8	Mk 39 bstr	Solid	69.19	D333
	Mk 101	Mk 64	Mk 2 Gray	Mk 73/10	Mk 39 bstr	Solid	69.19	D333
VT-NONFRAG-NSD	—	Mk 41	Mk 2 Gray	Mk 73	—	Plug	69.19	D334
	—	Mk 41	Mk 3 Red	Mk 73	—	Plug	69.19	D334
	—	Mk 41	Mk 2/1 Yellow	Mk 73	—	Plug	69.19	D334
	—	Mk 64	Mk 2 Gray	Mk 73/5	Mk 30 bstr	Solid	69.19	D334
	—	Mk 64	Gray	Mk 73/9	Mk 39 bstr	Solid	69.19	D334
	Mk 100/0	Mk 64	Gray	Mk 73/11	Mk 39 bstr	Solid	69.19	D334
	Mk 100/1	Mk 64	Mk 2 Gray	Mk 73/13	Mk 39 bstr	Solid	69.19	D334
Chaff	—	Mk 48/1	C, X Band	Mk 342	Mk 89/0	—	69.19	D311
	—	Mk 48/1	B, S Band	Mk 342	Mk 89/0	—	69.19	D312
	Mk 79/0	Mk 48/1	Mk 22	Mk 342	Mk 396	—	69.19	D312
BL-P	Mk 109	Hi-Frag	Inert	Dummy	—	Solid	67.57	D341
	Mk 92/0	Mk 55	Inert	Dummy	—	Solid	70.00	D349
	Mk 92/1	Mk 64	Inert	Dummy	—	Solid	70.00	D349
	Mk 92/2	Mk 65	Inert	Dummy	—	Solid	70.00	D349
	Mk 92/3	Mk 61	Inert	Dummy	—	Plug	70.00	D349
	Mk 92/4	Mk 41	Inert	Dummy	—	Plug	70.00	D349
Dummy	Mk 6/0	Bronze	—	Dummy	—	Plug	70.00	D336
	—	Bronze	—	Inert	—	Plug	70.00	D336
	Mk 6/1	Mk 41	Inert	Inert	—	Plug	69.70	D336
	Mk 6/2	Mk 41	Inert	Dummy	—	Plug	69.70	D336
	Mk 118/0	Mk 41	Inert	Inert	—	Plug	69.70	D334
	Mk 118/1	Mk 41	Inert	Dummy	—	Plug	69.80	D336
	—	Mk 64	Inert	Dummy	—	Solid	69.80	D336

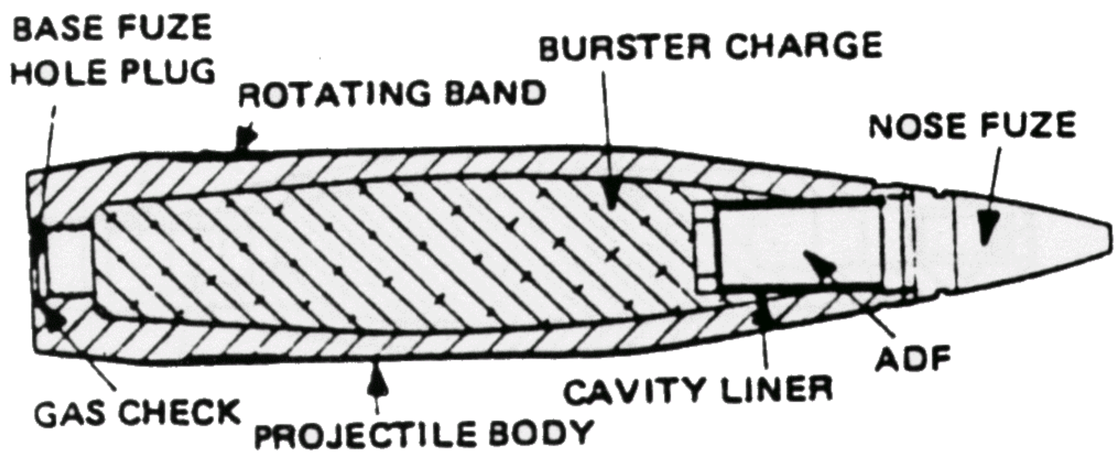


Figure 3-47. 5-Inch, 54-Caliber High Explosive Projectile

3-30.1.1.1. High Explosive, Controlled Variable Time (HE-CVT). This projectile is available with either a high-fragmentation steel body (D346) or a conventional low-fragmentation steel body (D350 or D295). The high-fragmentation body projectile was designed primarily for use against personnel and light surface targets. The HE-CVT can be used in the antiaircraft role in an emergency; however, the reliability is lower than VT or IR fuzed projectiles in this mode. The nose of the projectile body is threaded internally and fitted with a conventional, variable-time radio-frequency proximity and auxiliary detonating fuze. The fuze is separated from the Composition A-3 explosive load by a cavity liner to permit fuze replacement without remote equipment. The base of the projectile is either plugged or solid.

3-30.1.1.2. High Explosive, Point Detonating (HE-PD). This projectile is also available with either a high-fragmentation steel body (D343) or the conventional low-fragmentation steel body (D330). The nose of the projectile body is threaded internally for an auxiliary detonating fuze adapter which is fitted with a point-detonating and auxiliary-detonating fuze, with or without a cavity liner. The low-fragmentation steel body with a Composition A-3 explosive-loaded projectile was designed for use against surface targets vulnerable to an impact burst. The high-fragmentation projectile is explosive loaded with PBXN-106. The base of the projectile is either plugged or solid.

3-30.1.1.3. High Explosive, Mechanical Time/Point Detonating (HE-MT/PD). This high-fragmentation projectile (D340) or low-fragmentation projectile (D338) is fitted with a nose fuze that has the capability of functioning in either a mechanical time or a point detonating mode. The point detonating mode acts as a backup mode if the fuze impacts before the preset time has elapsed. The body is filled with either PBXN-106 (D340) or Composition A-3 (D338). The base of both types are solid.

3-30.1.1.4. High Explosive, Infrared (HE-IR). This low-fragmentation, Composition A-3, explosive loaded projectile (D327) or the high-fragmentation, PBXN-106, explosive loaded projectile (D342) is designed exclusively for use against "hot" airborne targets. The nose of the projectile body is threaded internally and fitted with a variable-time, infrared proximity fuze which has an integral ADF. A point detonationg feature is also incorporated into the nose fuze in the event the target is missed. The fuze is separated from the explosive load to permit fuze replacement without remote equipment. The base of the projectile is either plugged or solid.

3-30.1.1.5. High Explosive, Variable Time (HE-VT). This low-fragmentation steel body projectile (figure 3-46) is designed for use against targets that are vulnerable to airburst. The nose of the projectile body is threaded internally and fitted with a variable-time, radio-frequency proximity fuze, which is supplemented by a booster. A self-destruct capability is incorporated into the nose fuze of projectiles D316 and D331. Beginning in the mid 1970s, the self-destruct feature was determined to be no longer required for modern warfare tactics and will eventually be phased out. The self-destruct feature is omitted in projectiles D317 and D332. The nose fuze is separated from the Composition A-3 explosive load by a cavity liner to permit fuze replacement without remote equipment. The base of the projectile is either plugged or solid.

3-30.1.2. High Fragmentation (HI-FRAG).

WARNING

HI-FRAG projectiles dropped less than 5 feet shall be examined carefully for joint separation and damaged rotating bands. Projectiles dropped more than 5 feet shall be disposed of in accordance with OP 5. Accidental drop of a projectile often results in widening of the mid-body joint between the forward and aft projectile halves. If a projectile is found with a joint opening exceeding 1/16 inch (the thickness of a U.S. penny), the round should be set aside for return to an ammunition activity. Accidental drop of a projectile may result in a cracked or broken rotating band. These projectiles warrant close band inspection. If a cracked or broken rotating band is found, the round should be set aside for return to an ammunition activity.

The HE-CVT Mk 81, HE-PD Mk 83, the HE-MT/PD Mk 82, and the HE-IR Mk 84 HI-FRAG projectiles (figure 3-48) are general purpose rounds, designed for a multitude of tasks including antiaircraft fire, shore bombardment, and use against unarmored or lightly armored ships and vehicles. These projectiles combine high lethality, extended range, tighter dispersion, and greater freedom from disastrous premature firings. Each projectile consists of

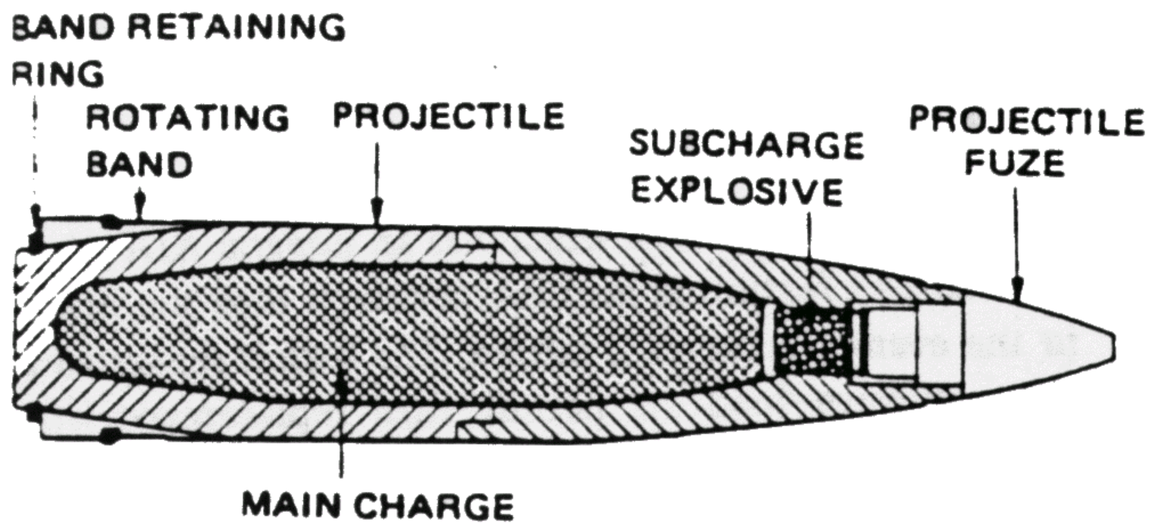


Figure 3-48. 5-Inch, 54-Caliber High Fragmentation Projectile

a two-piece projectile body which has a visible press-fit joint in the central portion. Other distinguishing features include a plastic discarding rotating band, a one-caliber boattail beneath the rotating band, an improved ogive shape, no waterproof protecting cap threads, and a forward and after bourrelet. The improved aerodynamic shape in conjunction with the Mk 73 high energy propelling charge gives the projectile an extended range capability. The explosive system includes a main charge and a subcharge. Both charges are encapsulated in polyethylene beakers. This allows 100% inspection of the charges before assembly as well as ecological disposal upon disassembly. Both of these charges are vacuum loaded with PBXN-106.

3-30.1.3. High Capacity (HC). These low-fragmentation, steel body projectiles (figure 3-49) are designed for use against unarmored surface targets or shore installations that are vulnerable to impact burst. The projectile nose and base are threaded internally to receive nose and base fuzing. The projectile cavity is filled with either Explosive D or Composition A-3.

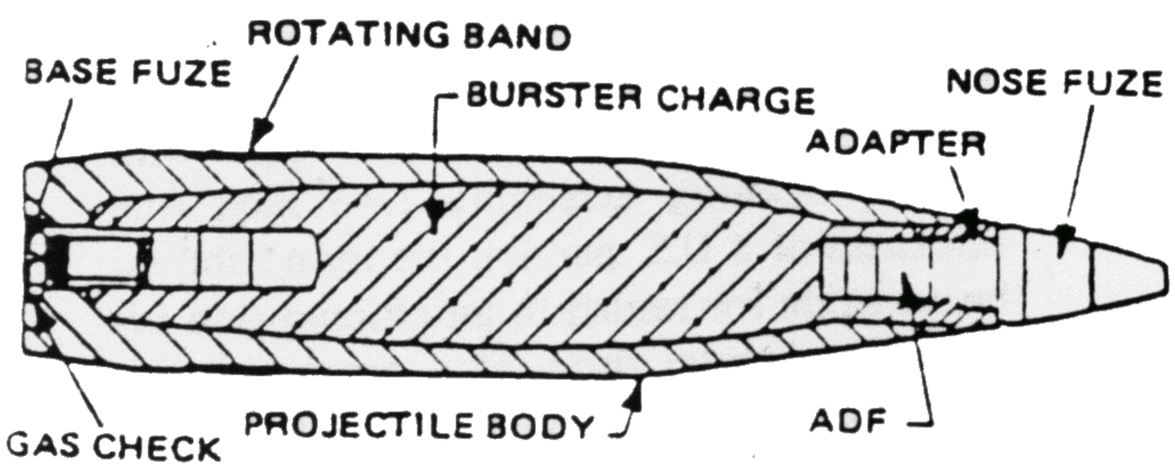


Figure 3-49. 5-Inch, 54-Caliber High Capacity Projectile

3-30.1.4. Antiaircraft Common (AAC). This low-fragmentation steel body projectile (figure 3-50) is designed for use against airborne or surface targets that are vulnerable to airbust. The projectile body nose and base are threaded and internally fitted with nose and base fuzing to provide increased detonation reliability. The nose is fitted

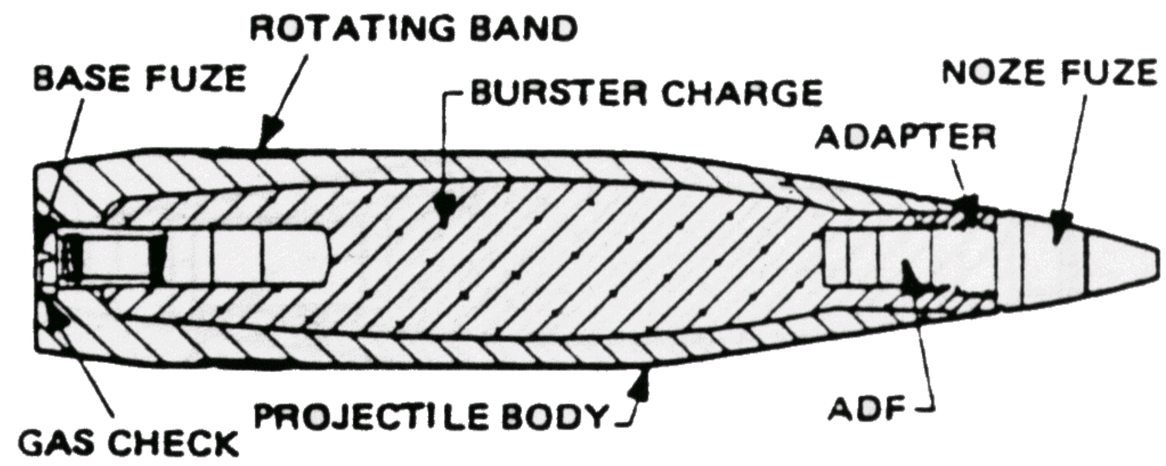


Figure 3-50. 5-Inch, 54-Caliber Antiaircraft Common Projectile

with a fuze adapter and a mechanical-time and auxiliary detonating fuze. The projectile cavity is filled with either Explosive D or Composition A-3.

3-30.1.5. Rocket Assisted Projectile (RAP).

WARNING

During handling of a RAP, a drop in excess of 24 inches on the base of the projectile in which a deck pin (rivethead), bolt, or miscellaneous object strikes the center hole of the igniter, sufficient striking energy could be provided to actuate the igniter. In this event, ignition of the rocket motor may be delayed 20 to 30 seconds. All personnel should immediately evacuate the area. Do not attempt disposal prior to rocket motor ignition. If the rocket motor burns in a closed compartment, insure that the area is clear of fumes prior to re-entry. Dispose of the projectile in accordance with standard explosive ordnance disposal practice.

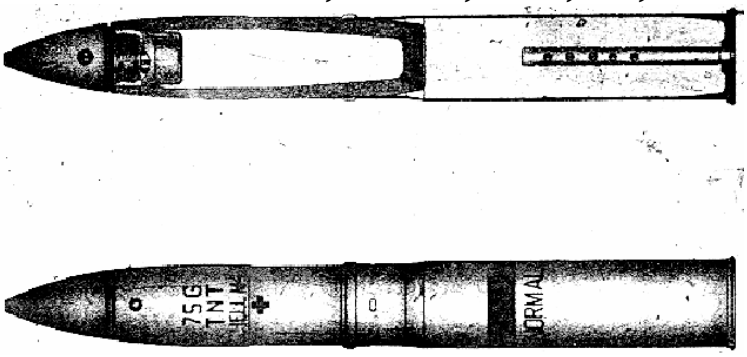
CAUTION

Extreme caution must be used in firing operations. Ensure the correct identification of RAP projectiles because of the similarity of projectile appearance and the dissimilarity of impact points of a RAP compared to standard projectiles.

The projectile (figure 3-51) is made up of a solid propellant rocket motor (Mk 64) with a delayed ignition element and a centrifugal variable-time fuzed warhead (Mk 78), designed for use against personnel and light material targets. The RAP can be handled, stowed, and fired almost identically to the conventional 5-inch projectiles now in use and is propelled by the same charge. The 5-inch, 54-caliber Mk 58 RAP has the same shape as the standard projectile. To insure ignition reliablility the 5-inch, 54-caliber RAP must

Ordnance Technical Data Sheet

U.S. PROJECTILE, 75-MM, GUN, HE, M48



Nomenclature:	75-mm Projectile, High Explosive
Ordnance Family:	Projectile
Filler:	Amatol*
Filler weight:	675.9 g (23.84 oz)
Item weight:	8.274 kg (18.24 lbs)
Diameter:	75.00 mm (2.953 in)
Length:	596.4 mm (23.48 in)
Maximum Range:	7,900 yds
Fragmentation Distance:	2,009 feet
Fuze:	Varies

Usage: This is an Army gun fired projectile. It is painted green. It is nose fuzed only.

Description: Army HE projectiles are issued either with a nose fuze in place, or with a removable lifting plug or closing plug which is replaced with a nose fuze before firing. Fuze types include ET, MT, MTSQ, PD, and PDSD. These projectiles do not have base fuzes.

*Amatol - A main charge explosive employed by practically all foreign countries. Used in the U.S. as a substitute explosive in 3 inch, 155 mm, and larger shells. Amatol is also used in bombs and Bangalore torpedoes. A mixture of ammonium nitrate and TNT; the percentage by weight of ammonium nitrate varies from 40 to 80 percent. It has a color of yellow to dark brown depending on the composition and purity of components. TNT is soluble in acetone and carbon tetrachloride; ammonium nitrate is very soluble in water. Less sensitive to detonation than TNT, but is readily detonated by mercury fulminate and other high explosives. Very hygroscopic and therefore is usually protected by a sealing pour of TNT. Amatol in the presence of moisture attacks copper, brass, and bronze forming dangerously sensitive compounds. Amatol may corrode steel when dry and becomes fluid or plastic when hot.

Reference: ORDATA Online, MIDAS.

Width of rotating band	1.02 in
Type of base	Square
Type of nose	Conical
Degree of nose taper	14° 21′
Muzzle velocity	3,400 fps
Range (at 1° 20′)	3,500 yd
Maximum range	13,100 yd
Penetration (homogeneous plate at 30° obliquity, at 1,000 yd)	5.3 in

RA PD 80751A

Figure 91. Shell, fixed, HE, M42A1, smokeless, w/fuze, PD, M51A5, 0.05-sec delay, for 76-mm guns.

122. Shell, Fixed, HE, M42A1, Smokeless, w/Fuze, PD, M51A5, 0.05-Sec Delay, for 76-mm Guns (fig. 91)

a. GENERAL. This shell provides for fragmentation and blast effect at the target for use against personnel and light matériel. The complete assembly consists of the standard cartridge case, an M40A1 primer, a 3.75-pound propelling charge of M6 powder, and a fuzed high-explosive shell. The shell body is a relatively thin-walled forged steel casing having an explosive charge cavity extending almost the full length of the body. As shipped, the shell is fitted with the M51A5 fuze, a selective type providing alternative superquick action for surface burst on impact, or 0.05-second delay action. The round gives smokeless performance when fired under average conditions. Some rounds on hand are assembled with the M51A4 or the M48A2 fuze, with 0.05- or 0.15-second delay, and with flashless or flashless-smokeless propelling charges. Otherwise, the rounds are the same and the same data apply.

b. DATA.

Weight of complete round	22.57 lb
Weight of the projectile, as fired	12.66 lb
Length of complete round	32.32 in
Length of fuzed projectile	12.26 in
Length of cartridge case	21.30 in
Width of rotating band	1.02 in
Type of base	Square

Radius of ogive	7.04 cal.
Muzzle velocity	2,700 fps
Maximum range	14.360 yd

123. Shell, Fixed, HE, M42A1, Smokeless, w/Fuze, MTSQ, M500, for 76-mm Guns

This round is identical with that described in paragraph 122 except for the 75-second mechanical time and superquick fuze assembled thereto. Data in paragraph 122 are applicable to this round. Some rounds on hand are assembled with the 25-second time and superquick fuze M55A3 and with flashless-smokeless propelling charge.

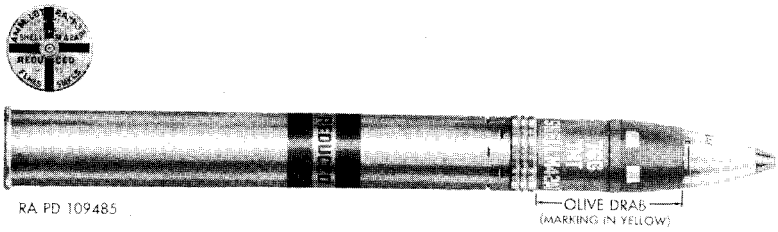


Figure 92. Shell, fixed, HE, M42A1, reduced charge, smokeless, w/fuze, PD, M51A5, 0.05-sec delay, for 76-mm guns.

124. Shell, Fixed, HE, M42A1, Reduced Charge, Smokeless, w/Fuze, PD, M51A5, 0.05-Sec Delay, for 76-mm Guns (fig. 92)

This round is similar to that described in paragraph 122 except that it has a reduced charge of propellant composed of M1 powder. This round is fitted with the M28A2 primer which, with the reduced charge, gives smokeless performance under average conditions. Weight of complete round is 19.01 pounds, muzzle velocity is 1,500 fps, and maximum range is 8,805 yards. Some rounds on hand are fitted with the M48A2 or the M51A4 fuze and have a flashless-smokeless propelling charge. Otherwise, data in paragraph 122 are applicable.

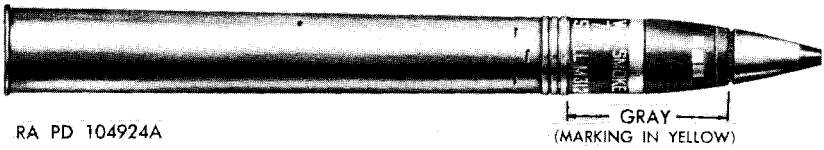
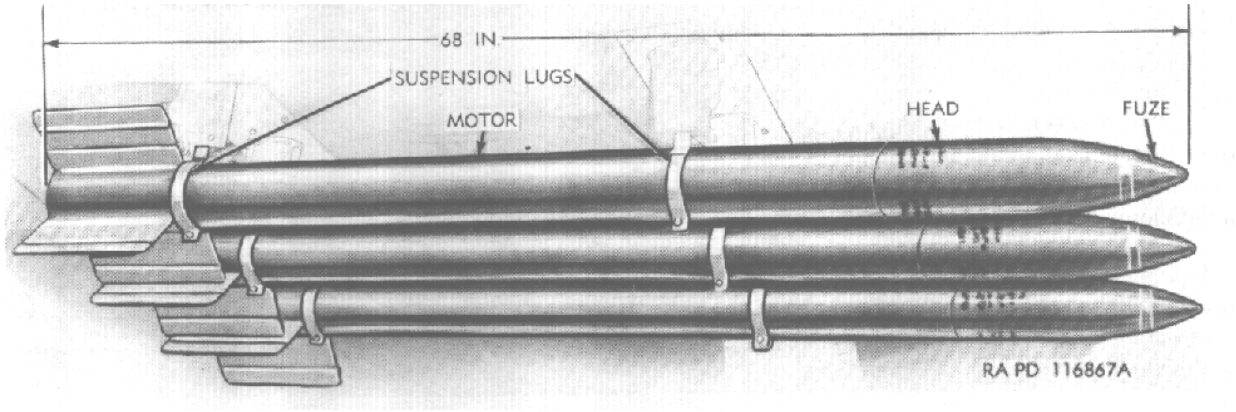


Figure 93. Shell, fixed, smoke, WP, M312, smokeless, w/fuze, PD, M48A3, 0.05-sec delay, for 76-mm guns.

ROCKETS, 5 INCH (HVAR)



General. The 5.0-inch fin stabilized, high-velocity aircraft rocket is a Navy type used by the Air Force for forward firing from aircraft. The 5.0-inch rocket is fired from retractable jettisoning launcher using suspension bands. Electrical energy to fire the rocket is derived from the electrical system of the aircraft. The rocket consists of a fuzed head and a motor.

Rocket Heads. Listed below are the various HVAR heads, which are assembled with 5.0-inch rocket motors to form HAVR complete rounds. Complete round data and nomenclature are given in tables. The TNT loaded heads Mk 6 and Mods are shipped with permanently installed base fuze Mk 159 Mod 1 or Mk 164 and Mods and a shipping cap that is replaced by nose fuze Mk 149. The TNT-filled head Mk 6 Mod 4 is especially deep cavitized to receive a VT fuze. The head Mk 25 Mod 1 is a shaped charge type (having an internal copper cone) loaded with composition B. As shipped, the head Mk 25 Mod 1 has a nose shipping plug, which is replaced by nose fuze Mk 149, and a shipping cap to protect the base threads.
HEAD, HIGH EXPLOSIVE, 5.0-inch ROCKET: HVAR, Mk 6 Mod 0, 1, 2, and 3, TNT loaded, with fuze, rocket base AN-Mk 159 (Mk 159 Mod 1) or AN-Mk 164 (Mk 164) and Mods installed.
HEAD, HIGH EXPLOSIVE, 5.0-inch ROCKET: HVAR, Mk 6 Mod 4, TNT loaded, adapted for fuze, VT, M403, with fuze, rocket, base AN-Mk 159 (Mk 159 Mod 1) and Mods or AN-Mk 164 (Mk 164) and Mods installed.
HEAD, INERT, 5.0-inch ROCKET: Mk 6 and Mods.

Fuze. The 5.0-inch HVAR head Mk 6 Mods is permanently fuzed with base fuze Mk 159 Mod 1 or Mk 164 and Mods. The heads Mk 6 and Mods and Mk 25 Mod 1 receive nose fuze Mk 149 Mod 0 or 1 after removal of the nose-shipping cap. The Mk 6 Mod 4 receives VT fuze M403 or M403E2 (Mk 172 Mod 2).

Motor. Listed below are various similar 5.0-inch rocket motors, which are assembled with 5.0-inch HVAR heads to form complete rockets as, indicated in tables. The motor Mk 10 differs from the motor Mk 2 principally in having an Army igniter plug instead of a Navy (bayonet-type) plug. The 5.0-inch motor is externally threaded at the forward end to engage the head. It consists of the motor tube, front closure disk, igniter, propellant, nozzle plate, suspension lugs and fin assembly and suspension lugs.
MOTOR, 5.0-INCH ROCKET: Mk 2 Mod 3

MOTOR, 5.0-INCH ROCKET: Mk 2 Mod 3 (with bayonet-type connector plug)
MOTOR, 5.0-INCH ROCKET: Mk 10 Mods 4 and 5
MOTOR, 5.0-INCH ROCKET: Mk 10 Mods 4 and 5 (with electrical connector Mk 11 Mod 5 or M3)
MOTOR, 5.0-INCH ROCKET: Mk 10 Mod 7 (without fin)
MOTOR, 5.0-INCH ROCKET, EMPTY: Mk 2 Mod 3
MOTOR, 5.0-INCH ROCKET, INERT: Mk 2 Mod 3

Fin Assembly. The fin assembly, which is clamped to the rear end of the motor, is a sleeve with four equally spaced rectangular fins extending radially.

Propellant. The propellant is a single grain Mk 18 Mod 0 of ballistite.

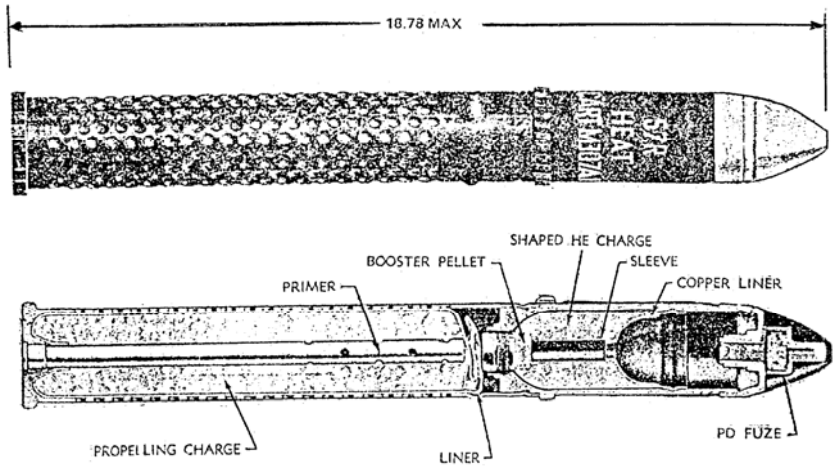
Igniter. The igniter is a metal can containing 55 grains of black powder and an electric squib. Two lead wires from the squib extend from the igniter passing through the perforation in the propellant grain to the nozzle where they are connected to the electrical cable and igniter plug (connector).

Head			Motor			Fuze		Velocity (fps)	Use
Dia. (in)	Mark & Mod	Fillers	Dia. (in)	Mark & Mods	Propellant grain	Nose	Base		
5.0	Mk 6 Mods	TNT	5.0	Mk 10 Mods	Mk 18 Mod 0	Mk 149 Mod 0 or 1	Mk 164 Mod 0	1,325	Service
5.0	Mk 6 Mod 4	TNT	5.0	Mk 10 Mods	Mk 18 Mod 0	Mk 149 Mod 0	Mk 164 Mod 0	1,325	Service
5.0	Mk 6 Mod	Plaster	5.0	Mk 10 Mods	Mk 18 Mod 0	None	None	1,325	Practice
5.0	Mk 6 Mods	Plaster	5.0	Mk 2 Mod 3	None	None	None	None	Drill
5.0	Mk 25 Mod 1	Comp B	5.0	Mk 10 Mods	Mk 18 Mod 0	Mk 149 Mod 0	None	1,325	Service (AP)

Army Complete Round Nomenclature	Rocket, HE, 5.”, HVAR	Rocket, HE, 5”, HVAR	Rocket, HE, 5”, HVAR, AT	Rocket, Practice, 5”, HVAR	Rocket, Dummy, 5,”, HVAR
Navy Complete Round Nomenclature	5” Rocket, Mk 4 Mod 0 (aircraft general purpose)	5” Rocket, Mk 28 Mod 4 (aircraft general purpose)	5” Rocket, Mk 32 Mod 1 (aircraft, HEAT)	5” Rocket, Mk 5 Mod 0 (aircraft practice)	5” Rocket, Mk 6 Mod 0 (aircraft dummy)
HEAD- Mark & Mod Length (in. Diameter (in.) Weight (lb.) Filler Weight (lb.)	Mk 6 Mod 4 16.73 5.0 45.5 7.5 TNT	Mk 6 Mods 16.73 5.0 45.5 7.5 TNT	Mk 25 Mod 1 ---------- ---------- ---------- 7.5 COMP B	Mk 6 Mods 16.73 5.0 45.5 7.5 Plaster	Mk 6 Mods 16.73 5.0 45.5 7.5 plaster
MOTOR-Mark & Mod Length (in.) Diameter (in.) Weight (lb.) Model of Propellant Propellant weight (lb.)	Mk 10 Mod 6 ---------- 5.0 ---------- Mk 18 Mod 0 23.9	Mk 10 Mod 6 52.0 5.0 89.3 Mk 18 Mod 0 23.9	Mk 10 Mods 52.0 5.0 89.3 Mk 18 Mod 0 23.9	Mk 10 Mod 6 52.0 5.0 89.3 Mk 18 Mod 0 23.9	Mk 10 Mod 6 52.0 5.0 89.3 Mk 18 Mod 0 23.9
FUZE-type, Mark and Mod	Nose: VT, M403 or M403E2 Base: Mk 164 Mods	Nose: Mk 149 Mod 0 or 1 Base: Mk 164 Mod 0	Nose: Mk 149 Mod 0 Base: None	None	None
ROCKET (assembled) Length (in.) Weight (lb.) Velocity (max((fps)	68.6 ---------- 1360	68.6 134.0 1,325	68.6 134.0 1,325	68.6 134.0 1,325	68.6 109.0

Reference: TM 9-1950 *Rockets*, July 1945

CARTRIDGE, 57mm, RECOILLESS RIFLE, HEAT, M307 & M307A1



Use. This cartridge is employed against armored targets and used with 57-mm rifles M18 and M18A1.

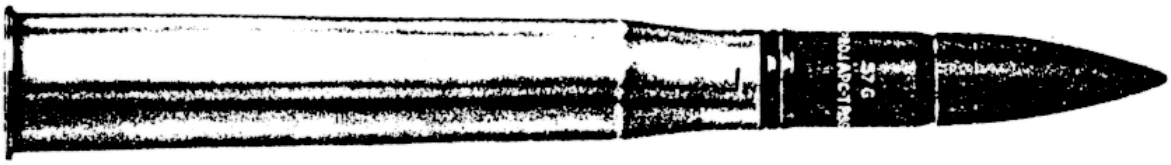
Description. HEAT cartridge M307A1 includes a perforated metal cartridge case containing a plastic liner and a percussion primer and is crimped to the projectile just behind the pre-engraved rotating band of the projectile. The projectile forward cap is threaded to receive a point detonating fuze. A hemispherical copper liner crimped to the interior of the projectile forms a shaped charge to the rear and space forward to provide the standoff necessary for penetration. A steel sleeve brazed to the neck of the copper liner provides a passage from the fuze to a booster pellet in the base of the projectile. The booster pellet extends into the high explosive charge.

Functioning. The primer ignites the propellant when struck by the weapon firing pin, and the burning propellant generates gases to propel the projectile through the barrel. Recoil is eliminated because the design of the cartridge case permits controlled escape of some gas pressure through apertures in the rifle breechblock. The rotating band engages the rifling in the barrel to spin the projectile for stability in flight. The fuze functions on impact and fires through the steel sleeve to the booster pellet. Detonation of the explosive charge collapses the copper liner and creates a focussed, high velocity shock wave containing a jet of metal particles that penetrates the interior of the target.

Over-all Length (Max).....18.78 inch
Weight of complete round.....5.43 pound
Filler and weight.....Comp B or 50-50 Pentolite, 0.40 pound
Propelling charge.....M10
Color.....Olive Drab with yellow markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977

CARTRIDGE, 57mm, APC-T, M86



Use. This cartridge is fired from the M1 57mm Gun and British 6-pounder (2.24”) and are intended for defeating armor plate. It was used extensively in the latter stages of World War II and was limited standard during the Korean War.

Description: The complete round consists of the standard cartridge case, primer, and propelling charge, assembled to a loaded armor-piercing-capped projectile. The projectile body is of hardened steel, and has a square base and ogival nose. The hardened steel cap, crimped to the nose, increases the effectiveness against face-hardened plate. For better ballistics, a lightweight ogival windshield is secured to the cap by crimping. An M72 base detonating fuze is fitted to the base to explode the small high explosive charge of explosive D. The fuze has incorporated in it the M17 detonator assembly, which detonates the explosive D and tetryl pellet bursting charge.

Functioning. The fuze functions with delay action and has a tracer in its base, which operates independently of the fuze mechanism. The tracer burns for approximately 4.5 seconds after being ignited by the propelling charge, providing a visible trace for observation purposes over a range of about 3,000 yards.

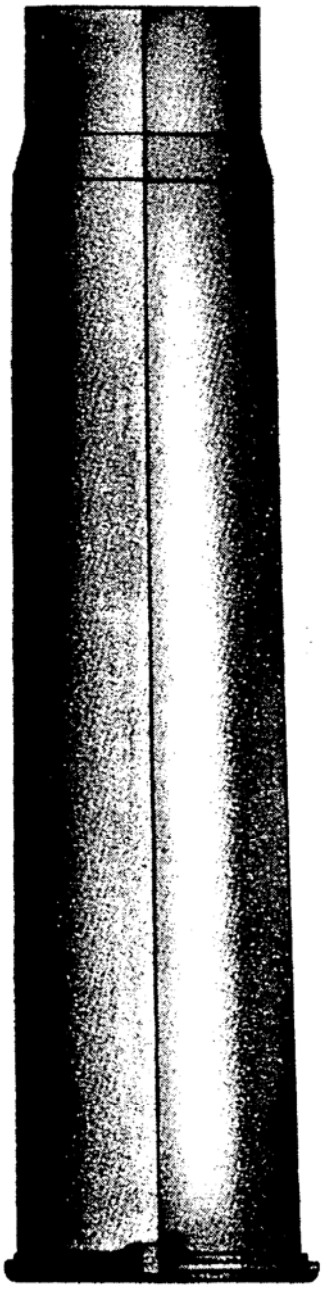
Length (complete round).....26.72 inches
Length (fuzed projectile).....11.24 inches
Weight (complete round).....13.73 pounds
Fuze.....M72 Base detonating
Filler.....Explosive D, tetryl
Color.....Olive Drab with yellow markings

Reference: TM 9-1901, *Artillery Ammunition*, September 1950; TM 9-1904, *Ammunition Inspection Guide*, March 1944

PROJECTILE, 6-POUNDER

CARTRIDGE CASE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
DESIGNATION: 6 Pdr. Mk I	GUN: 6 Pdr. - 40, 45 and 50 cal.



MK. I

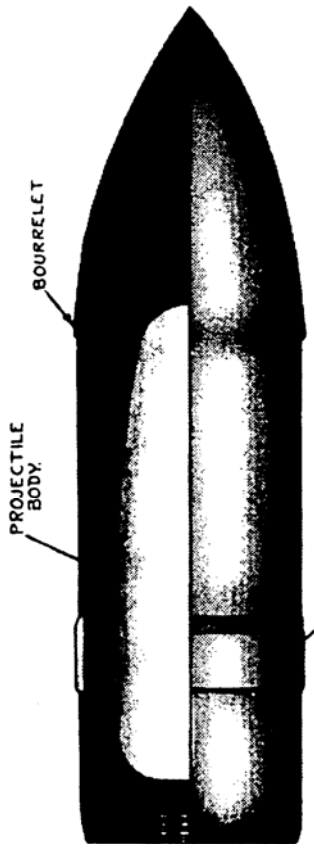
CARTRIDGE CASE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
DESIGNATION: 6 Pdr. Mk I	GUN: 6 Pdr. - 40, 45 and 50 cal.

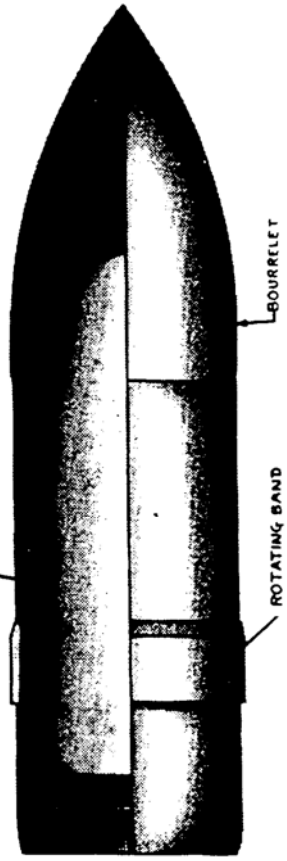
1.	OVERALL LENGTH	12.09"
2.	MAXIMUM DIAMETER	2.705"
3.	INSIDE DIAMETER AT NECK	2.209"
4.	CASE THICKNESS AT NECK	.045"
5.	BEGINNING OF TAPER AT BASE	10.04"
6.	DIAMETER OF CAP CONTAINER	.473"
7.	EXTRACTING LIP	.15"
8.	MATERIAL	Brass
9.	MARKING	Mfg's symbol, date, "6 Pdr. Mk I"
10.	WEIGHT EMPTY	2.125 lbs
11.	PROPELLANT	Black Powder
12.	EXPLOSIVE IN CAP	Mixture of Mercury Fulminate, Antimony Sulfide and Potassium Chlorate.

PROJECTILE DATA

NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6 Pounder	CLASSIFICATION: Common
TARGET: Used in Coast Guard guns, landing forces, etc.	



MK.III.MOD.3



MK. III. MOD.4

PROJECTILE DATA

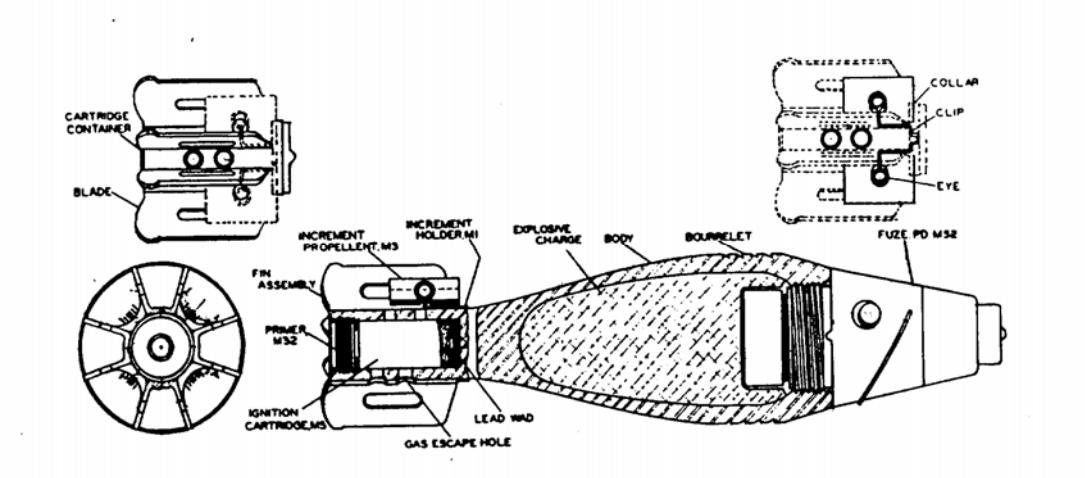
NATIONALITY: U.S. NAVY	INFORMATION DATE: April, 1943
CALIBER: 6 Pounder	CLASSIFICATION: Common
TARGET: Used in Coast Guard guns, landing forces, etc.	

1.	OVERALL LENGTH -	8.45"
2.	DIAMETER OF BASE	2.224"
3.	DISTANCE FROM BASE TO BAND	1.493"
4.	WIDTH OF BAND	.787"
5.	DIAMETER OF BOURRELET	2.239"
6.	TYPE OF FILLER	Black Powder
7.	WEIGHT OF FILLER	.24 lbs
8.	WEIGHT OF LOADED PROJECTILE	6.00 lbs
9.	CHARGE-WEIGHT RATIO	4.00 %
10.	TYPE OF GUN USED IN	6 Pdr.
11.	PUZES WHICH MAY BE USED IN PROJECTILE	Base: Mk. 8; Mk. 8 Mods 1, 2, 3, 4 & 5; Mk. 2 Mods 8 & 9.
12.	TRACER	In fuze
13.	CARTRIDGE CASE	Mk. 1
14.	PRIMER	Mk. 10 Mods 8 & 9

15. REMARKS:

This ammunition is used in Coast Guard guns. The bursting charge is Black Powder and T.N.T. or Black Powder alone. Black Powder is very sensitive and this should be kept in mind when unscrewing the fuze as some of the powder may have fallen down into the threads and the friction would cause detonation.

MORTAR, 60mm, HE, M49A2, PRACTICE, M50A2



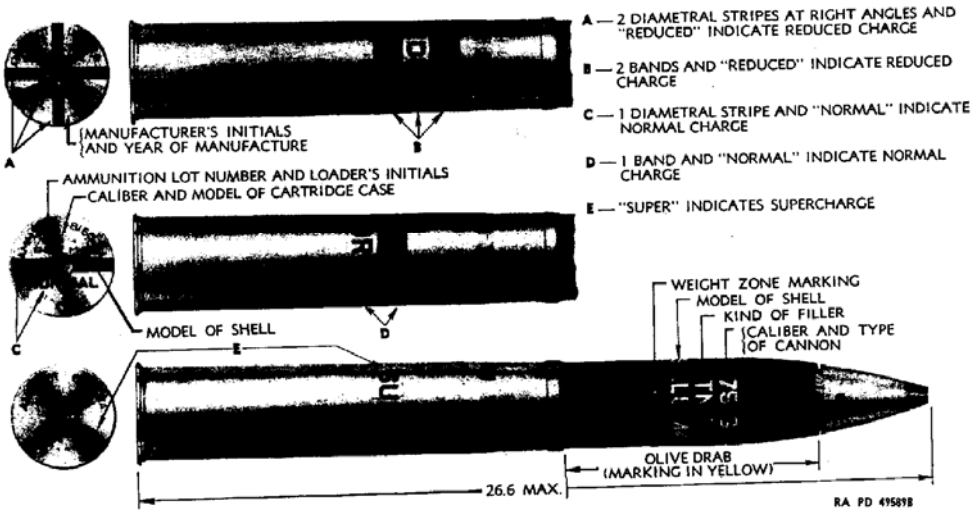
Description. The body of this shell may be constructed of forged steel, cupped-rolled, plate-welded longitudinally, or a machined casting. It is tear-dropped in shape, having a blunt nose and tapered tail. Near the nose end of the shell is a machined bourrelet which acts as a forward bearing surface and as a gas check. The nose is threaded to receive the fuze directly. The fuze used is the Point-detonating Fuze M525A2 which has a superquick action. The tail end is closed and internally threaded to receive the stabilizer assembly. The shell filler is 0.34 pounds of flake TNT. The ignition cartridge M5A1, contains 40 grains of double base powder. The propellant increments, M3, consists of square strips of double base powder sewn together. Each increment has 35 grains of finely granulated double base powder. The shell body is painted olive drab and stenciled in yellow.

Shell, Practice, M50A2. This shell is identical to the service round. It differs in that the filler consists of 0.05 pounds of black powder to act as a spotting charge, and 0.29 pounds of inert filler. The body is painted blue with white stenciling.

Over-all Length ..... 9.5 inch
Diameter (body) ..... 2.34 inch
Total Weight ..... 2.94 pound
Filler ..... TNT (flaked)
Filler weight ..... 0.34 pounds
Propellant ..... ballistite
Fuze ..... M52 PD
M525A1 PD
Painting and markings ..... Olive drab w/ yellow markings

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944, TM 9-1300-205, *Ammunition for Mortars*, September 1960

SHELL, 75mm, GUN HE, M48



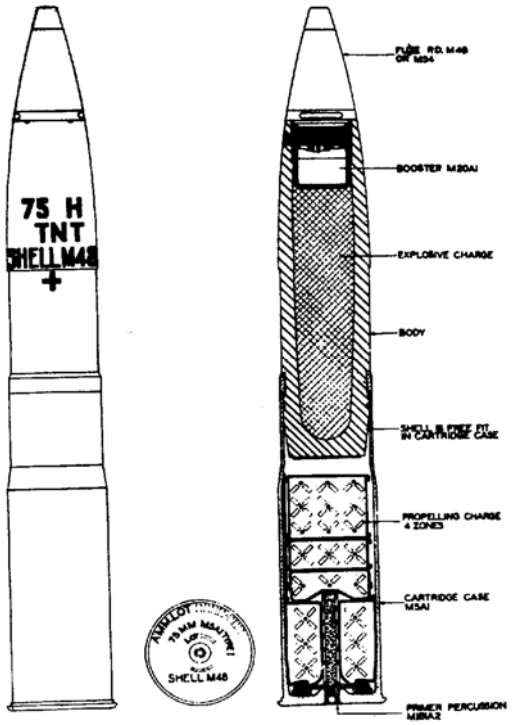
SHELL, H.E., M48, for 75-mm Guns

Description This projectile is streamlined with a 9° tapered or boat-tailed base and a 7.5-caliber radius of ogive. The projectile is made of forged steel; it has a rotating band of gilding metal, a fringing groove; and a steel base cover spot welded to its base. It is also provided with a single groove, between the fringing grove and the boat-tail, for stab crimping of the cartridge case. The booster and fuze assemble directly to the nose of the shell, the booster being tightened in place by a set screw, and the fuze by staking into notches cut in the rim of the nose. The standard bursting charge consists of 1.49 pounds of TNT. The actual weights, for uniformity of ballistics, are classified into weight zones which are indicated by yellow crosses (+++) stenciled below the bourrelet of the shell. The propelling charge M18 and M18B1 provides three charges; normal, super, and reduced. The mean weight of the complete round are: for the supercharge, 19.3 pounds; for the normal charge, 18.5 pounds; and for the reduced charge, 18.0 pounds. The projectile is painted lusterless olive drab and is stenciled in yellow with the designation of weapon (75G), the designation of filler (TNT), and the complete round designation (Shell M48).

Over-all Length (Max)	26.6 inch
Diameter (body)	2.925 inch
Total Weight	(+) 18.0 pound (++) 18.5 pound (+++) 19.3
Filler	TNT
Filler weight	1.49 pounds
Cartridge Case	M18, M18B1
Propellant	FNH powder
Primer	M22A3, M22-series and M31
Fuze	M48A2, M54, M51A4, M21A4
Painting and markings	Olive drab w/ yellow markings

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944

SHELL, 75mm HOWITZER, HE, M48



Shell, Semifixed, H.E., M48

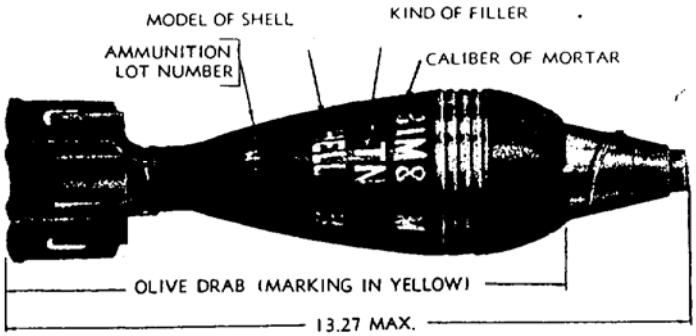
General. The complete round with the exception of cartridge case, primer, propelling charge, and markings is similar to the gun Round M48.

Description. This projectile is streamlined with a 9° tapered or boat-tailed base and a 7.5-caliber radius of ogive. The projectile is made of forged steel; it has a rotating band of gilding metal, a fringing groove; and a steel base cover spot welded to its base. It is also provided with a single groove, between the fringing grove and the boat-tail, for stab crimping of the cartridge case. The booster and fuze assemble directly to the nose of the shell, the booster being tightened in place by a set screw, and the fuze by staking into notches cut in the rim of the nose. The standard bursting charge consists of 1.49 pounds of TNT. The projectile is painted lusterless olive drab and is stenciled in yellow with the designation of weapon (75H), the designation of filler (TNT), and the complete round designation (Shell M48).

Filler ..... TNT
Filler weight ..... 1.49 pounds
Cartridge Case M5, M5A1B1
Propellant ..... FNH (15.55 oz. max)
Primer M1B1A2
Fuze M48, M48A1, M54
Painting and markings ..... Olive drab w/ yellow markings

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944

MORTAR, 81mm, HE AND PRACTICE, M43A1



Shell, HE, M43A1, Shell Body. It is constructed of forged steel. It is tear-dropped in shape; that is, blunt nose and tapered tail. It has a bourrelet machined near the nose of the shell consisting of several annular grooves which serves to act as a forward bearing surface and a gas check The nose is machined and threaded to receive an adapter. The adapter is threaded and acts as a bushing for a bakelite fuze well cup and the fuze. The fuze used is the Point-detonating Fuze M45. This fuze has a selective element and can be set for either superquick or delay action. The shell filler is 1.22 pounds of TNT. The total weight of the completely assembled round is 7.05 pounds. Entire length of the fuzed shell is 13 1/4 inches.

Fin assembly. The fin assembly consists of a machined cartridge container to which are attached six stationary fins. One end is threaded and screwed on to the body of the shell. The other end is machined and hollow inside so as to receive the ignition cartridge. Several holes leading from the interior to the exterior periphery of the cartridge container serve to conduct the flames from the ignition cartridge to the propellant increments which are seated in the fins.

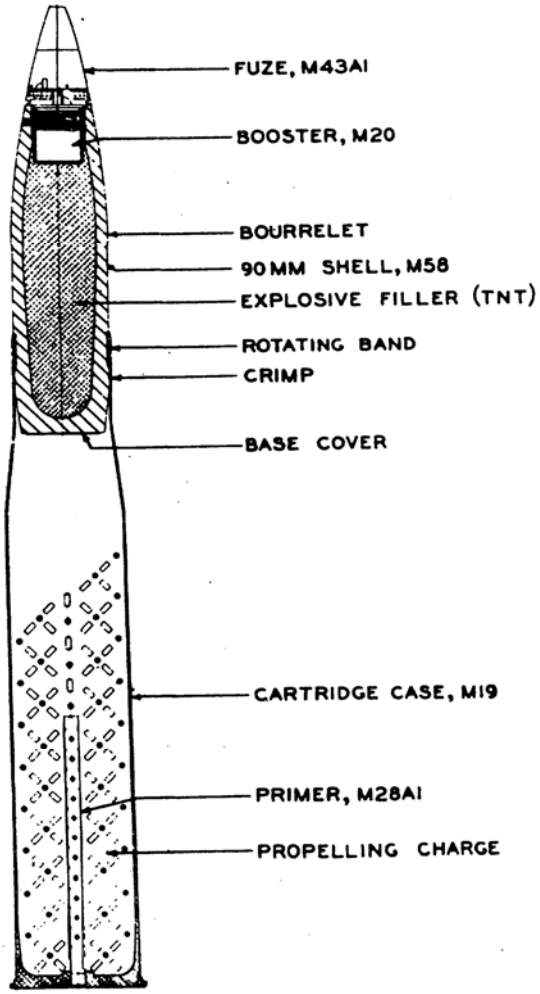
Shell, Practice, M43A1. The shell body, components used, and packing are identical to the shell previously described. It differs in that the filler consists of 0.16 pound of black powder to act as a spotting charge, and 1.06 pounds of inert filler such as wax, talcum, or rosin. The body is painted blue with white stencil to indicate a practice shell.

Over-all Length ..... 13.25 inches
Diameter (body) ..... 3.16 inches
Total Weight ..... 7.05 pounds
Filler
- **HE** ..... TNT, 1.22 pound
- **Practice** ..... Black powder, 0.16 pound

Propellant ..... Ballistite
Fuze ..... M45, point-detonating
Painting and markings
- **HE** ..... Olive drab, yellow markings
- **Practice** ..... Blue, white markings

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944

SHELL, 90mm, FIXED, PRACTICE, M58



General. This complete round was originally developed as the High-explosive Round M58. Due to the thin body walls, prematures resulted. As a result, the filler was washed out and a substitute filler of sand and a black powder spotting charge was substituted. The round, thus, has been designated a practice round.

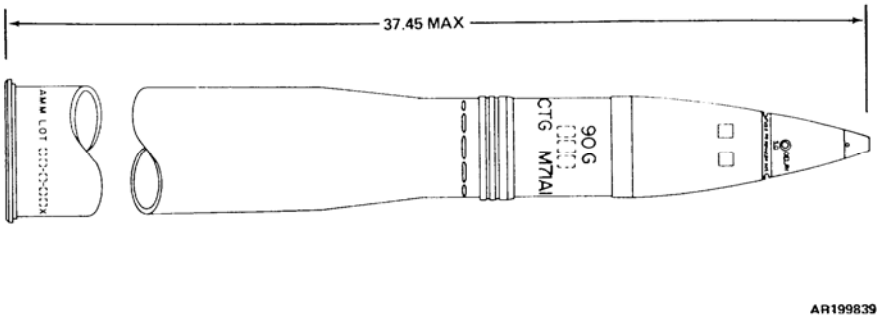
Projectile. The projectile is of steel construction. It is streamlined, with a boat-tail base. The fuze continues the exterior streamline of the projectile. The shell has a base plate welded to its base.

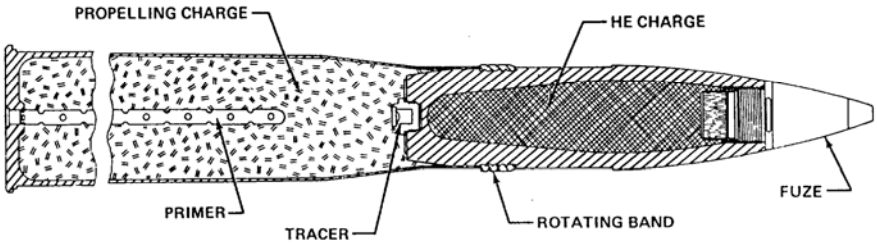
Components. A complete round of M58 Practice Ammunition consists of the following: An M58 Projectile with 2.11 pounds of inert filler and 0.56 pound black powder spotting charge in pellet form; an M20 Booster and an M43A2 Fuze; and an M19 cartridge Case with a propellant charge of NH smokeless powder.

Length of complete round ..... 37.45 inches
Diameter..... 3.62 inches
Filler
  Sand ..... 2.11 pounds
  Black Powder Spotting Charge ..... 0.56 pounds
Weight of propellant..... 7.31 pounds
Fuze ..... M43A2 Mechanical Time
Color..... Blue, or Black with white markings

References: TM 9-1904, *Ammunition Inspection Guide*, March 1944; *Department of Ordnance, Complete Round Chart No. 5981*, March 1945

CARTRIDGE, 90mm, HE, M71; HE-T, M71A1





Projectile. The hollow steel forged projectile has a boat-tailed base and a streamlined ogive. The fuze continues the streamline of the projectile. Fuze cavity may be normal or deep cavity type.

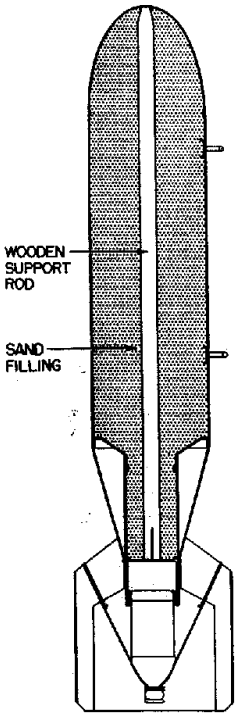
Components. The filler for this round is 2.15 pounds (1.86 pounds, deep cavity) of Composition B or TNT. A tracer is threaded into the projectile base (M71A1). A point-detonating fuze is assembled to the projectile. Loaded projectile weights fall into one of three weight zones. The loaded and fuzed projectile is assembled to an M19 or M19B1 Cartridge Case containing M1, M6, or M15 propellant.

Difference Between Models. M7A1 has a tracer; M7 does not. M7A1 has M1 propellant resulting in lower velocity; M71 has M6 or M15 propellant.

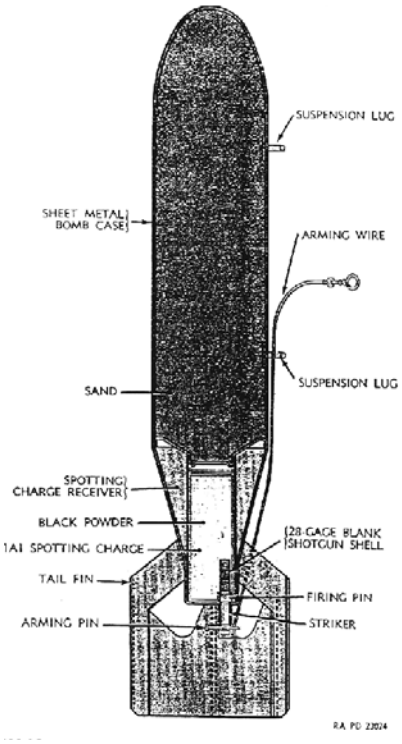
Length ..... 37.45 inches
Diameter ..... 3.62 inches
Weight ..... M7, 141.19 - 41.93 pound
M7A1, 38.80 - 39.54 pound
Filler ..... TNT or Composition B
Weight of filler
Normal Fuze well ..... 2.15 pound
Deep Cavity fuze well ..... 1.68 pounds
Fuze ..... PD M48, M48A1, M51A5, M557;
MT M43A3;
MTSQ M520 series, M564
Propelling Charge ..... M1, 5.33 pounds
M6 & M15, 7.31 pounds
Color ..... Olive Drab with yellow markings

Reference: TM 9-1300-203, *Artillery Ammunition*, April 1977

BOMB, PRACTICE, 100 POUND, M38A2



with M5 spotting charge



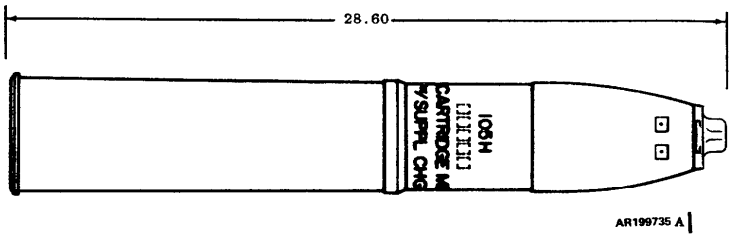
with M1A1 spotting charge

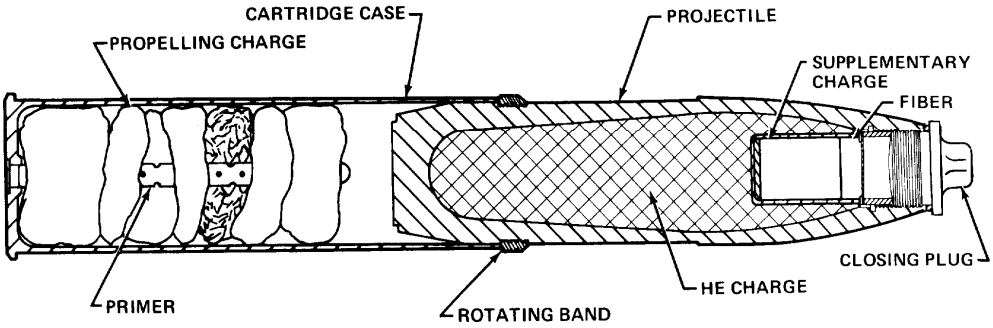
Description. This bomb simulates a General Purpose bomb of the same size. It is constructed of light sheet metal, approximately 22 gage, formed by rolling a rectangular sheet of metal into the form of a cylinder approximately 8 inches in diameter, and spot-welding the seam. The rounded nose is pressed from the same metal, as is the tail, which is formed in the shape of a cone. The tail portion ends in box type fins, which is welded to the cone. Inside of the smaller end of the conical tail section is welded the spotting charge receiver. The spotting charge is assembled in a sleeve at the base of the bomb, within the fin box. Authorized spotting charges are the M1A1, M3, and M5. When using the M5 spotting charge a wooden support rod is installed in the bomb. Two suspension lugs are bolted to the bomb body during fabrication. The Suspension Band M1 is provided for single suspension. The band is a separate component. The over-all length of the bomb body is 472 inches. When empty, the bomb body weighs approximately 14 pounds. When completely loaded with sand and spotting charge, the weight of the bomb is approximately 100 pounds.

Over-all length.....47.5 inches
Diameter.....8.13 inches
Weight empty .....15.7 pounds
Weight sand loaded & spotting charge .....100 pounds

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, February 1954; *Complete Round Chart #5981*, October 1944

CARTRIDGE, 105mm, HE, M1





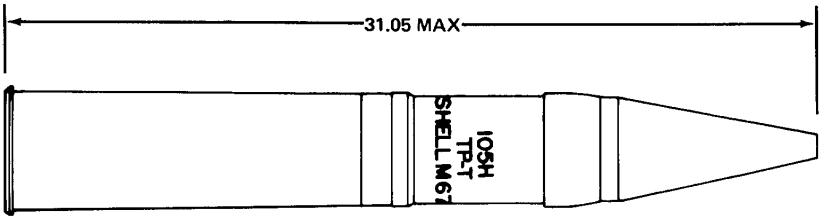
Use. The projectile of this cartridge contains high explosive and is used for fragmentation, blast, and mining in support of ground troops and armored columns.

Description. The projectile consists of a hollow steel forging with a boattail base, a streamlined ogive, and gliding metal rotating band. A base cover is welded to the base of the projectile for added protection against the entrance of hot gases from the propelling charge during firing. The high explosive filler within the projectile may be either cast TNT or Composition B. A fuze cavity is either drilled or formed in the filler at the nose end of the projectile. This cavity may be either shallow or deep. A cavity liner, to preclude dusting of HE during transportation and handling, is seated in the cavity and expanded into the lower projectile fuze threads. A supplementary charge is placed in the fuze cavity of projectiles having deep cavities. Projectiles with shallow cavities or deep cavities containing a supplementary charge use only short intrusion fuzes, PD, or MT. Those with deep cavities will accept the long intrusion proximity fuse after removing the supplementary charge. The cartridge case contains a percussion primer assembly and seven individually bagged and numbered propelling charge increments. The percussion primer assembly consists of a percussion ignition element and a perforated flash tube containing black powder. The seven numbered increment bags are tied together. These are assembled into the cartridge case, around the primer flash tube.

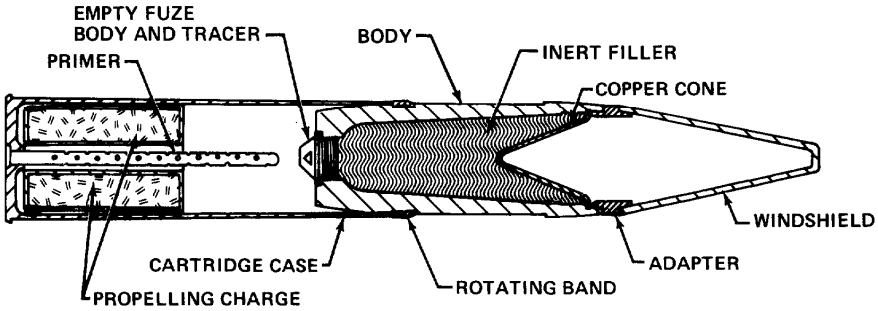
Weight ..... 39.92 pounds
Length with Closing Plug ..... 28.60 inches
Filler and Weight
  Normal Cavity ..... Comp B, 5.08 pounds
    TNT, 4.80 pounds
  Deep Cavity ..... Comp B, 4.60 pounds
    TNT, 4.25 pounds
Propellant Charge (max weight) ..... 2.83 pounds
Color ..... Olive drab w / yellow markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition*, April 1977

CARTRIDGE, 105mm, TP-T, M67



AR199715



AR199714

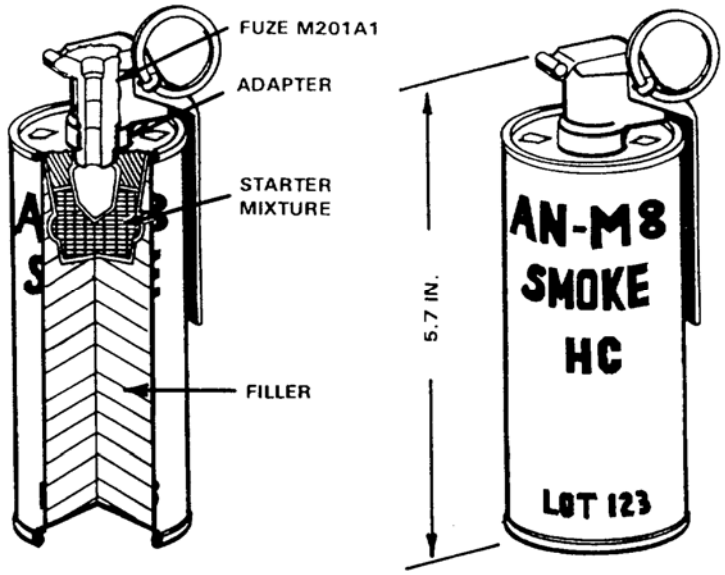
Use. This cartridge is used for training in marksmanship.

Description. The projectile consists of a boattailed steel body fitted with a steel windshield and gliding metal rotating band. The windshield is a hollow steel cone fitted to the front of a steel adapter. The adapter is threaded into the front end of the projectile, and retains a copper conical liner in the projectile cavity. The projectile cavity contains an inert filler. An empty fuze body with a live tracer is threaded into the base of the projectile. The complete projectile assembly is a free fit in the cartridge case. The cartridge case contains a percussion primer assembly and a single propelling charge increment. The base of the cartridge case is drilled and the primer assembly is pressed into the base. The percussion primer assembly consists of a percussion ignition element and a perforated flash tube containing black powder. The single increment bag is assembled into the cartridge case around the primer assembly..

Weight ..... 37.06 pounds
Length ..... 31.05 inches
Filler ..... Inert
Propellant ..... 1.54 pounds
Color..... Blue or Black w / white markings

Reference: TM 43-0001-28, *Army Ammunition Data Sheets, Artillery Ammunition,* April 1977

GRENADE, HAND, SMOKE, HC, AN-M8



Use. The HC Smoke Hand Grenade AN-M8 is a burning type grenade used to generate white smoke for screening activities of small units. It is also used for ground-to-air signaling.

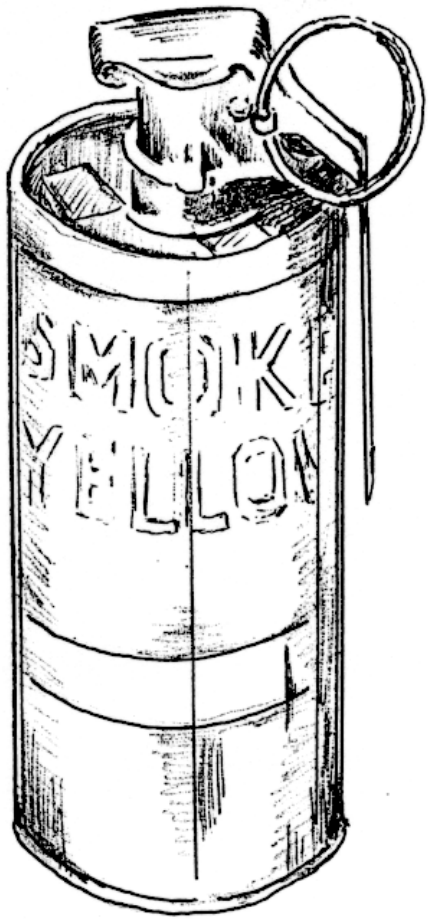
Description. The grenade body is a cylinder of thin sheet metal. It is filled with HC smoke mixture with a starter mixture directly under the fuze opening. The duration of the smoke screen or signal is 105 to 150 seconds.

The Fuze M201 and M201A1 is a pyrotechnic delay-igniting fuze. The body contains a primer, first fire mixture, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever and safety pin with pull ring.

DODAC 1330-G930
Length ..... 5.7 inches
Diameter ..... 2.5 inches
Color ..... Blue gray or light green with black markings
Weight ..... 24 ounces
Filler ..... Hexachlorethane-zinc (HC)
Weight of filler ..... 19 ounces

Reference: TM 43-0001-29 w/change 11, *Ammunition Data Sheets for Grenades*, October 1977; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, May 47

GRENADE, HAND, SMOKE, COLORED, M16



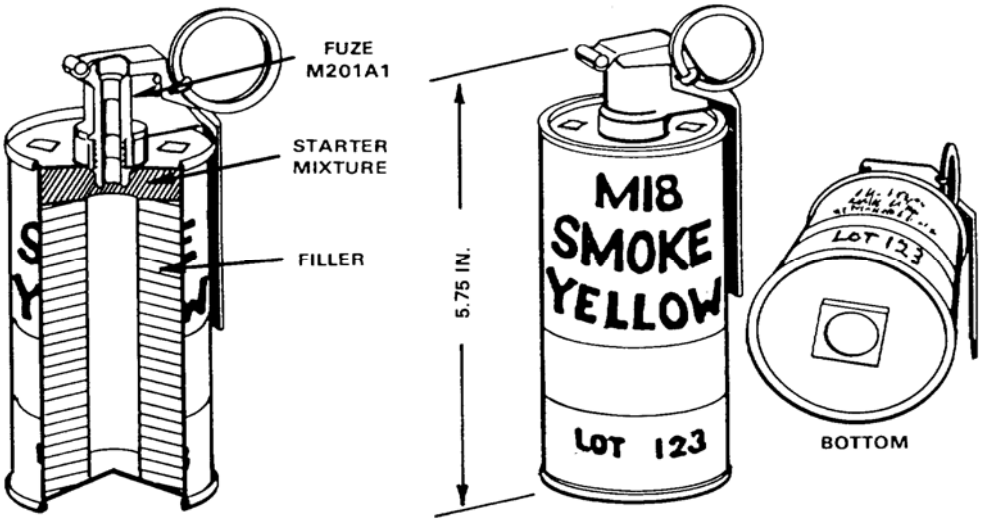
Use. These colored smoke grenades are used for various signaling purposes. This grenade was substitute standard by the end of WW II and was eventually replaced by the M18.

Description. The grenade body is a 2.5-inch diameter sheet steel metal cylinder, which is designed to contain the smoke mixture. These grenades were available in red, green, yellow, blue, orange, violet and black. There are three lines of six gas ports in the sides of the body and four openings in the head (white and black smoke only have openings in the head). These openings are covered with tape, which are blown off when the grenade functions. When thrown, a striker assembly throws the safety lever off and impacts the percussion primer. A pyrotechnic igniter initiates the first-fire mixture, which ignites the smoke mixture. The presence of moisture will cause these grenades to ignite spontaneously.

Height ..... 5 inches
Diameter ..... 2.5 inches
Filler ..... colored smoke mixture
Weight ..... approximately 17 ounces
Fuzes ..... Fuze, igniting M200A1 (approximately 2-second delay)

Reference: TM 9-1985, *Grenades, Hand and Rifle*, 22 October 1943

GRENADE, HAND, SMOKE, M18, WITH FUZE, M201, M201A1



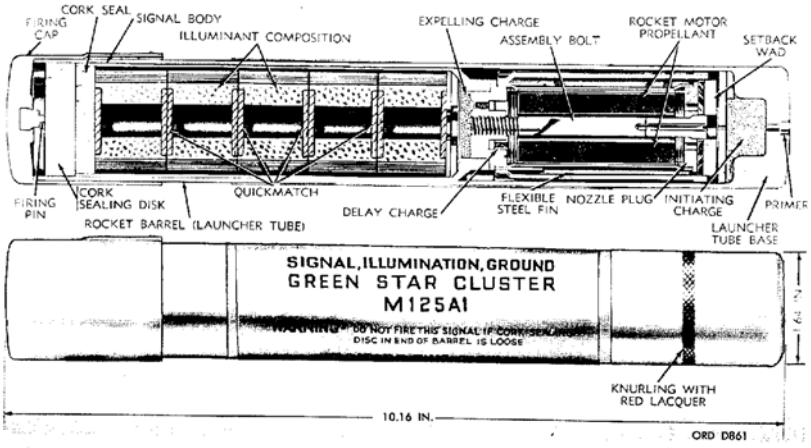
Description. These grenades may be filled with any one of seven smoke colors; red, orange, blue, green, black, violet, and yellow. The grenade body is of thin sheet metal and filled with a smoke composition. Emission ports are covered with small squares of adhesive tape and vary in quantity and location depending on the year of manufacturing.

The Fuze M201 and M201A1 is a pyrotechnic delay-igniting fuze. The body contains a primer, first fire mixture, pyrotechnic delay column, and ignition mixture

Length ..... 5.75 inches
Diameter ..... 2.5 inches
Color ..... Blue gray or light green with black markings
Weight ..... 19 ounces
Filler ..... Smoke composition
Weight of filler ..... 11.5 ounces
Fuze M201A1

Reference: TM 43-0001-29 w/change 11, *Ammunition Data Sheets for Grenades*, October 1977; NAVSEA OP 1664, *U.S. Explosive Ordnance*, May 47

SIGNALS, ILLUMINATION, GROUND, STAR CLUSTERS, GREEN, M125A1; RED, M158; WHITE, M159



Use. For day or night signaling.

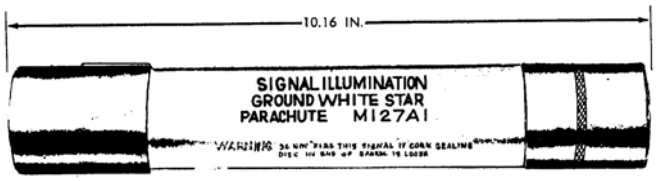
Description. Star cluster signals consist of five-star illumination assemblies and a rocket motor propulsion assembly contained in a hand-held aluminum launching tube. The base of the launching tube contains a primer and an initiating charge. As shipped, the firing pin cap is assembled to the forward end and must be reversed for firing. Stabilizing fins on the tail assembly of rocket are folded parallel to the axis of the signal. A bolt, which also transfers the initiating charge flash to the propellant, extends into the center of the solid propellant that fills the propulsion assembly. The illumination assembly is mounted on top of the propulsion with a delay assembly and an expelling charge between. A label specifying firing procedures is secured to the body of the signal.

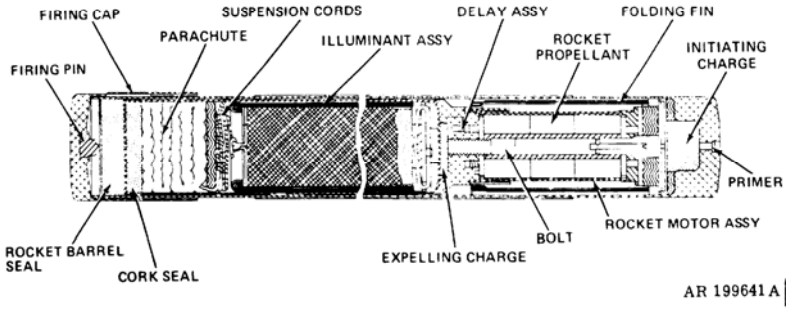
Functioning. Striking the primer with the firing pin fires the initiating charge to ignite the rocket propellant. As the rocket emerges from the launching tube, the fins extend for flight stability. Before rocket motor burnout the black powder expelling charge is ignited performing the two fold function of expelling and igniting the 5-star illuminant assemblies.

Length	10.16 inches
Diameter (body)	1.67 inches
Weight	1.3 pounds
Pyrotechnic charge	Illuminant composition 2.5 to 3.75 oz
Initiating charge	Black powder, 0.725 grams
Expelling charge	Black powder, 0.75 grams
Propelling charge	91% Black powder, 9% calcium carbonate, 39.0 grams
Color	White label with black markings Each signal has a cork seal the color of the signal

Reference: TM 43-0001-37, *Army Ammunition Data Sheets Military Pyrotechnics*, April 1977

SIGNALS, ILLUM, GROUND, PARACHUTE, RED STAR, M126A1; WHITE STAR, M127A1; GREEN STAR, M195





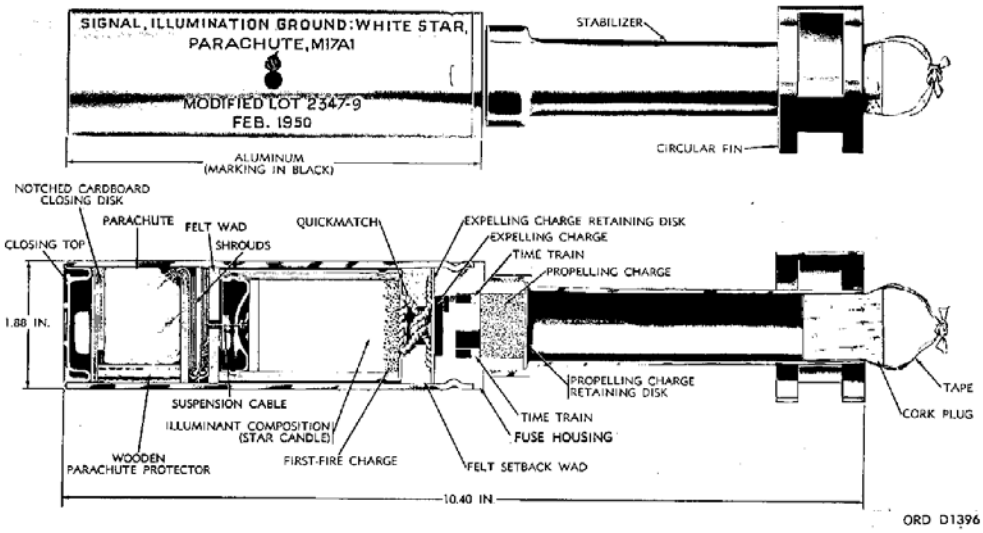
Use. For day or night signaling, and nighttime illumination in the case of the M127.

Description. These signals consist of a parachute-suspended illuminant assembly and a rocket motor propulsion assembly contained in a hand-held aluminum launching tube. The base of the launching tube contains a primer and an initiating charge. As shipped, the firing pin cap is assembled to the forward end and must be reversed for firing. Stabilizing fins on the rocket are folded parallel to the axis of the signal. A bolt, which transfers the initiating charge flash to the propellant, extends into the center of the solid propellant filling the propulsion assembly. The parachute/illuminant assembly is mounted on top of the propulsion assembly with a delay assembly and an expelling charge between them. The parachute with suspension cords is packed on top of the illuminant and the tube end is sealed with a cork disk (rocket barrel seal). A label specifying firing procedure is secured to the body of the signal.

Length ..... 10.16 inches
Diameter (body) ..... 1.67 inches
Weight
  M126A1 & M127A1 ..... 3.0 ounces
  M195 ..... 3.2 ounces
Pyrotechnic charge ..... Illuminant composition
Initiating charge ..... Black powder, 0.725 grams
Expelling charge ..... Black powder, 0.75 grams
Propelling charge ..... Black powder, 39.0 grams
Color ..... White label with black markings
Each signal has a rocket barrel seal with the color of the signal

Reference: TM 43-0001-37, *Army Ammunition Data Sheets Military Pyrotechnics*, April 1977

SIGNALS, ILLUMINATION, GROUND, PARACHUTE, WHITE STAR, M17A1; GREEN STAR, M19A2; AMBER STAR, M21A1; RED STAR, M51A1



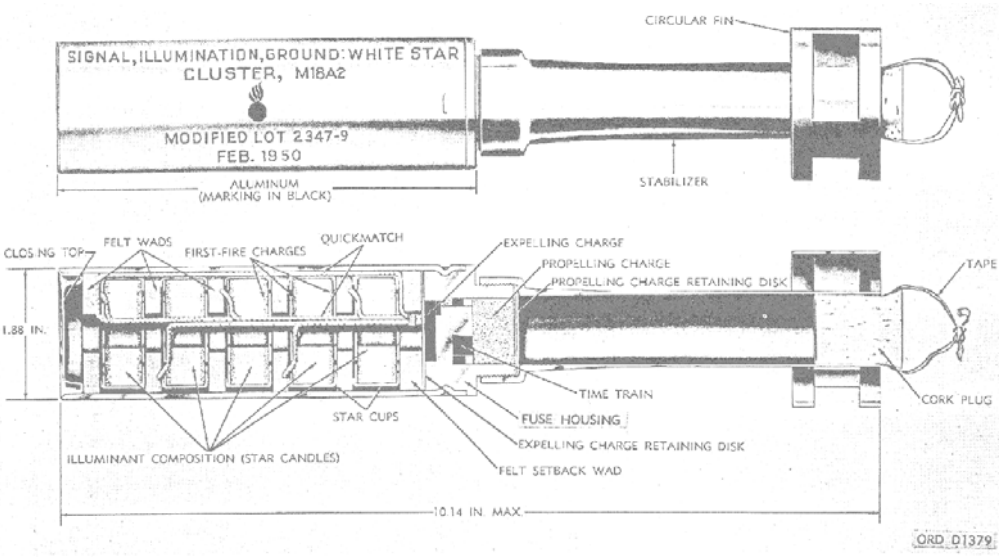
Use: This signal produces a single parachute-supported star. It is fired from a rifle grenade launcher of the M7 series attached to a rifle firing a caliber .30 grenade cartridge M3.

Description: The signal case is a drawn aluminum body (steel for A1B2 and A2B2 signals) secured at one end to an aluminum fuse housing (time train block) by four crimps. This fuse housing is chambered to hold smokeless powder propelling charge. A retaining disk holds the charge in place. The stabilizer is located at this end. It is a hollow tube with a circular fin at one end and threaded to the fuze housing at the other end. A cork plug with tape for removing it closes the finned end of the stabilizer. The fuse housing contains a circular time train groove housing filled with black powder and covered with an aluminum ring seal, except for the expelling charge connected to the fuse powder train by means of a flash hole in the fuse housing. The candle case is of cardboard with the end nearest the expelling charge colored by a perforated aluminum cap. A strip of quickmatch is inserted into the cap. The ignition charge follows the quickmatch and is followed by the first-fire charge and the illumination composition. All models are similar except for the different color star.

Length ..... 10.40 inches
Diameter (body) ..... 1.88 inches
Pyrotechnic charge ..... Illumination composition
Expelling charge ..... Black powder, 1.03 grams
Propelling charge ..... M9 1.69 grams
Color ..... Black markings, with the color of the signal on the top

References: TM 9-1370-200, *Military Pyrotechnics*, September 1966; TM 43-0001-37, *Army Ammunition Data Sheets Military Pyrotechnics*, April 1977

SIGNALS, ILLUMINATION, GROUND, WHITE STAR CLUSTER, M18A2 GREEN STAR CLUSTER, M20A1 AMBER STAR CLUSTER, M22A1 RED STAR CLUSTER, M52A1



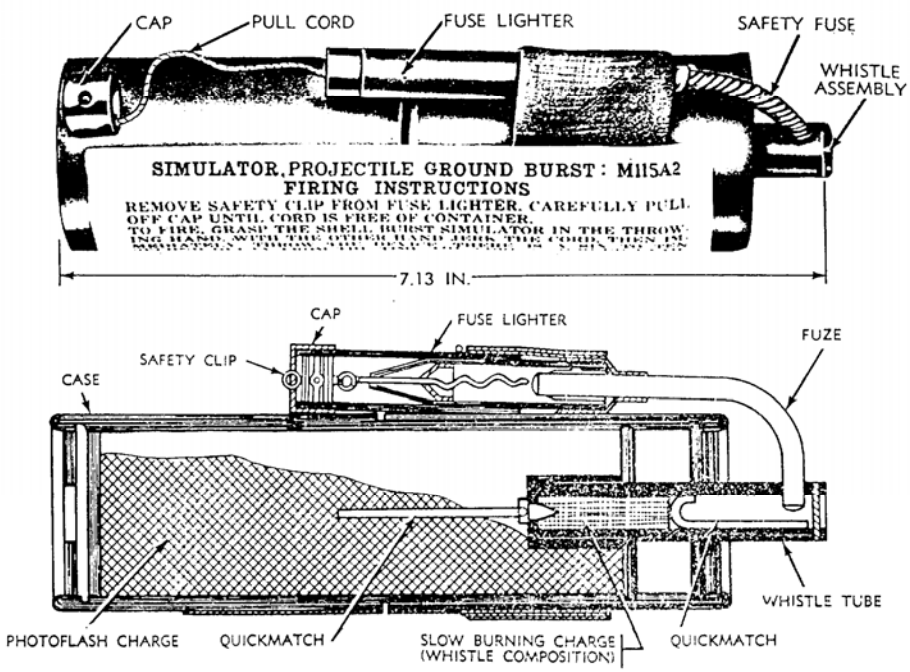
Use. This signal produces a cluster of five freely falling stars. It is fired from a rifle grenade launcher of the M7 series attached to a rifle firing a caliber .30 grenade cartridge M3.

Description. The signal case is a drawn aluminum body (steel for A1B2 and A2B2 signals) secured at one end to an aluminum fuse housing (time train block) by four crimps. This fuse housing is chambered to hold smokeless powder propelling charge. A propelling charge retaining disk holds the propelling charge in place. The stabilizer is located at this end. It is a hollow tube with a circular fin at one end and threaded to the fuze housing. A cork plug seals the finned end of the stabilizer. The fuze housing contains a circular time train groove filled with black powder and covered with an aluminum ring seal, except for the expelling charge connected to the fuze powder train by means of a flash hole in the fuze housing. When the fuze train burns through, it ignites the black powder expelling charge, which ignites the quick match, followed by the first fire charge and then the illuminant composition.

Length ..... 10.14 inches
Diameter (body) ..... 1.88 inches
Pyrotechnic charge ..... Illumination composition
Expelling charge ..... Black powder
Propelling charge M9
Color ..... Black markings, closing top is painted White w/embossed letters (GS, WS, etc.)

Reference: TM 9-1370-200, *Military Pyrotechnics*, September 1966

SIMULATOR, PROJECTILE, GROUND BURST, M115A2

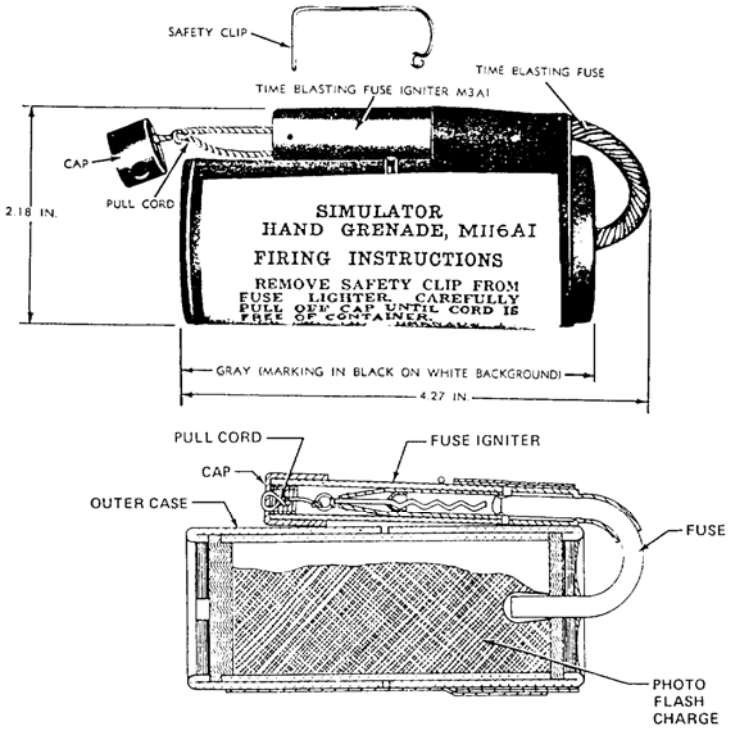


General. This simulator is a pyrotechnic device used to provide battle noises and effects during troop maneuvers. The simulator is ignited by the action of time blasting fuse igniter M3A1. Following a delay of 6 to 10 seconds after ignition, the simulator produces a high pitch whistle that lasts two to four seconds. After a fraction of a second, the simulator explodes, producing a flash and loud report.

Description. The body of the simulator consists of a cylindrical paper tube (closed at both ends) containing approximately 2 ounces of photoflash powder and whistle assembly which extends from one end of the tube. The simulator is 2.38 inches in diameter (including fuse lighter) and 7.13 inches long. The whistle assembly is a paper tube containing a pressed, slow burning powder charge, (2.0 grams). Extending from the side of this assembly is a length of safety fuse that, after a 90° bend, is inserted in a fuse lighter M3A1 taped to the side of the simulator. The fuse lighter contains a double pull cord and a cellulose nitrate coating on the phosphorous-coated friction wire and ignition composition.

References: TM 43-0001-37, *Military Pyrotechnics*, February 1977; TM 9-1370-200, *Military Pyrotechnics*, September 1966

SIMULATOR, HAND GRENADE, M116A1



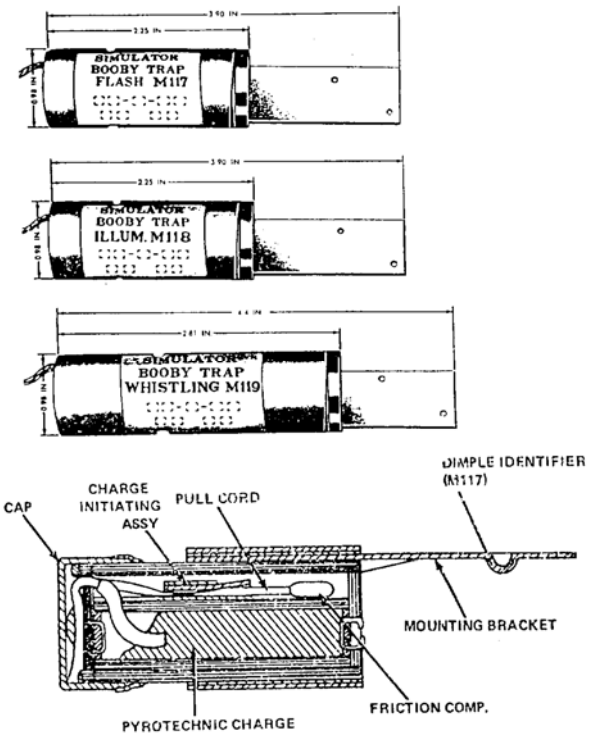
General. This simulator is used to provide battle noises and effects during troop maneuvers. This simulator is ignited by the action of a time blasting fuse igniter (fuse lighter) M3A1 and is thrown like a hand grenade. The time blasting fuse (safety fuse) burns for 5 to 10 seconds after ignition, followed by a flash and accompanying loud report.

Description. The body of the hand grenade simulator consists of a cylindrical paper tube (closed at both ends), containing one and one quarter ounces of photoflash powder. The simulator body is 1.6 inches in diameter (2.18 inches across time blasting fuse igniter) and 3.75 inches long (4.27 inches with time blasting fuse). A length of time blasting fuse extends from the center of one end of the body and, after a 180° bend, is inserted into time blasting fuse igniter M3A1 taped to the side of the simulator. The time blasting fuse igniter contains a double pull coed, a ripple wire coated with a phosphorous friction composition, a small metal cup filled with ignition composition. There is a cellulose nitrate coating on the phosphorous coating and on the ignition composition. The sealing cap is held in place during shipment and handling by a spring type wire safety clip.

M116 Simulator. This simulator is similar to the M116A1, except that the time blasting fuse igniter M3, which has a single pull cord and no cellulose nitrate coating on the phosphorous coated friction wire and ignition composition, is used in place of the time blasting fuse igniter M3A1.

References: TM 43-0001-37, *Military Pyrotechnics*, February 1977; TM 91370-200, *Military Pyrotechnics*, September 1966

SIMULATOR, BOOBYTRAP, FLASH, M117; ILLUMINATING, M118; WHISTLING, M119

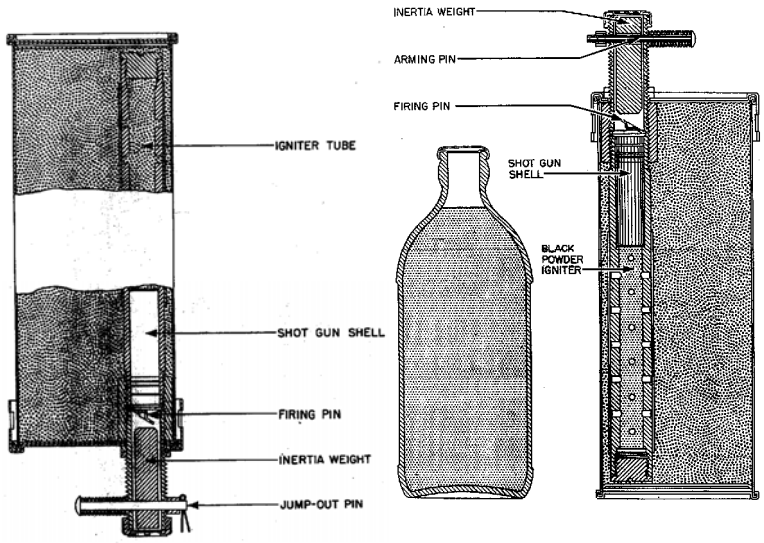


Description. The flash simulator M117 consists of a cylindrical outer tube (kraft paper) and a flat, metal nailing bracket that extends from one end of the tube. The body is 0.98 inch in diameter and, without nailing bracket, 2.25 inches long. The nailing bracket increases the length to 3.90 inches. Located within the outer tube is a charge initiating assembly and an inner tube containing a pyrotechnic charge. The assembly used for initiating the charge is located in the space between the inner and outer tubes. This assembly consists of a strip of paper coated with a friction-sensitive composition and folded into a pad so that the coated surfaces are face to face. The pad is attached to the inner tube. Over the top of the pad is a strip of felt held in place, under light pressure, by adhesive tape wrapped around the inner tube. A length of pull cord runs between the coated surfaces of the pad. One end of the pull cord is covered with friction composition; the other end is coiled and placed in the end of the body opposite the nailing bracket. A paper cap, held on by a strip of tape, covers this end of the simulator.

M117.....Flash composition, (0.09 ounces)
M118.....Illumination composition, (0.18 ounces)
M119.....Whistle composition, (0.12 ounces)

References: TM 43-0001-37, *Military Pyrotechnics*, February 1977; TM 9-1370-200, *Military Pyrotechnics*, September 1966

SPOTTING CHARGES, M1A1, M3, M5



M1A1 M5 M3

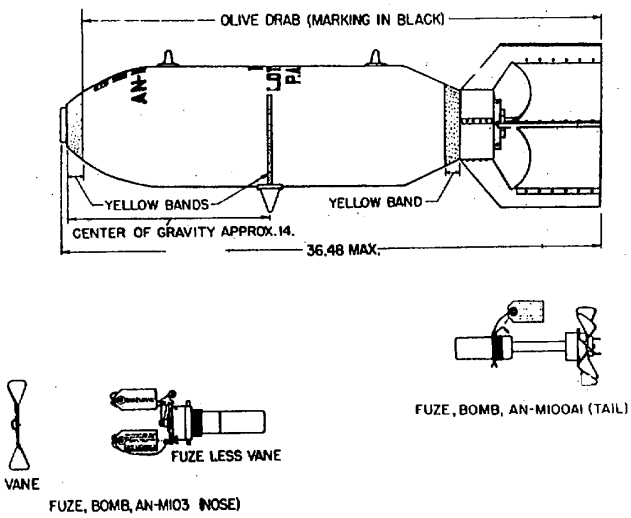
M1A1 Spotting Charge. This type of spotting charge fits in the after end of the 100-pound Practice Bomb M38A2. It produces a flash of flame and white smoke for observation of bombing accuracy. It is made from a large tin can, 11.18-inches long, 3.43-inches diameter, weighing 4.25-pounds. At the top of the can is a cover, which has a hole in it for the insertion of a 28-gage blank shotgun shell and firing mechanism. Upon impact, the inertia weight drives the firing pin into the shotgun-type primer, igniting the 3-pounds of black powder.

M3 Spotting Charge. The spotting charge has a 2 1/3-pound dark smoke filling and a black-powder igniter. It is 5/8 of an inch longer than the Spotting Charge M1A1, but otherwise similar. The M3, with its dark smoke filler, is well adapted for bombing practice over snow-covered terrain. The black-powder igniter charge contains approximately 425 grains. It is used in the M38A2 Practice bomb.

M5 Spotting Charge. The spotting charge consists of a glass bottle filled with FS smoke mixture. An ordinary bottle cap seals the mixture. The bottle is held to the Practice Bomb M38A2 by a wire twisted around the neck of the bottle and attached to the tail vanes. The charge assembly weighs 2.54 pounds.

Reference: TM 9-1904, *Ammunition Inspection Guide*, March 1944; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, February 1954

BOMB, GP, 100-POUND, AN-M30



Description. The GP and M series bombs of 100-pound weight have the same dimensions. The GP is distinguishable from the M-series by the fact that it has a base plug in the tail and a single suspension lug in addition to two Army lugs. The old GP bombs are a relatively thin-cased bomb with an ogival nose, parallel sidewalls, and a tapered aft section. It uses both the box type and conical type fin assembly. The box-type fin assembly is secured to the aft end of the bomb with a fin locknut, while the conical-type fin assembly is secured to the bomb body by means of a support tube. The two Army lugs are 14 inches apart, each 7 inches from the center of gravity. The single suspension lug is on the center of gravity 14 inches behind the nose. The weight of the case is 42.1 pounds and the fins weigh between 5.6 to 17.5 pounds. The filler is 50/50 amatol, TNT, or Tritonal. Percentage of filler is approximately 49 percent. The AN-M30 Bomb is fuzed in the nose with the AN-M103 Fuze and in the tail with the AN-M100A2 Fuze. Alternate fuzes that may be used as substitutes or for special purposes are the M103, M118, or M119 Nose Fuzes, and the M112, M100, M106, or its modifications, or the AN-M100A1 Tail Fuzes.

Length, assembled bomb
- **Fin assembly AN-M103A1** ..... 40.26 inches
- **Fin assembly M135** ..... 54.2 inch

Diameter ..... 8.18 inch

Weight of Filler
- **TNT** ..... 57 pound
- **Amatol** ..... 54 pound
- **Tritonal** ..... 62 pound

Fuze:
- **Nose** AN--M103, M103, M118, **M119**
- **Tail** AN-M103, M112, M100, M106, AN-M100A1

Painting and Markings ..... Olive drab with black stencil, 2 yellow bands (1aft, 1 center)

References: TM 9-1904, *Ammunition Inspection Guide*, 2 March 1944, TM 9-1325-200, *Bombs and Bomb Components*, April 1966

The AN-M69X incorporates a 4.5-ounce charge of tetryl to produce an anti-personnel effect. Over-all dimensions of the AN-M69X duplicate those of the AN-M69, but the amount of incendiary mixture is reduced (0.4 pound less). Operation of the Fuze M1 ignites a safety fuse lead terminating in the Detonator M106, which explodes the tetryl, fragmenting 65% of the bomb case after ejection of the incendiary material, following a pre-determined time delay of 0.5 to 6 minutes (30%—½ minute; 30%—2 minutes; 40%—6 minutes). The time delay is varied by adjusting the length of the safety fuse.

100-pound Incendiary AN-M47 Series

	AN-M47A2
Over-all length, inches	48.9
Body length, inches	39.0
Body diameter, inches	8.1
Wall thickness, inch	0.06
Tail length, inches	12.9
Tail width, inches	10.9
Filling	Mustard gas, W.P., or gasoline gel
Fuzing	M159, AN-M126A1, M126, M108, AN-M147

Construction: The bomb body is a sheet-steel tube with a longitudinal seam weld. The nose end is hemispherical. A base plate at the rear end is welded to the tube. Several bursters may be used interchangeably. The burster runs the length of the bomb. The Burster AN-M12 is a tube containing a 50-50 mixture of black powder and magnesium. The Burster AN-M13 is a tube containing TNT and tetryl pellets at each end, and is used in conjunction with the Igniter AN-M9 (WP or Na). The Na igniter will permit use over water. Four vanes are welded to a truncated cone with box-type interior struts to form the tail.

Suspension: Horizontal suspension is provided by two eyebolts formed by holes in each half of the two suspension bands, the halves then being crimped together to form a complete band. The bands are secured to the bomb body by tightening the bolts on the underside of the body. One of the bands can be loosened and slipped to the center of gravity if single suspension is desired.

Two clusters are now standardized to provide single suspension for four to six bombs. The Cluster Adapter M24 holds six AN-M47's; and the M22 has a capacity of four AN-M47's.

M47A2—Gas: Loaded with 68.5 pounds of mustard gas. Complete round weighs 98 pounds. Inside of body is coated with oil. Equipped with Burster M4.

M47A1—Gas: Differs from the M47A2 only in that the interior is coated with black acid-proof paint instead of oil.

M47—Chemical: Original design, has wall thickness of only 1/32 inch. Not used for H filling.

M47A2—Smoke: Main filling is 100 pounds of white phosphorus, and total weight is 127 pounds. Burster M4 is authorized for high-altitude bombing; Burster M18 is authorized for low-altitude bombing. Burster M7 may be substituted for either.

M47A1—Smoke: Like M47A2—Smoke, with charge of 103 pounds WP and total weight of 129.5 pounds, and interior coated with black acid-proof paint.

AN-M47A2 — Incendiary: Loaded with 40-pound charge of gelled gasoline, either IM or NP, with total weight of 68.6 pounds. Burster AN-M13 and Igniter AN-M9 (WP or Na) authorized for this bomb.

M47A1—Incendiary: Like AN-M47A2, with interior coating of acid-proof paint instead of oil.

AN-M47A3 — Incendiary: Identical to AN-M47A2, except that tail assembly is three inches longer.

AN-M47A4—Incendiary: On this modification, the suspension lugs are strengthened.

The Navy is procuring, at the present time, Incendiary Bombs M47A2 loaded with PWP. PWP consists of 75% WP and 25% plasticizer; it is more effective than WP, since it gives longer burning, reduces pillaring effect, and increases the anti-personnel effect. The increased smoke efficiency is due to the larger particles of controlled size which result from the use of PWP. The bomb contains 75 pounds of PWP and requires a Burster M20, which contains ¾-inch-diameter tetryl pellets.

500-pound Incendiary AN–M76

Over-all length, inches	59.2
Body length, inches	45.3
Body diameter, inches	14.0
Wall thickness, inch	0.3
Tail length, inches	13.9
Tail width, inches	14.8
Tail weight, pounds	12.3
Filling	Oil Gel PT 1
Weight of filling, pounds	180
Total weight, pounds	475
Charge/weight ratio	38%

Fuzing

NOSE — AN – M103A1, AN – M103, M103, M135A1, M136, M136A1, M139, M139A1, AN–M139A1, M140, M140A1, AN–M140A1, M163, M164, M165, M166, T82.

TAIL—AN–M101A2, AN–M101A1, M161.

Construction: The body is of one-piece cast-steel construction, with a base plate welded to body. A burster tube 3.5 inches in diameter, 35.75 inches long, running through the center of bomb, is welded to the nose and to the base plate. The Adapter Booster M115 screws into the base plate. The bomb tail is a cast-steel sleeve with four sheet-steel fins and internal box-type struts. Suspension is accomplished by two suspension lugs welded on the body seven inches on each side of center of gravity and by a single lug, 180° removed at the center of gravity.

Operation: On impact, the fuzes function and detonate the 1.25-pound tetrytol burster in the burster tube and initiate the nine-pound white

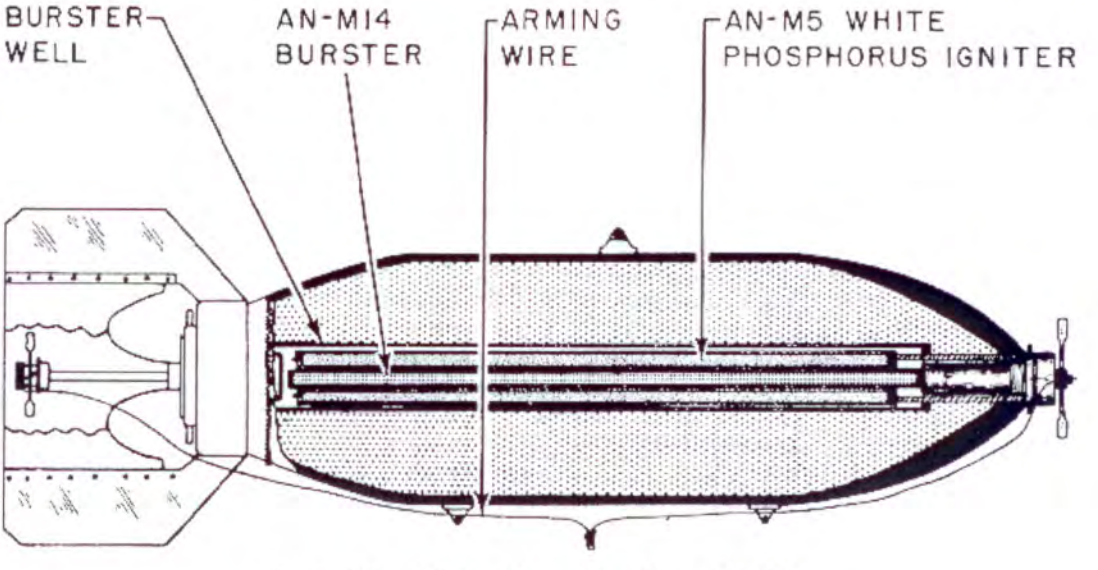


Figure 307. 500–pound Incendiary Bomb AN–M76

LEAFLET BOMB

1-45. Type: M 129 series (reference figures 2-15 and 2-16)

1-46. Identification:

a. Sizes: 750-lb, the external configuration is similar to the 750-lb demolition bomb.

b. Markings: Olive green bomb body made of fiber glass. The bomb body is split in half longitudinally into two sections held together by four latches on each side.

c. Lugs: Three recesses, the two outside recesses are for 14-inch suspension, the center recess is for single suspension.

d. Fins: Four fiber glass sections glued and riveted together to form a cone. The fin assembly is attached to the bomb body with eight Dzus fasteners.

1-47. Cluster Operation: After release, the MT fuze functions at a predetermined time causing detonating cord to detonate, separating the two body sections, detaching the fin assembly and releasing the leaflets.

1-48. Filler: Leaflets

1-49. Hazards: Explosive components of the fuze, booster, and detonating cord.

1-50. Related Equipment:

a. Nose fuze (MT) with adapter booster.

b. Arming wire assembly.

c. Fin assembly.

1-51. Disposal: Burn

INCENDIARY BOMB

1-52. Type: AN-M47A4, 100-lb (reference figures 2-17a and 17b)

1-53. Identification:

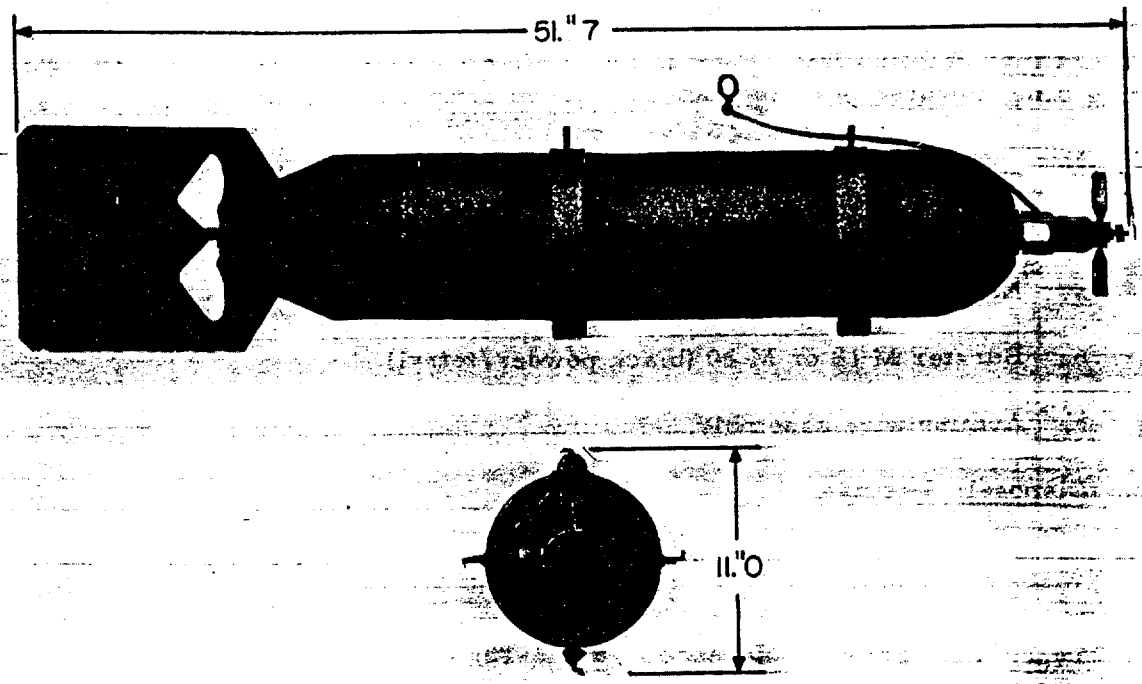
a. Size: 100-lb AN-M47A4

b. Markings:

(1) Green body, yellow band with red markings.

(2) Cylindrical body, round nose, tapered aft section with welded on box fin constructed of thin sheet steel.

c. Lugs: Suspension bands equipped with heavy gauge suspension lugs. For single suspension, remove one band.



100-lb Smoke or Incendiary Bomb AN-M47A4, Exterior View
Figure 2-17A

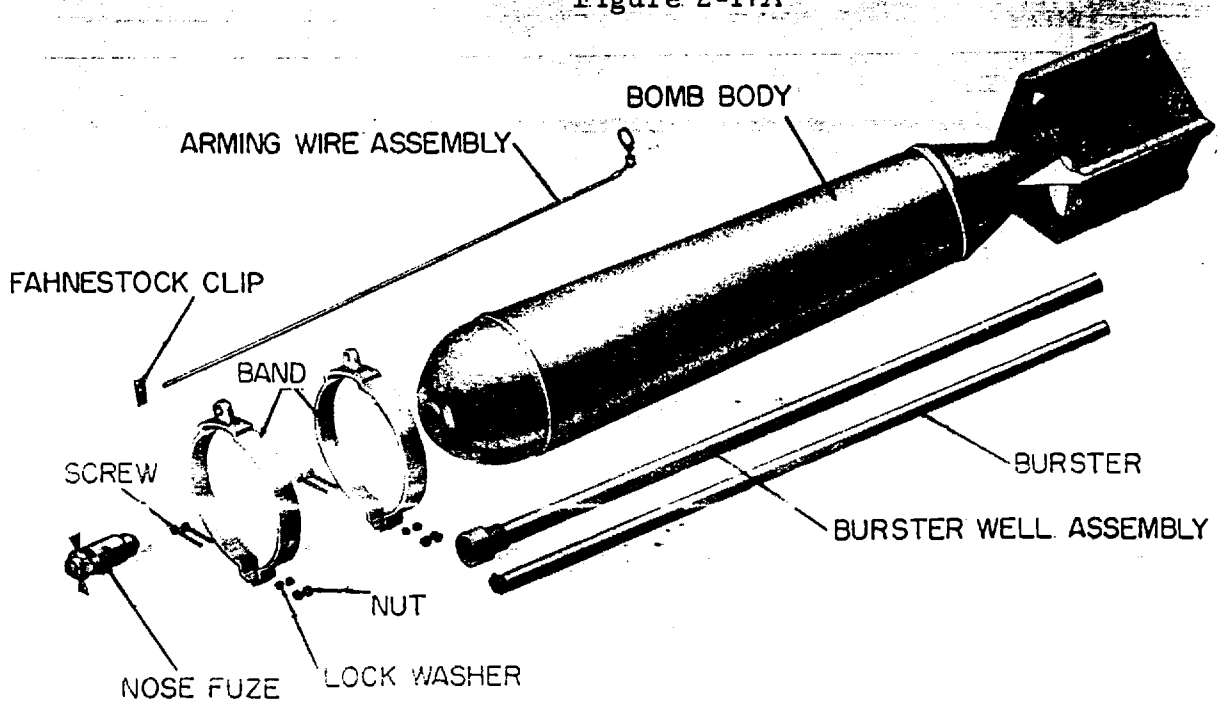


Figure 2-17B. 100-lb. Smoke or Incendiary Bomb AN-M47A4, Exploded View

d. Fins: Welded on box type.

1-54. Filler: WP or PWP. PWP is more effective than WP because of its longer burning time, reduced pillaring, and increased antipersonnel effect.

1-55. Hazards: WP precautions apply. Leakers could detonate from heat.

1-56. Related Equipment:

a. Nose fuze.

b. Burster M 18 or M 20 (black powder/tetryl).

c. Arming wire assembly.

1-57. Disposal: Detonate

FIRE BOMB

1-58. Type: BLU Series (reference figure 2-18)

1-59. Identification:

a. Sizes:

(1) BLU 1/B series 750-lb

(2) BLU 10/B series 250-lb

(3) BLU 23/B 500-lb

(4) BLU 27/B prefilled 750-lb

(5) BLU 32/B prefilled 500-lb

b. Markings: Unpainted aluminum alloy construction. No color code on the prefilled (napalm B). The BLU-1, 10, and 23/B may have a 3-inch red band on the nose and tail. All bombs are tip tank type configuration.

c. Lugs: All BLU series fire bombs are equipped for 14-inch suspension.

d. Fins: The use of fin assemblies is optional except for the BLU 10 series. No fin assembly is provided for the BLU 10 series.

1-60. Filler: The BLU-1, 10, and 23 use napalm; the BLU-27 and 32 use napalm B.

1-61. Hazards: Fire. When fuzed, all bombs will contain "ALWAYS ACTION" fuzing.

1-62. Related Equipment:

a. Fuzes/igniters (nose and tail).

b. Fin assembly (optional).

c. Cable and initiator assemblies.

143. Cartridge, 105 Millimeter: Smoke, WP, M60, w/Fuze, PD, M51A4, 0.15-Sec Delay

a. General. This cartridge is similar in appearance and functioning to the "H" gas cartridge M60 (par. 132). It differs from the "H" gas projectile in its filler which is WP (white phosphorous), a smoke-producing chemical which also has a slight incendiary effect. The cartridge is used for spotting and screening purposes. The projectile is assembled loosely to the cartridge cases M14 (brass), M14B1 (steel), or M14E1 (steel, spiral, wrapped) fitted with percussion primer M28A2 or M28B1 (steel), an adjustable propelling charge of dual granulation, and PD fuze M51A5 or M57 modified.

b. Data. Physical and ballistic data is the same as that for the "H" gas cartridge M60 (par. 132), except for the weight of cartridge which is 43.81 pounds and the weight of projectile, as fired, which is 34.83 pounds.

c. Similar Cartridges. Other cartridges are issued similar to that in paragraph 142*a* except for the type of fuze and granulation of propelling charge; see SM 9–5–1315.

144. Cartridge, 105 Millimeter: TP–T, M67

a. General. This cartridge is for target practice to simulate firing the HEAT cartridge M67 (par. 136). It is an inert HEAT projectile M67 loaded to weigh with an inert mixture either of barium carbonate and stearic acid or plaster of paris. A base plug, containing the tracer element, is used instead of the BD fuze. The tracer in flight has an average visibility of 8 seconds at night and 5 seconds by day.

b. Data.

(1) *Physical.* Physical data is the same as paragraph 136, except for length of projectile which is 19.46 inches.

(2) *Ballistic.* Ballistic data for the HEAT cartridge (par. 136) apply.

c. Similar Cartridges. The following cartridges are similar to that described in *a* and *b* above, except for type of cartridge case:

CARTRIDGE, 105 MILLIMETER: TP–T, M67, steel case.

CARTRIDGE, 105 MILLIMETER: TP–T, M67, steel case, spiral wrapped.

Section XII. PROJECTILES FOR 120-MM GUN CANNONS M1, M1A1, M1A2, AND M1A3 (AA)

145. General

a. General Discussion. These guns are antiaircraft weapons intended for protection of large areas against aircraft at altitudes up to 30,000 feet. Ammunition used in these weapons is "separated" ammunition. The projectile and the propelling charge assembly are shipped separately. In separated ammunition, unlike separate-loading ammunition, a cartridge case protects the nonadjustable propelling charge against moisture and foreign matter and prevents the loss of propellant. In firing, the projectile and the propelling charge are placed on a tray and then loaded into the weapon as a unit by a power rammer. Firing data for 120-mm ammunition are in TD 47.7 AA–C–1 FT 4.7 AA–C–1 with charge 3 and FT 120–AA–A–1.

b. Identification. The ammunition is identified by means of the painting and marking as illustrated in figure 38 and in accordance with basic color scheme as prescribed in TM 9–1900.

c. Projectiles. Projectiles for 120-mm ammunition are the high-explosive projectile M73 with normal cavity, the high-explosive projectile M73 with deep cavity, and the dummy projectile M15. The high-explosive projectile differ only in the depth of fuze cavity and weight of TNT bursting charge. The "normal" cavity projectile has a 0.81-inch deep fuze cavity and contains 5.26 pounds of TNT while the "deep" cavity projectile has a 3.59-inch deep cavity and contains 4.83 pounds of TNT. The deeper cavity of the "deep" cavity projectile permits it to accommodate proximity fuzes for either antiaircraft or terrestrial fire. The insertion of a 0.33-pound supplementary charge of TNT into the deep cavity adapts this type of projectile for use with authorized PD and MT fuzes. The dummy projectile M15 uses the projectile M73 metal parts but differs from the other projectiles in its inert filler and in that its rotating band is machined flush with the rear bourrelet. Weight zones (sec II, ch 1) are indicated on 120 mm projectile M73 by

marking from three to five squares with prick-punch marks in the center on the projectile. Four squares indicate "standard" or "normal" weight.

d. Fuzes.

(1) *For antiaircraft fire.* The mechanical time fuzes used with HE projectile M73 for antiaircraft fire in 120-mm weapons are the mechanical time fuze M61, M61A1, or M61A2. The M61 series fuzes permit selective time settings up to 30 seconds but have no impact element. Some M61 series fuzes are assembled to HE projectile M73 as shipped. Currently, all HE projectiles for 120-mm weapons are issued unfuzed. The proximity fuze for HE projectile M73 for antiaircraft fire in 120-mm gun cannon M1 is the proximity fuze M504A1, which, when used, is to be assembled to the projectile in the field after removal of the M61 series fuze with booster and the supplementary charge. PD fuze M507 is also authorized for use with ammunition for 120-mm weapons.

(2) *Terrestrial fire.* There is normally no need for firing mechanical time fuze projectile at ground targets. However, when the 120-mm gun cannon M1, primarily an antiaircraft weapon, is needed for proximity engagement of ground targets, proximity fuze VT 513 is to be used.

e. Propelling Charge. Propelling charge assemblies M15, M15A1, M15A2, and dummy M13 are used with 120-mm ammunition. Propelling charges of the M15 series consist of primed cartridge case containing 24 pounds of propellant sealed with a plug. The propelling charge M15 has a doughnut-shaped black powder igniter which fits around the primer. The dummy propelling charge M13, which is used with the dummy projectile M15, consists of a cartridge case M24 (with an inert primer head) containing 24 pounds of inert mixture (sand and sawdust) sealed with a wooden plug. The following are the various M15 series propelling charge assemblies and the models of cartridge case, primer, and closing plug. For further information on propelling charges for these guns, see paragraphs 226 through 243.

Propelling charge assembly	Cartridge case	Primer	Closing plug
M15	M24	M1B1A2	M2
M15A1	M24	M28B2	M2E1, M2E2, M2E3
M15A2	M34	M57	

f. Cartridge Cases. Cartridge case M24 or M34 (brass) is used with 120-mm ammunition as a component of the propelling charge assembly. See *e* above.

g. Primers. Percussion primer M1B1A2, M28B2, or M57 is used with 120-mm ammunition as a component of the propelling charge assembly. These primers contain, respectively, 480 grains, 300 grains, and 1,000 grains of black powder. See paragraphs 244 through 268 for detailed information.

h. Packing and Shipping Data. Projectiles and propelling charges for 120-mm weapons are packed individually in fiber containers, two fiber containers per wooden box. Packing and shipping data appear in SM 9-5-1315.

146. Projectile, 120 Millimeter, Dummy: M15, w/Fuze, Dummy, M79

This dummy projectile (fig. 37) consists of an inert loaded projectile M73 body, the rotating band of which has been machined flush with the rear bourrelet. The dummy fuze M79 is screwed into the projectile body. The weight of the projectile is 49.53 pounds; length is 24.12 inches. This projectile is also issued with fuze MT, M61A1, inert.

147. Projectile, 120 Millimeter: HE, M73, w/Fuze, Time, Mechanical, M61A2

a. General. This projectile (fig. 38) consists of the normal cavity, high-explosive projectile M73, the mechanical time fuze M61A2, aud the booster M24A1. The projectile M73 body is a steel forging with boat-tailed base. The conical nose is blended into the projectile body by the ogive radius and is threaded internally to receive the conical fuze. The fuze continues the conical shape of the projectile nose. The projectile contains a 5.26-pound TNT bursting charge with a "normal" fuze cavity (0.81 x 1.73 diameter). The mechanical time fuze M61A2 and booster M24A1, which are staked together, fit into the nose of the projectile.

This projectile has two bourrelets, one (front bourrelet) approximately at the center of the projectile and the other (rear bourrelet) just to the rear of the rotating band. The rotating band, made of gilding metal, has two cannelures or grooves. The fuze is of the mechanical clockwork type designed for use with antiaircraft ammunition. The projectile is fitted with a base cover which assures that the hot gases generated by the burning propelling charge do not come in contact with the bursting charge. This projectile is also issued with fuze MT, M61, or M61A1.

b. Data.

Weight of loaded projectile	50.00 lb[1]
Weight of propelling charge and cartridge case	49.71 lb
Length of fuzed projectile	24.06 in.
Length of cartridge case	32.80 in.
Width of rotating band	2.25 in.
Type of base	boat-tailed
Degree of taper	7 deg 30 min
Radius of ogive	5.55 cal.
Muzzle velocity	3,100 fps
Maximum range:	
Horizontal	27,700 yd[2]
Vertical	19,580 yd[2]

[1] Mean weight.
[2] When not limited by fuze.

148. Projectile, 120 Millimeter: HE, M73, w/ Suppl Chg and Fuze, Time, Mechanical, M61A2

a. General. This projectile consists of the high-explosive, deep-cavity projectile M73, a supplementary charge, the booster M21A4, and the mechanical time fuze M61A2. The deep-cavity projectile M73 is similar to the projectile described in paragraph 147, except for its deeper fuze cavity and lesser weight of explosive. The deep cavity is lined with a thin aluminum liner. The supplementary charge, which seats in the cavity, consists of a 0.30 pound charge of TNT in a cylindrical aluminum body with a felt cushion at the lower end and a lifting loop at the upper end (sec IV, ch 3). The booster and fuze are identical with those used with the projectile described in paragraph 147. This projectile can be adapted for use with proximity fuzes by removing the supplementary charge, booster, and mechanical time fuze and inserting the proximity fuze.

b. Data. The data in paragraph 147 is also applicable to this projectile with mechanical time fuze or proximity fuze M504 series except for weight of fuzed projectile which is 49.67 pounds for this projectile with supplementary charge, booster, and mechanical time fuze.

c. Projectile. This projectile is also issued with fuze MT, M61 or M61A1.

149. Projectile, 120 Millimeter: HE, M73, w/ Suppl Chg, w/o Fuze

This projectile is similar to that described in paragraph 148, except that it is not fuzed.

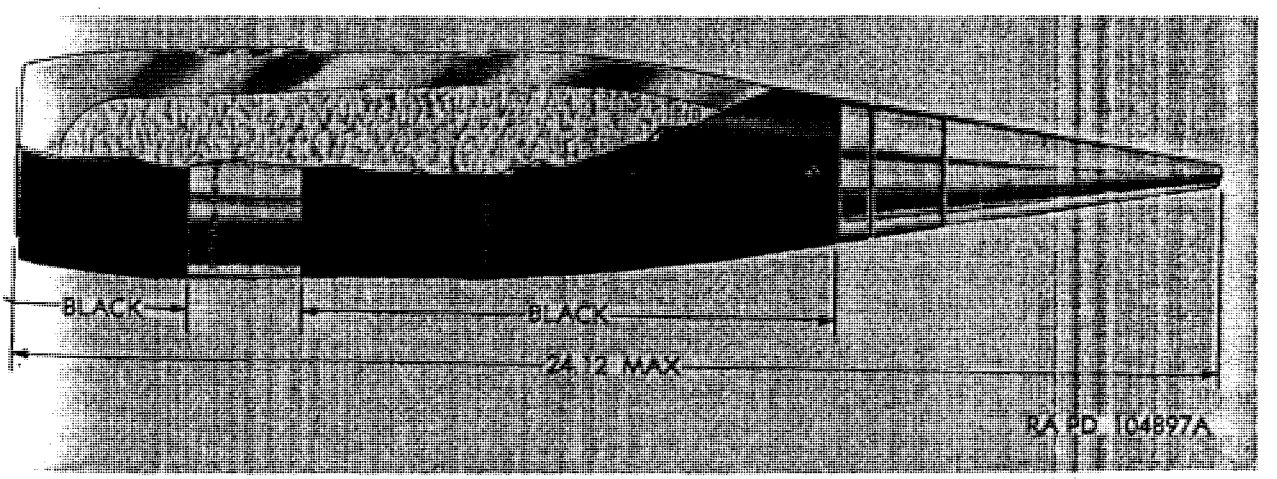


Figure 37. Projectile, 120 millimeter, dummy: M15, w/fuze, dummy, M79.

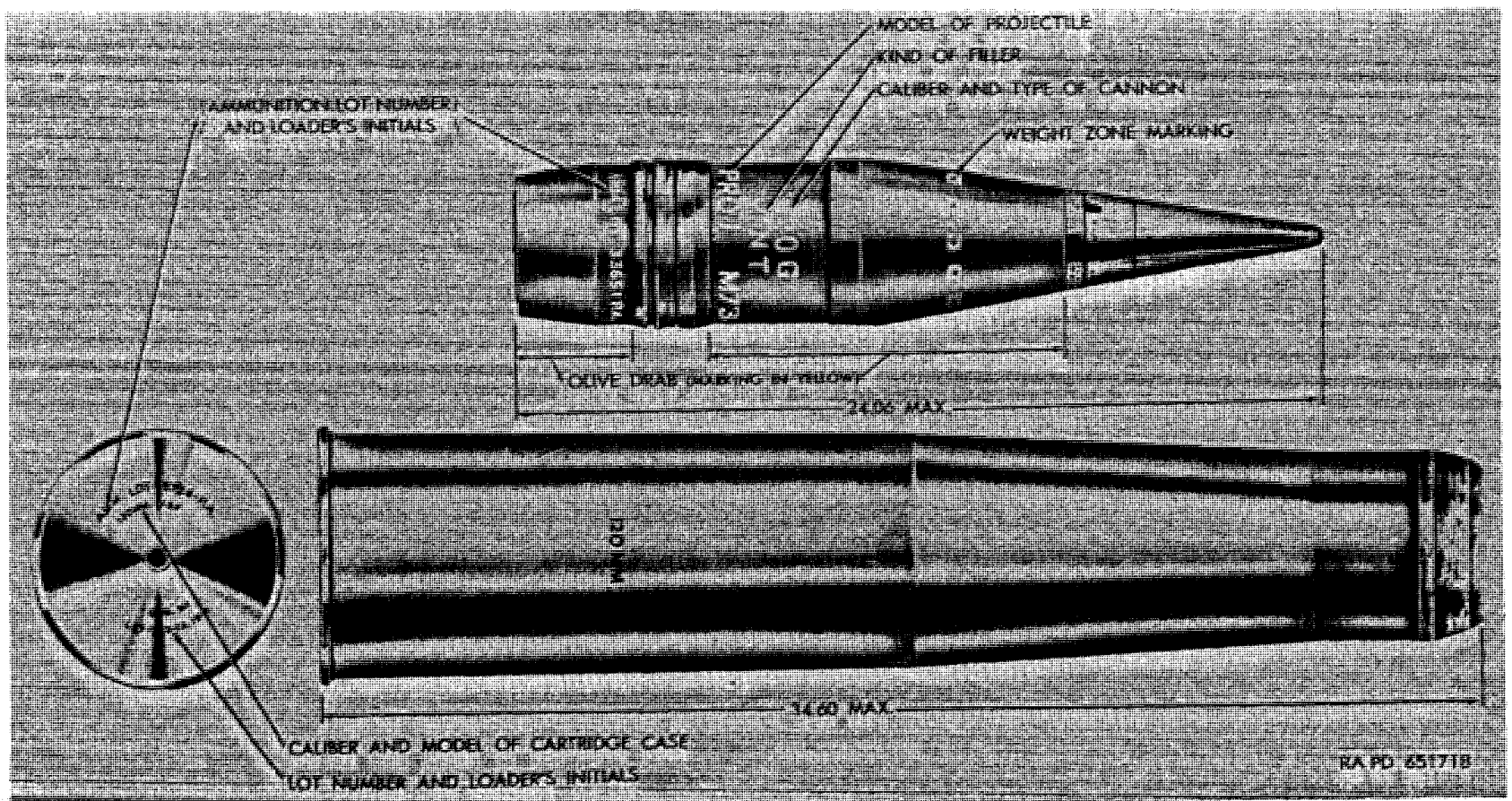


Figure 38. Projectile, 120 millimeter:HE, M73, w/fuze, MT, M61A2 and charge, propelling, 120 millimeter, M15.

cup hole, valve, and vent to ignite the black powder charge. Upon development of the pressure of burning gases, the valve closes the primer cup hole.

320. Primer, Percussion, M49

This primer is of the cartridge case type (par. 297*c*(2)) and is used with the M82 armor-piercing rounds in the 90-mm guns. The body has an open end.

321. Primer, Electric, M52A2

This primer (figs. 37, 38, and 39) is a small electrical element assembly (pars. 23, 25, and 27) used with 20-mm ammunition in aircraft gun M24. It consists of a brass cup with a hole in the cupped end, into which is assembled a brass button separated from the cup by an insulator, followed by a consolidated charge of a conductive primer mixture, a shellacked foil paper disk; finally, a thin gilding metal support cup is pressed into the body. The electrical path is from the face of the button exposed through the hole in the cup, through the button, through the conductive mixture to the cup. The primer is initiated by electrical energy.

Section IV. BOOSTERS, ADAPTERS AND BOOSTER ASSEMBLIES, AND BURSTERS

322. Boosters

Since the bursting charges of high-explosive shell are relatively insensitive to shock, a comparatively large detonating charge is necessary to insure a high-order detonation of the bursting charge. The use of more sensitive explosives, such as mercury fulminate or lead azide, in the quantities required for the purpose would create excessive hazards in handling and firing. Therefore, such explosives are used only in small amounts as initiating and intermediate detonating charges. A separate charge of somewhat less sensitivity (usually tetryl) is provided for detonating the high-explosive charge of the shell; because its function is to increase or "boost" the effectiveness of the explosive train, this charge is known as a booster charge. The booster charge may be incorporated within the fuze itself, or may be encased in a thin casing of metal or plastic which is screwed permanently to the fuze and handled as a unit with the fuze. The assembled casing with booster charge is known as a booster. Most types are provided with a boresafety mechanism; these boosters usually contain one or more other charges in addition to the booster charge, such as

an intermediate detonator and/or a lead charge. Types in use are described in this section.

323. Booster, M20, M20A1, and M20A2

The M20 booster and modifications were used in conjunction with point fuzes, both impact and time types, to effect the functioning of fixed and semifixed high-explosive projectiles. The M20A2 differed from the M20A1 only in slight design changes and never was put into production. The M20A1 differs from the M20 only in that it has a larger flash hole in the rotor cover; in other respects, construction and functioning are the same. The booster can be used in projectiles having a threaded fuze hole with a 2-inch diameter, 12 TPI, and with all fuzes having a threaded base 1.7 inches in diameter, 14 TPI, subject to certain conditions. These boosters were standard only in fixed and semifixed ammunition of 75-mm to 120-mm caliber and in the 8-inch high-explosive shell M103, which were issued and shipped with the fuze assembled to the shell. The M20A2 booster was the same as the M21A4 booster except that it had no cotter pin assembly. Since, in present manufacture, boosters are attached securely to the fuze, no requirement exists for the M20A2 booster. The M20A2 booster has been replaced by the M21A4 booster. Description for the M21A4 booster in paragraph 324 applies to the older M20A2 booster except for the cotter pin assembly.

324. Booster, M21, M21A1, M21A2, and M21A4

a. GENERAL. In basic respects, construction and functioning of the M21, M21A1, M21A2, and M21A4 booster (fig. 195) are the same as for the M20 boosters described in paragraph 323. However, M21 boosters are fitted with a safety (cotter) pin with full ring (C) which holds the rotor in the unarmed position prior to assembling the fuze with booster to the projectile. The M21 and M21A1 boosters differ from the M20, the M21A2, and the M21A4 designs also in that the centrifugal pin lock pin (P) is omitted. The only difference between the M21 and M21A1 models is in the size of the flash hole in the rotor cover. In the M21A2, a two-piece centrifugal pin lock pin, making use of a ball and socket joint to permit some "play," is incorporated in the booster. In the M21A4, the most recent production model, the centrifugal pin lock pin was replaced by a single-piece type. A shoulder also is provided between the centrifugal pin and lock pin cavities under which the single-piece lock pin can catch when acted upon by the combined setback and centrifugal forces. Upon standardization, the M21 series replaced the M20 series for use with separately issued point

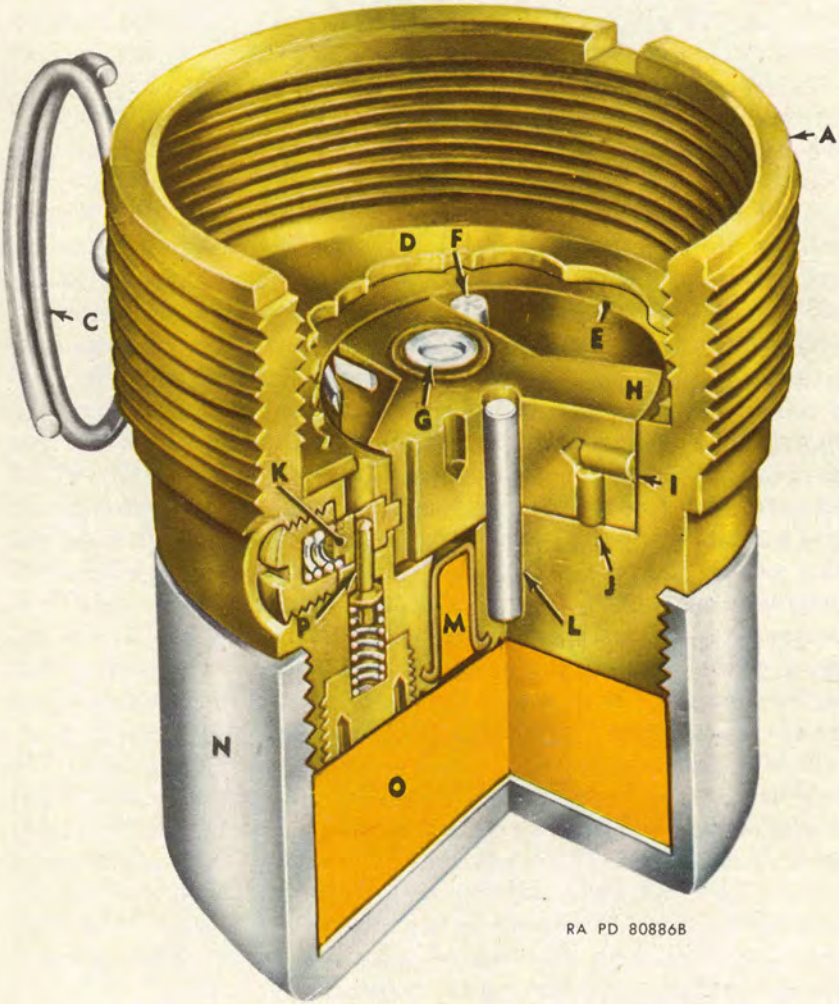


Figure 195. Booster, M21A4.

fuzes and, to date, this booster or a modification thereof has been used with such fuzes in separate-loading projectiles. However, the boosters will fit any projectile (75-mm and larger) with a threaded fuze hole with a 2-inch diameter, 12 TPI, and receive all fuzes having a threaded base 1.7 inches in diameter, 14 TPI. In normal use, the M21 type booster is assembled to the fuze during manufacture, the fuze and booster being handled thereafter as a unit. At present, the M21A4 booster has become standard for use in all fixed, semifixed, or separate-loading shell. On earlier models,

a small hole is drilled and tapped in the threaded upper portion of the booster to accommodate a setscrew for securing the fuze to the booster. The setscrew is staked in position after assembly. A recent loading and assembly practice has been to stake a small shoulder of the fuze body into the wrench slots of the booster body, thus eliminating the need of assembling and staking the setscrew. This practice now is superseded by use of a blind hole in the threaded section of the booster body, at which point the booster will be staked to the fuze in future production.

b. DESCRIPTION. The following description for the M21A4 booster also is applicable to all M20 and M21 boosters with the exceptions cited in *a* above (letters in parentheses refer to fig. 195). The booster is made up of two major parts: a booster cup (N) which contains a tetryl booster charge (O) and screws onto a threaded brass body (A) containing tetryl booster lead (M), and a rotor assembly. The rotor assembly is made up of a rotor (H) containing a lead azide-tetryl flash initiated detonator (G), a centrifugally actuated pin (K), a centrifugal pin lock pin (P) which operates under setback, a rotor stop pin (F), a rotor lock pin (I), and a rotor lock pin lock (J). The rotor is seated on its pivot pin (L) so that the detonator normally is out of alinement with other explosive elements in the booster and the assembled fuze. The center of gravity of the rotor assembly is off the centerline of the pivot center so that the assembly will rotate under centrifugal force. The rotor is locked in the unarmed position prior to firing by the spring-held centrifugal pin. The centrifugal pin, in turn, is held in the locking position by the centrifugal pin lock pin. The function of the rotor stop pin is to stop the rotor assembly when it has rotated to alined or armed position. The boresafety mechanism is covered at the forward end of the booster by a thin brass cover (D) which has a flash hole to permit the transmission of the fuze action to the detonator in the rotor of the booster. The flash hole is covered by a thin disk of onionskin paper (E) to prevent foreign matter from entering the booster.

c. FUNCTIONING. Upon firing, setback forces the centrifugal pin lock pin rearward against its spring, freeing the centrifugal pin. Centrifugal force moves the forward end of the lock pin under the shoulder in the lock pin cavity. This prevents the lock pin from returning to its original position. When the projectile reaches the required rotational velocity, the centrifugal pin moves outward against its spring. This releases the rotor which then rotates to the alined or armed position against the stop pin, whereupon the rotor lock pin moves radially outward under centrifugal force from its cavity in the rotor partially and into the hole in the booster body. Creep force causes the rotor lock pin lock to move

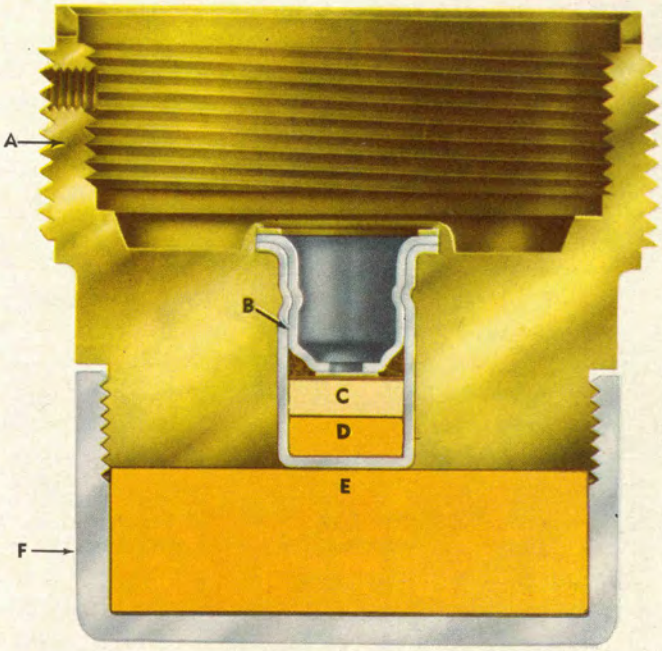


Figure 196. Booster, M22.

axially forward into the space behind the rotor lock pin, preventing the rotor lock pin from returning to its original position. Thus, the booster is locked in the armed position throughout the flight of the projectile. Action of the booster detonator is initiated by the detonating elements, or magazine charge (in time fuzes), of the fuze. Explosion of this detonator is transmitted through the booster lead to the booster charge. The booster charge, in turn, detonates the high-explosive charge of the projectile.

d. PREPARATION FOR FIRING. For firing the M21 series of boosters, the safety (cotter) pin must be removed before inserting the fuze and booster assembly into the shell. There is no preparation for firing boosters of the M20 series.

325. Booster, M22

The M22 booster (fig. 196) is used in conjunction with the M57 superquick fuze in 105-mm howitzer chemical shell to explode the shell burster charge. In outward respects, the booster is similar to the M20 and M21 series boosters, and has the same threading. Internally, the booster differs in that the rotor assembly is omitted, the body (A) being solid except for a drill hole through the center. This seats a detonator assembly (B) containing two pellets, one lead azide (C) and the other tetryl (D). The booster charge (E) is contained in a booster cup (F) screwed on the base end of the booster. Due to the omission of the rotor, the booster is not of the boresafe type. The M57 fuze w/M22 booster has been superseded recently by the M51A5 fuze for the 105-mm howitzer chemical shell.

326. Booster, M24

The M24 booster (fig. 197) has been standardized as an alternative for all modifications of the M20 and M21 boosters, for all purposes for which these are authorized. It also is used with the M48A3 or M48A2 fuze, or the M51A5 or M51A4 fuze without booster, to make up the M81 rocket fuze. The M24 booster consists of the brass body (A), which is threaded internally to take standard fuzes, and externally to fit in 2–12NS adapters or shell threads. The flash hole (B) opens into the rotor chamber. The rotor (C) contains the detonator (D) and holds it out of line until the fuze arms. The rotor is flat on diametrically opposite sides at its ends so that it is unbalanced until centrifugal action causes it to right itself. In so doing, its detonator is alined with both the flash hole and the booster lead. The rotor is held in the unarmed position by the lock (H) which has two protrusions on the end facing the rotor fitting into two corresponding holes in the rotor. The other

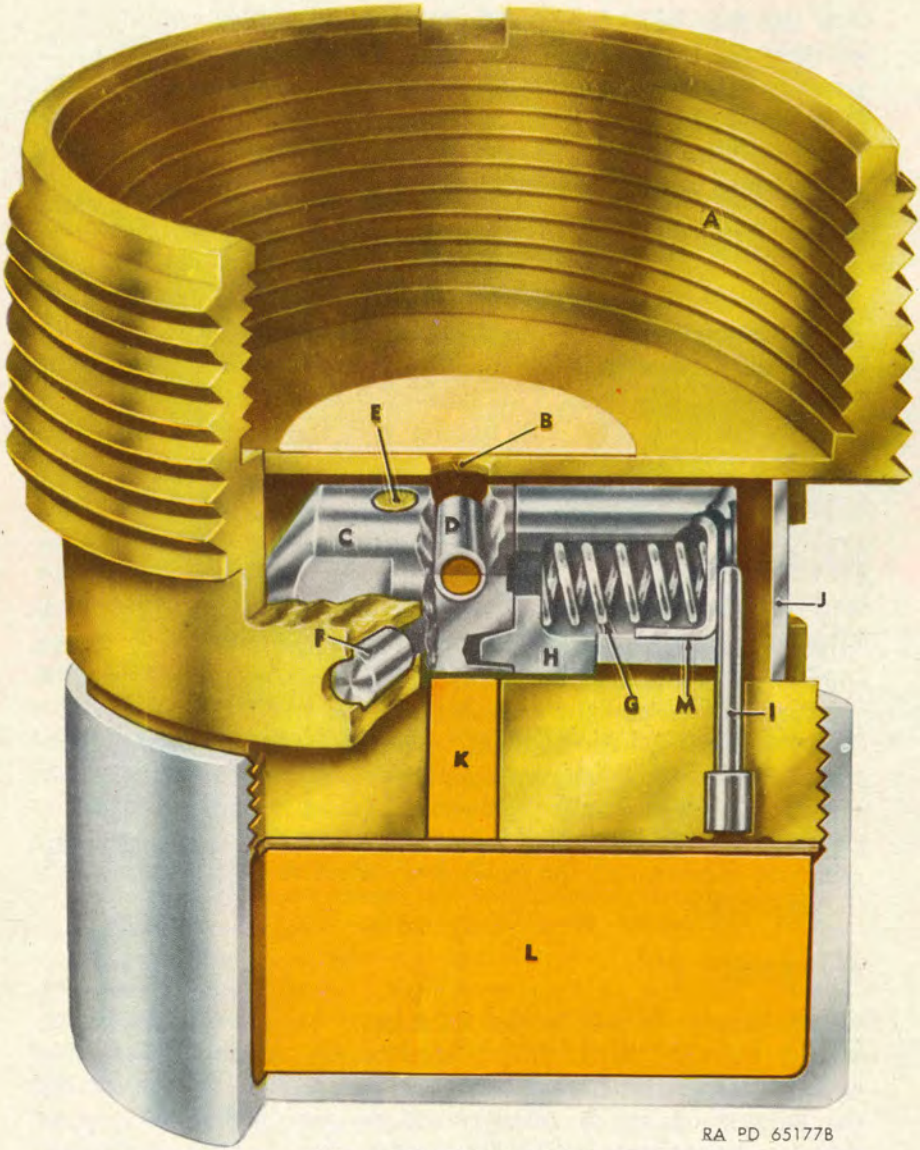


Figure 197. Booster, M24.

end of the lock contains a slot, engaging the fixed body or guide pin (I) which permits the lock to move in a radial direction but prevents it from rotating. The lock is held engaged to the rotor by the centrifugal spring (G), one end of which is held stationary through the lock cup (M) against the fixed body pin (I). The rotor chamber is closed by a plate (J). On firing the shell, centrifugal force causes the lock to move outward against the spring and release the rotor which turns so that the detonator is alined

with the flash hole and the booster lead (K). On reaching this position, the rotor is locked in place by the lock pin (E) which partially enters the lock pin cavity as far as the closing plug (F). The booster charge (L) consists of a tetryl pellet. As a manufacturing modification, the booster body may be made of drawn brass with a brass insert. This modification is designated M24B1.

327. Booster, M25

This booster is a modified M21A4 booster, containing three external threads instead of six. A cotter pin with pull ring, which is located in the booster body, must be removed prior to assembling the booster to the shell. This booster is issued only for use with the M78 CP fuze. This M25 booster with the M78 fuze is used to convert a standard high-explosive artillery shell into a concrete-piercing shell. See paragraph 264 and figure 170.

328. Bursters

In chemical shell, the function of the explosive charge is to burst the shell casing and disperse the chemical contents. Hence, when used in chemical shell, the charges generally are known as burster charges, and the assembly as a burster. The burster, like the booster charge for high-explosive shell, consists essentially of a high-explosive charge in a suitable thin-walled container. Some early designs were similar to boosters, but modern types consist of a long assembly extending into the shell cavity. This insures a complete rupture of the shell and effective dispersion of the chemical filler.

329. Burster, M1

This burster is used in the M2 burster casing with the 81-mm mortar chemical shell M57. The assembly resembles that used with 75-mm gun and howitzer shell (par. 332) but differs in that the burster charge is smaller, and no intermediate detonating charges are necessary. The M1 burster consists of approximately 0.037 pound of tetryl loaded under pressure in an aluminum-alloy tubing 0.39 inch in diameter and 9.82 inches long. The M2 burster casing is made up of a seamless steel tubing with internal dimensions approximately the same as the external measurements of the burster, seated at the forward end in a steel sleeve. The assembly is constructed so it will be a press fit in the adapter of the M57 shell, and extends approximately three-quarters of the length of the shell cavity. Action of the burster is initiated by the M52 fuze, which has a booster charge assembled therein.

Chapter 10

MECHANICAL TIME FUZE MARK 25 MOD 1

General Data

Designation and Type

Mechanical Time Fuze Mk 25 Mod 1 (or subsequent)

Projectiles Used In

Illum.
- 5″/54 cal.
- 6″/47 (Double Purpose)

HC
- 5″/54 cal.
- 6″/47 (Double Purpose)

Overall Dimensions and Weight

Length	4.55 in.
Threaded length	0.47 in.
Body threads	1.70 in.—14NS-1RH
Weight	1.41 ± 0.035 lb.

Material

Body	Aluminum
Lower cap	Brass
Upper cap	Aluminum

Applicable OS and General Arrangement

Drawing No. (Not yet prepared). Use OS 2114, when pertinent.

Explosives Used

Primer cap contains either F.A. 70 primer mixture consisting of potassium chlorate, antimony sulfide, TNT and lead sulfocyanate or the F.A. 70 primer mixture modified to contain 8% ground glass. Magazine charge consists of not less than 40 grains of black powder in a moistureproof plastic container.

Figure 20.—Mechanical Time Fuze Mk 25 Mod 1 Exterior View Full Size

Description

The Fuze Mk 25 Mod 1 is a combination of the Mk 50 and the Mk 51. That is, it has the shape of the 30-second Fuze Mk 51 but contains the 45-second clockwork mechanism of the Mk 50. It is necessary to use the longer slimmer shape of the Fuze Mk 51 because of the longer more streamlined shape of the 5″/54 cal. and 6″/47 cal. (double purpose) projectiles with which it is used. However, these being relatively long range guns, they need the 45-second time element. Thus the description in this OP of the clockwork mechanism of the Fuze Mk 18 and Mk 50 is equally applicable to this fuze. Reference to the body, upper and lower caps of the Fuzes Mk 22 and Mk 51 are equally applicable

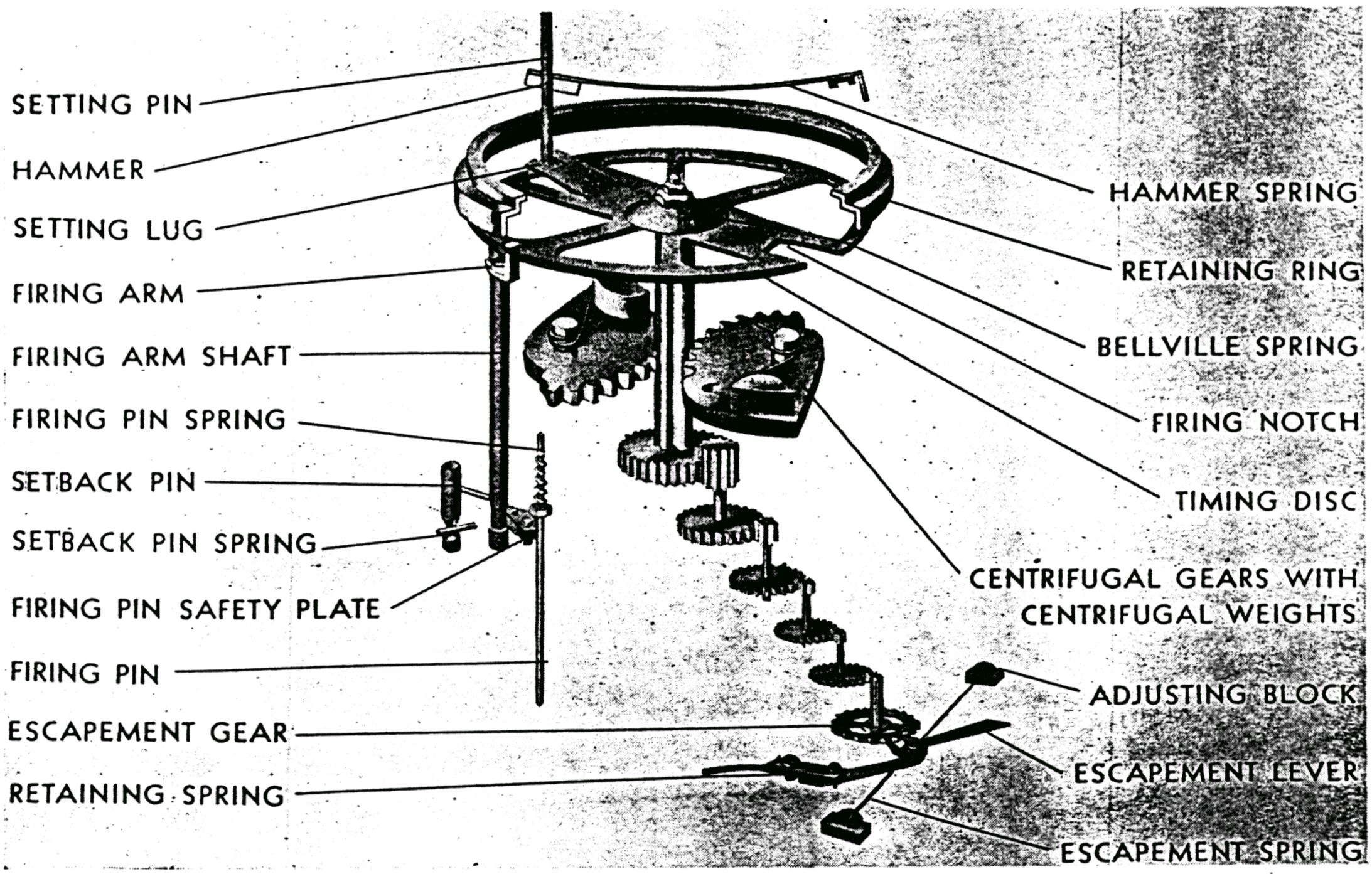


Figure 21.—Mechanical Time Fuze Mk 25—Schematic View

to this fuze. The Fuze Mk 25 Mod 1 is the moisture-proofed design as described for the Fuze Mk 51.

Operation

The operation of the clockwork of this fuze is exactly the same as that of the Mk 18 and Mk 50 type. The body and lower cap, being of the Mk 22 type, do not have protruding lugs for setting the fuze but have slots cut into them to engage the fuze setter lugs.

Safety Features

(a) A setback pin prevents rotation of the firing arm and hence tripping of the spring-loaded firing pin through a connecting linkage until the setback pin is moved rearward by setback force.

(b) A spring-loaded safety lever prevents oscillation of the clockwork escapement until the safety lever has been rotated out of engagement by centrifugal force.

(c) When the fuze is set on "safe" or anything less than the prescribed minimum setting, the firing slot in the timing disc is covered by a safety disc so that if the timing disc were rotated into firing position it could not release the firing arm and trip the firing pin.

(d) The timing disc is prevented from rotating by the setting pin which passes between two prongs of a raised forked lug near the edge of the timing disc itself. This lug is bent down out of the way of the setting pin by the hammer in the upper cap when setback occurs.

Acceptance Functioning Test

Sample fuzes from each production lot are fired at settings of 3, 10, 15, 20, 30, and 40 seconds at various gun elevations. The actual mean time of flight and the dispersion shall not differ from the setting by more than 0.08 seconds plus .005 times the setting.

Markings on Fuze

Mechanical Time Fuze Mk 25 Mod 1 (or subsequent). (Initials of Manufacturer and of Navy Inspector) Lot No. —.

Remarks

(a) Fuze Mk 25 Mod 1 is a moistureproofed design similar to that described for the Mk 51. There were never any non-moistureproofed Fuzes Mk 25 Mod 0 issued to service. All Fuzes Mk 25 Mod 0 and 1 are made by the Eclipse Machine Division of the Bendix Aviation Corp.

(b) **Time Setting Characteristics:** The Fuzes Mk 25 Mod 1 function as follows for various settings:

Setting	Action
Safety zone to and including 0.0 seconds	Dud caused by built-in feature (safety disc)
*0.0 to 0.3 seconds	May be a dud or may function somewhere between 0.6 and 0.8 sec.
*0.3 to 0.6 seconds	Will function somewhere between 0.6 and 0.8 sec.
0.6 to 45.0 seconds	Will function at time set (within allowable calibration error)

***NOTE:** These settings are not recommended because the resultant actions are variable, due to manufacturing tolerances.

655586—45——7

decelerates in flight. Fuzes are designed to prevent this force from causing a malfunction.

(*c*) "Set forward" is a manifestation of inertia which occurs on impact or sudden deceleration. This effect may be used to drive firing pins into primers or to drive primers against stationary firing pins.

(2) *Centrifugal* force, which is the force on an object moving in a circular path away from the center of the circle, occurs in spinning projectiles. (Centrifugal force is not present in fin-stabilized projectiles.) This force may be utilized to actuate gear trains and to move safety devices into their proper positions in fuzes and boosters. Such fuzes and boosters are designed to operate in rotational-velocity range of the projectile-rifle combination in which they are used. Fuzes utilizing centrifugal force also must be designed so that they will not become unarmed as the rotational velocity decreases during flight.

e. Detonators.

(1) *General.* A detonator (fig. 19) is used in the explosive train to transmit a detonation wave to the booster charge, booster lead, or burster. Two types of detonators are employed in recoilless rifle fuzes: one contains a primer mixture as the upper charge, for initiation by stab action of a firing pin; another contains a fine wire or other high-resistance electric circuit in physical contact with a heat-sensitive primer mixture. Passage of an electric current through the high-resistance circuit generates heat, which initiates detonation in the primer mixture. Most detonator cups and disks are of aluminum. Table I lists the various detonators used in fuzes and boosters for recoilless rifle ammunition, indicating their use, dimensions, color identification, and type of initiation.

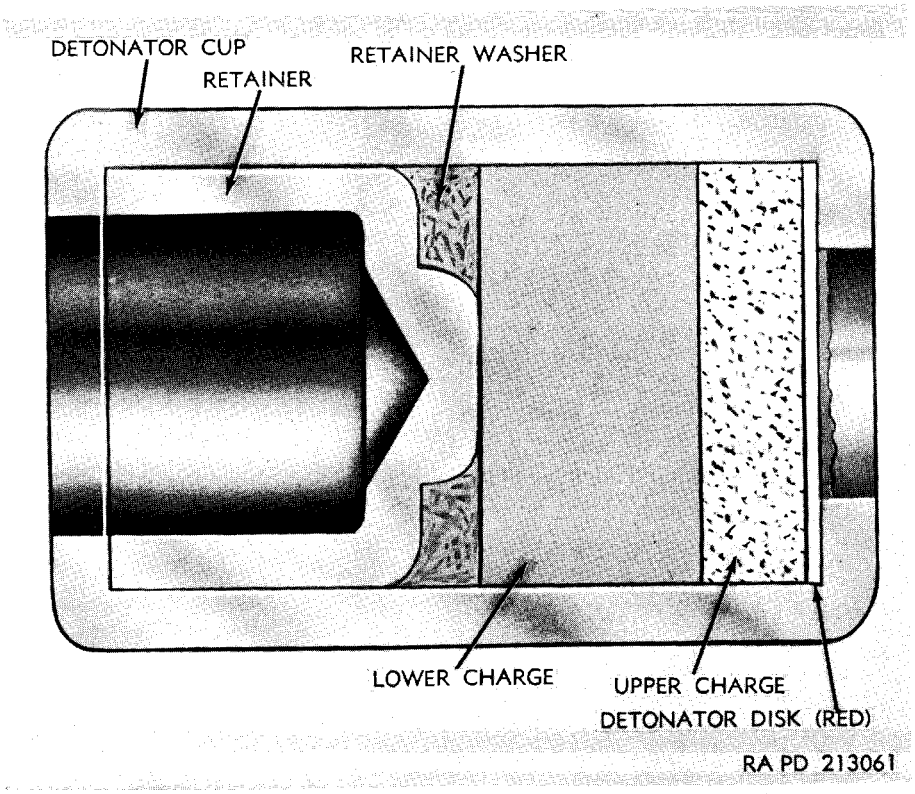


Figure 19. Typical detonator.

(2) *Identification.* Detonators make use of colors to indicate the insensitive end: yellow is used on detonators which do not contain primer mixture or igniting mixture and green is used on detonators containing primer mixture. Detonators usually are not colored externally at the sensitive end. However, due to the method of sealing the disk in place and the red color specified for the sealing lacquer, a color identification is provided for the sensitive end. Coating of the end of the detonator and the entire detonator disk with the red sealing lacquer is optional, depending on the detonator manufacture. The color scheme described above applies to latest detonator construction; discrepancies may be found on detonators of older manufacture.

Table I. Detonators

Model	Used in	Dimensions (in.)		Color identification		Type of
		Length	Diameter	Sensitive end	Insensitive end	
M22	FUZE, BD: M91A1 and M91 FUZE, MTSQ: M500A1 and M500	0.395	0.192	Red	Green	Firing pin
M24	FUZE, PD: M48A3 FUZE, PD: M51A5 and M51A4	.370	.241	Red	.....	Firing pin
M29	FUZE, PD: M89	.390	.145	Red	Green	Firing pin
M30	FUZE, PI: M90A1, M90.	.390	.145	.....	Yellow	Firing pin
M42	FUZE. PD: M503A2, M503A1, M503.	.436	.239	Red	Green	Firing pin
M48	FUZE PIBD M509.	.353	.266	.....	.....	Electric

* Significance of colors:
Green—Detonator contains primer mixture (stab type detonator).
Yellow—Detonator does not contain primer mixture or igniting mixture.
Red—Lacquer (red) used for sealing purposes constitutes a red color identification for the sensitive end.

f. Fuze Interchangeability.

(1) *Need for changing fuzes.*

(*a*) From a time fuze for burst above the target to a PD fuze for impact at the target as required by the tactical situation.

(*b*) As required by the supply situation.

(*c*) To replace or remove unsafe fuzes.

(*d*) In renovation activities, when the original fuze becomes unserviceable due to corrosion, general deterioration, or obsoletion.

(2) *Authority and responsibility.* Assembly to and disassembly from 75-mm projectiles of point fuzes is normal operation in the field. In assembling fuzes to or disassembling fuzes from projectile, only the authorized fuze wrench should be used.

(3) *Authorized fuzes.* Authorized fuzes for recoilless rifle cartridges are described in paragraphs 49 through 61.

g. Fuze Wrenches and Setters.

(1) *Fuze wrenches.* Fuze wrench M18 (fig. 20) is provided for screwing and unscrewing fuzes from the projectile for the purposes described in *f*(1) above. The wrench is a box-type having two throat openings, the opening nearer the end being 2.16 inches and the other opening being 2.04 inches. The screwdriver end of this wrench is used for setting the selective setting sleeve of the fuzes M48 and M51 series from SQ to DELAY or vice versa. The wrench (2.04-inch opening) is used for PD fuzes M48 and M51 series and the MTSQ fuze M500 series.

(2) *Fuze setters.* Fuze setters M14 (fig. 21) and M27 are simple hand wrench types. They are used for setting MTSQ fuzes M500A1 and M500. For further information on fuze setters, see TM 9–2300 and TM 9–575.

h. Packing and Shipping. Packing and shipping data for separately issued fuzes appear in SM 9–5–1390.

i. Identification. Fuzes are identified by the stamping in the body metal. For general fuze identification information, see TM 9–1900.

49. Fuze, BD: M62A1

The fuze is similar to BD fuze M91 (par. 50) except that it does not have a tracer.

Chapter 3

AUXILIARY DETONATING FUZE MARK 17 MODS 0-7

General Data

Designation and Type

Auxiliary Detonating Fuze Mk 17 Mods 0-7

Projectiles Formerly Used In

AA	AA Common	HC
3″/23 cal.	5″/25 cal.	4″/50 cal.
3″/50 cal.	5″/38 cal.	5″/51 cal.
		6″/53 cal.
		6″/47 cal. (Sp.)

Overall Dimensions and Weight

Length ..... 2.50 in.
Body threads 1⅜ in.-20NS-2LH
Weight ..... 0.78 lb.

Material

Body .....Steel
Closing plug .....Steel
Booster cap .....Steel
Rotor block .....Aluminum alloy
Rotor .....Aluminum alloy
Firing pin holder .....Brass
Base for rotor .....Brass

Applicable OS 2104

General Arrangement Drawing No..... 225390

Explosives Used

Primer cap —Fulminate of mercury cap mixture
Detonator —Fulminate of mercury and tetryl
Booster —Tetryl
Booster lead-in —Tetryl

Description

The fuze is composed of a one-piece body with a booster cap and plug closing the respective ends. The body assembly houses the booster firing pin assembly, the rotor block assembly and the base for rotor. In the middle of the closing plug is an obturating cup with a sealing disc between the plug and the firing pin housing. The fuze is designed:

(1) To detonate the projectile explosive charge and thereby burst the projectile with high order detonation instantaneously after the initiating explosive charge in the nose fuze is fired.

(2) To insure safety in transportation and stowage and to prevent detonation of the projectile in the gun should the initiating nose fuze function prematurely.

(3) Not to function or detonate when assembled in a projectile and then dropped nose, side or base down from a height of 40 feet onto armor plate.

Operation

The fuze is assembled in the unarmed position and remains in this condition during transportation and stowage and until the projectile in which it is assembled is fired from a gun. When the projectile is fired from a gun, centrifugal force moves the firing pin detents and rotor detents outward overcoming the holding forces and thereby releasing the firing pin and rotor.

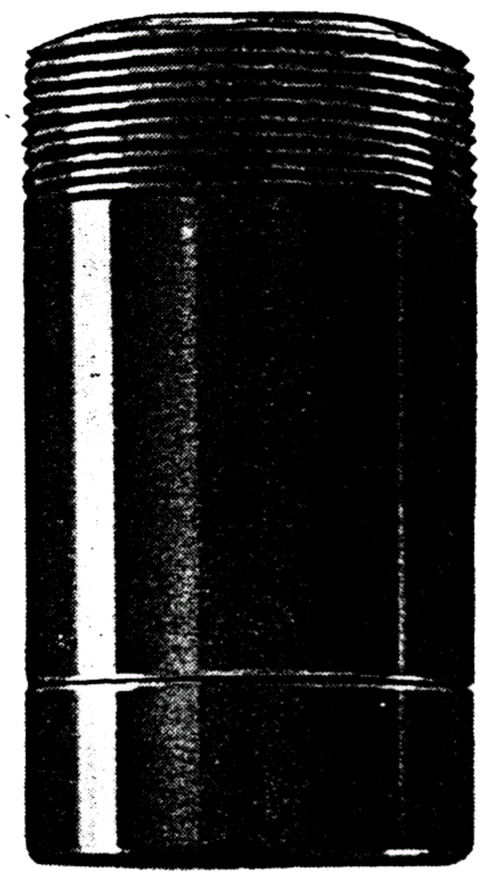


Figure 4.—Auxiliary Detonating Fuze Mk 17 Mod 0-7—Exterior View Full Size

655586—45——3

The rotor which contains two lead counterweights, the primer and detonator, is assembled in the rotor block with the axis of the detonator at an angle of 55 degrees from the long axis of the fuze. The rotor is held in this unarmed position by two rotor detents, the tapered ends of which engage in holes in the sides of the rotor. In this position the detonator element is safe and if the detonator were to be exploded it would not detonate the booster. The rotor detents, on being moved outward by centrifugal force, withdraw from the holes in the rotor, permitting the counterweights to rotate the rotor into a position of equilibrium in which the primer and detonator are in line with the firing pin and booster lead-in, respectively. This movement of the rotor does not actually take place until just outside the muzzle where setback ceases and the high side wall friction forces restraining the rotor disappear.

The rotor is now fully armed, the firing pin is released and the fuze functions as follows: The gas pressure and/or shock wave from the action of the nose fuze forces the obturating cup down and shears the sealing disc adjacent to the firing pin. The firing pin is in turn forced against the primer cap and anvil which functions the detonator, the booster lead-in and booster.

Arming Spin

Both the firing pin detents and the rotor detents arm between 3000 and 4500 rpm in static spin tests.

Safety Features

The rotor assembly and firing pin are held in the unarmed position by their respective safety detents. The fuze is armed only by centrifugal force. One set of detents holds the firing pin and one set holds the rotor unit in the unarmed position. In addition, centrifugal force is necessary to cause the counterweights to carry the rotor to its armed position when the added friction due to setback has ceased. If the detonator should fire in the unarmed position it would not detonate the booster charge.

Acceptance Tests

Sample fuzes from preliminary and each production lot are subjected to standard safety tests and to the following functioning tests:

Flight Test. Two fuzes are assembled in service loaded projectiles with dummy time fuzes and fired from a gun. The fuzes must not function to explode the bursting charge during flight.

Functioning Test. Five fuzes are assembled in standard service loaded projectiles each with a time fuze of proven high quality, and fired from a gun at various fuze settings, two of which correspond to the maximum range of the gun to insure bursts before impact. All fuzes must function to explode the bursting charge of the projectile with a HO detonation upon functioning of the time fuze.

Markings on Fuze

On the closing plug the following data are stamped:

AUX.
DET. FUZE
MK XVII — MOD ——

Lot No.— (Followed by Initial of Loading Plant)
Manufacturer's Symbol; Anchor Sign; Year and Month of Loading; Inspector's Initials.

Remarks

The fuzes Mk 17 are no longer in production, having been superseded by fuzes Mk 46 and Mk 54 described in this OP. The Mod numbers 0-7 of the fuze Mk 17 denoted the different manufacturers of inert parts and not any difference in design. The Fuze Mk 17 Mod 8 was redesignated Auxiliary Detonating Fuze Mk 46.

4-13.6. Physical Characteristics.

Mod 1

Specification	WS 14625
LD	SK109309
Drawing	2513748
Weight	0.92 pound
Length	3.18 inches
Thread size	1.375-20NS-2LH

4-13.7. Explosive Components.

Detonator	Mk 28 Mod 0: lead azide priming mix, lead azide, and tetryl
Rotor lead	NA
Booster lead-ins	Tetryl
Boosters	Tetryl

4-13.8. Arming.

No arm	3000 revolutions per minute
Arm	4500 revolutions per minute
Arming distance (from muzzle)	5 to 6 feet

4-13.9. Function.

Type	Mechanical
Delay	Instantaneous

4-13.10. Packing.

150/box: 152 pounds: 1.5 cubic feet

4-14. FUZE MARK 44 (AUXILIARY DETONATING).

4-14.1. General. Auxiliary Detonating Fuze Mark 44 arms when subjected to spin. This fuze has two off-center rotors in its arming system and is fired by the direct action of shock and gas pressure on its detonator. It is used in VT fuzes designed prior to 1956 and with certain MTFs. Four mods of this ADF are available. In the Mod 0 the rotor and rotor blocks are brass. In the Mod 1 (figure 4-63) the rotor is die-cast zinc with integrally cast or pressed-fit stop pins: the rotors are made of aluminum. Mod 2 is similar to the Mod 1 except that a 0.136-inch-diameter hole has been drilled through the center of the cover and a 0.002-inch-thick copper disc crimped over the top cover to seal it. Mod 3 is similar to Mod 1 except that the booster cup has been shortened to approximately 9/16-inch.

4-14.2. Description. Fuze Mk 44 consists of a threaded body which holds the rotor housing assembly, the booster lead-in, and the booster magazine. The body is closed at the forward end by a cover disc, which has a countersink hole in the top side of the center. The rotors are weighted with lead and pivoted on shafts which allow them to rotate when under the influence of centrifugal force. Each rotor is held in the unarmed position by two spring-loaded detents. The detents engage slots in the outboard edge of the rotor. The upper rotor contains a fragment-shock-heat-initiatable detonator: the lower rotor carries a lead-in or relay charge to convey the impulse of the detonator to the booster lead-in and booster pellet. Each rotor has a flat surface which engages a stop when the rotor has moved to the armed position.

4-14.3. Operation. After the gun is fired and setback is no longer strong enough to hold the rotors through friction, centrifugal force reaches the level necessary to activate the rotors. At this level, the impetus of the weights in the rotors tending to move outboard is sufficient to overcome the springs in the detents. The rotors then turn—the upper in a counter-clockwise direction—until each rotor is halted by its stop pin. In this position, each rotor has placed its explosive charge in line with the booster lead-in and the hole in the cover disc. The rotors are held in this position by the torque of the weights tending to reach a position farther outboard, the torque being resisted by the stop pins. When the nose fuze in the projectile fires, the shock wave from the explosion passes through the sealing cover and the hole in the cover disc to the detonator in the upper rotor. The detonator initiates the lead charge in the lower rotor and, in turn, the booster lead-in and booster charge.

4-14.4. Safety Features. Centrifugal force (on the order of 3,000 revolutions per minute) is required to arm this type of ADF. When armed, explosive-initiated fragments, shock, and heat such as result from a blasting cap explosion initiate the detonator. If either or both of the explosive charges in the rotors are accidentally initiated when the fuze is in the unarmed position, the booster lead-in and the booster will not be activated. Tests have demonstrated fuze safety when one or the other of the rotors is completely armed, provided that one rotor remained in the unarmed position.

4-14.5. Use.

3-inch, 50-caliber VT and VT NON-FRAG projectiles
5-inch, 38-caliber VT and VT NON-FRAG projectiles
5-inch, 54-caliber VT and VT NON-FRAG projectiles

4-14.6. Physical Characteristics.

Mod 1

Specification	OS 2985
LD	109463
Drawing	388904
Weight	0.471 pound
Length	1.819 inches
Thread size	1.560-20NS-2LH

4-14.7. Explosive Components.

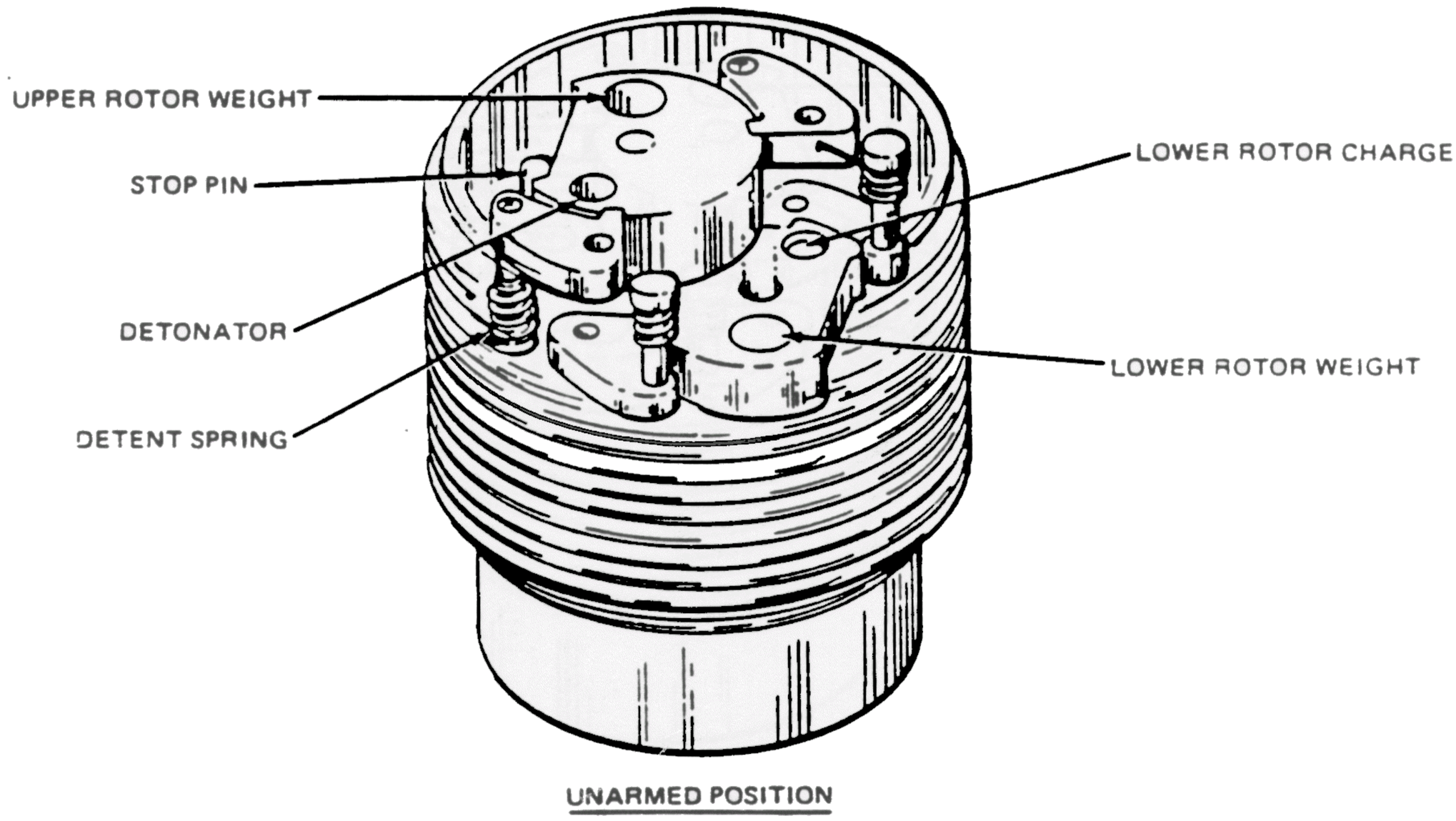
Rotor detonator	Mk 37 Mod 0: Lead azide, tetryl
Rotor lead	Tetryl

Booster lead-ins ..... Tetryl
Boosters ..... Tetryl

4-14.8. Arming.
No arm ..... 3000 revolutions per minute
Arm ..... 4500 revolutions per minute
Arming distance (from muzzle) ..... 5 to 6 feet

4-14.9. Function.
Type ..... Mechanical
Delay ..... Instantaneous

4-14.10. Packing.
150/box; 125 pounds; 1.6 cubic feet



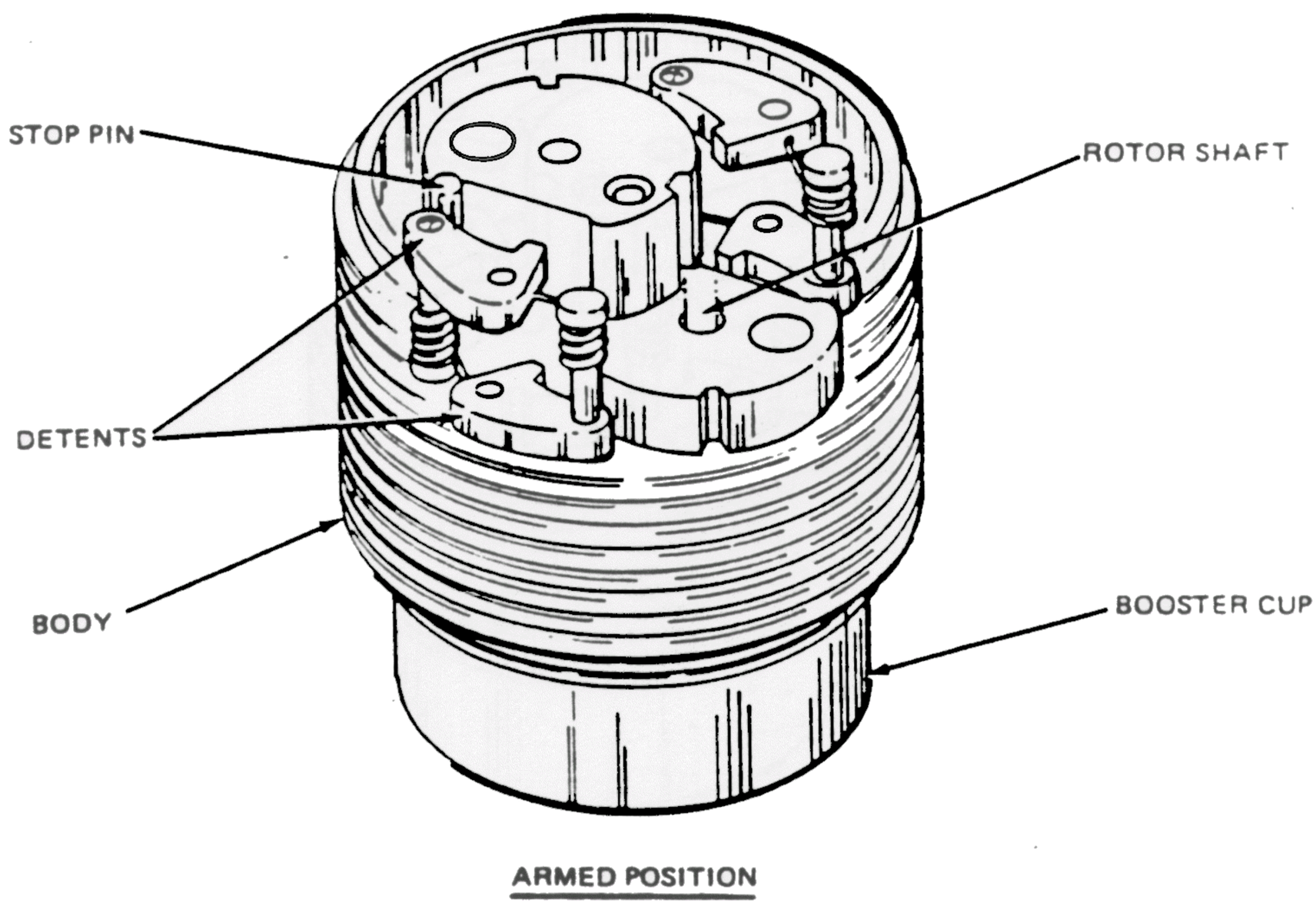


Figure 4-63. Fuze Mk 44 Mod 1 (Auxiliary Detonating), Cutaway View

4-15.2. Use.

Mod 0

5-inch, 38-caliber HE-CVT projectiles
5-inch, 54-caliber HE-CVT projectiles
6-inch, 47-caliber HE-CVT projectiles
8-inch, 55-caliber HE-CVT projectiles

Mod 2

5-inch, 38-caliber HC projectiles
5-inch, 54-caliber HC projectiles

Mod 3

5-inch, 38-caliber AAC, HC, HE-MT, HE-PD projectiles
5-inch, 54-caliber AAC, HC, HE-MT, HE-PD projectiles

4-15.3 Physical Characteristics.

Mod 0

Specification ..... OS 2985
LD 165100
Drawing 438570
Weight ..... 0.482 pound
Length ..... 1.819 inches
Thread size 1.560-20NS-2LH

4.15.4 Explosive Components.

Rotor detonator ... Mk 37 Mod 0; lead azide, tetryl
Rotor lead ..... Tetryl
Booster lead-ins ..... Tetryl
Booster ..... Tetryl

4-15.5. Arming.

No arm ..... 1600 revolutions per minute
Arm ..... 1900 revolutions per minute
Arming distance ..... 5 to 6 feet

4-15.6. Function.

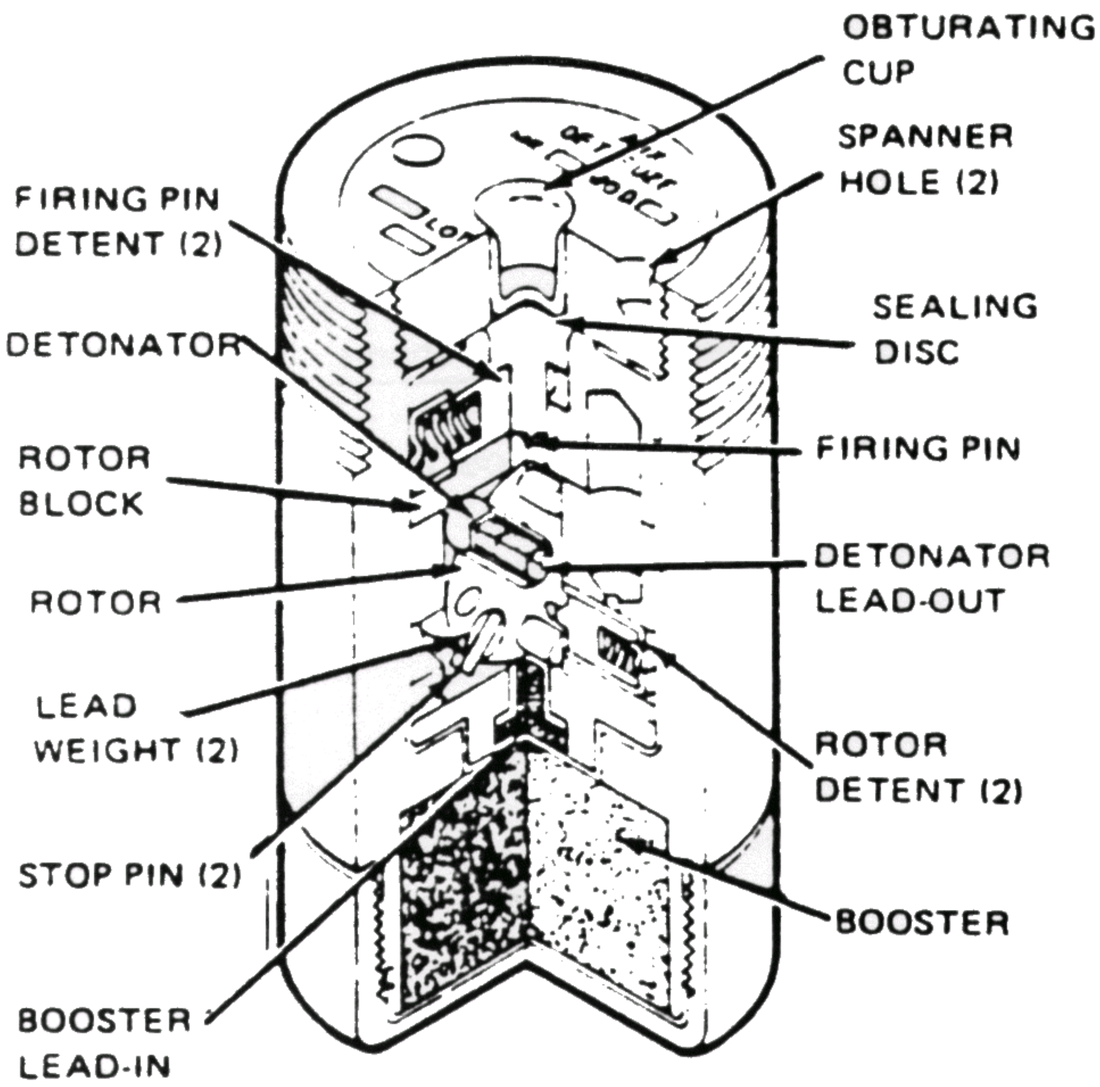
Type ..... Mechanical
Delay ..... Instantaneous

4-15.7. Packing.

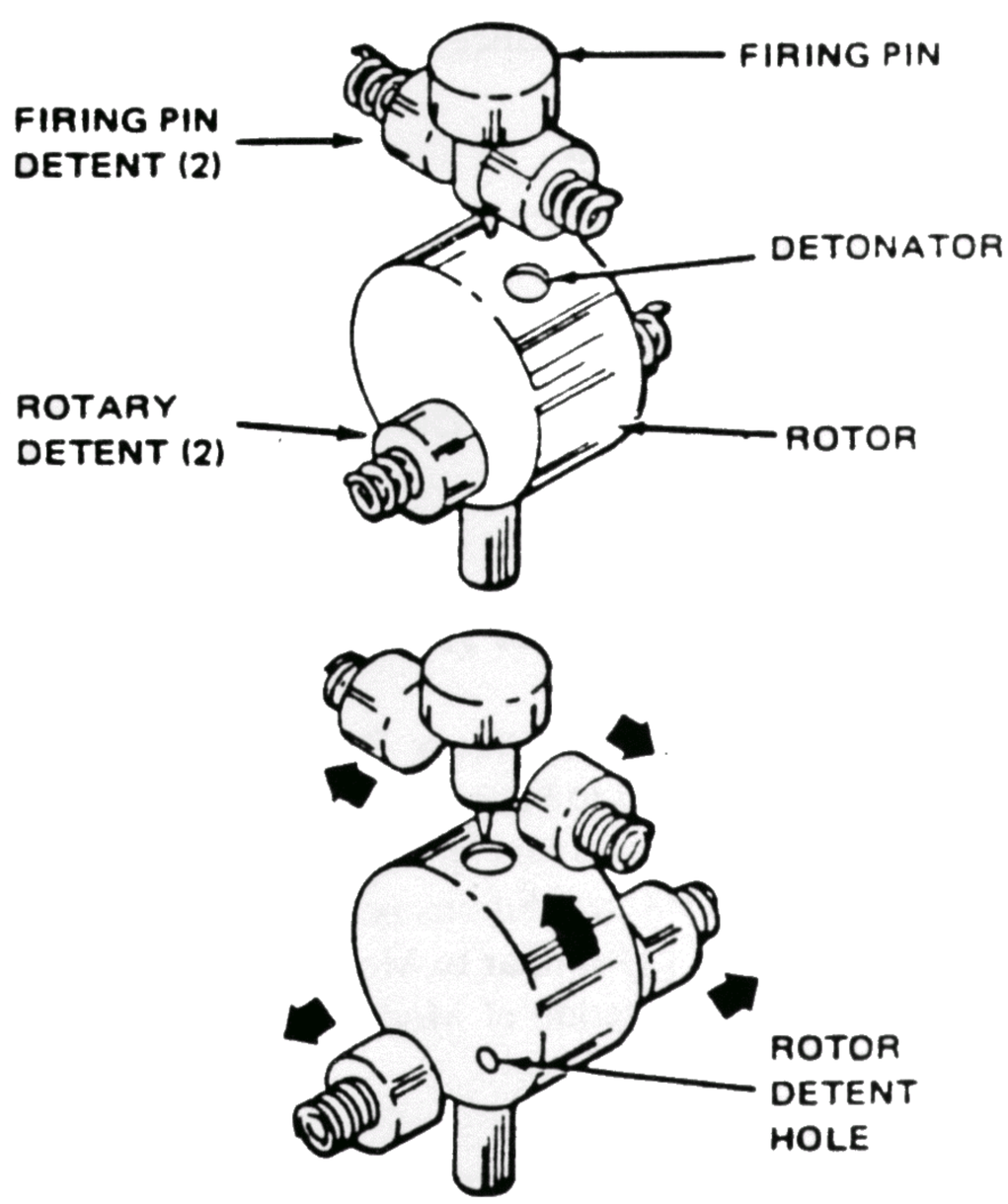
200/box; 125 pounds; 1.6 cubic feet

4-16. FUZE MARK 54 (AUXILIARY DETONATING).

4-16.1. General. Auxiliary Detonating Fuze Mk 54 (figure 4-65) is spin armed. The firing pin is held forward by spin detents and the detonator assembly is out of line until armed. It arms at a rotational velocity between 3,000 and 4,500 revolutions per minute. There are three mods in service status. Mod 1 is similar to Mod 0 except that it has an aluminum body. Mod 2 is similar to Mod 0 except for its booster lead-in; Mod 2 has two increments of tetryl in its lead-in, while Mod 0 has a small single tetryl pellet.



FUZE MK 54, CUTAWAY VIEW



ARMING MECHANISM, EXPLODED VIEW

Figure 4-65. Fuze Mk 54 Mod 2 (Auxiliary Detonating), Cutaway View and Exploded View of Arming Mechanism

4-16.2. Use.

3-inch, 50 caliber AA, HC projectiles
5-inch, 38-caliber AAC, HC, HE-MT, HE-PD projectiles
5-inch, 54-caliber AAC, HC, HE-MT, HE-PD projectiles
6-inch, 47-caliber AAC, HC projectiles
8-inch, 55-caliber HC projectiles

4-16.3. Physical Characteristics.

Mod 2

Specification	WS 14161
LD	166745
Drawing	490100
Weight	0.760 pound
Length	2.500 inches
Thread size	1.375-20NS-2LH

4-16.4. Explosive Components.

Rotor detonator	Mk 28 Mod 0 or 1
Mk 54 Mods 0 and 1	Mk 28 Mod 0
Mk 54 Mod 2	Mk 28 Mod 1
	NOL 130 mix, lead azide and tetryl
Booster lead-ins	Tetryl
Boosters	Tetryl

4-16.5. Arming.

No arm	3000 revolutions per minute
Arm	4500 revolutions per minute
Arming distance (from muzzle)	5 to 6 feet

4-16.6. Function.

Type	Mechanical
Delay	Instantaneous

4-16.7. Packing.

Mod 0/1	150/box; 152 pounds; 1.25 cubic feet
Mod 2	36/box

4-17. FUZE MARK 55 (AUXILIARY DETONATING).

4-17.1 General. Auxiliary Detonating Fuze Mk 55 (figure 4-66) is similar to Fuze Mk 54, but it is used in larger projectiles and requires less spin for arming. The spin required is 1,600 to 1,900 revolutions per minute. The body is made of steel. Mod 1 is similar to Mod 0 except that the body is aluminum. Production of Mod 1 has been discontinued.

4-17.2. Use.

8-inch, 55-caliber HC projectiles
16-inch, 50-caliber HC projectiles

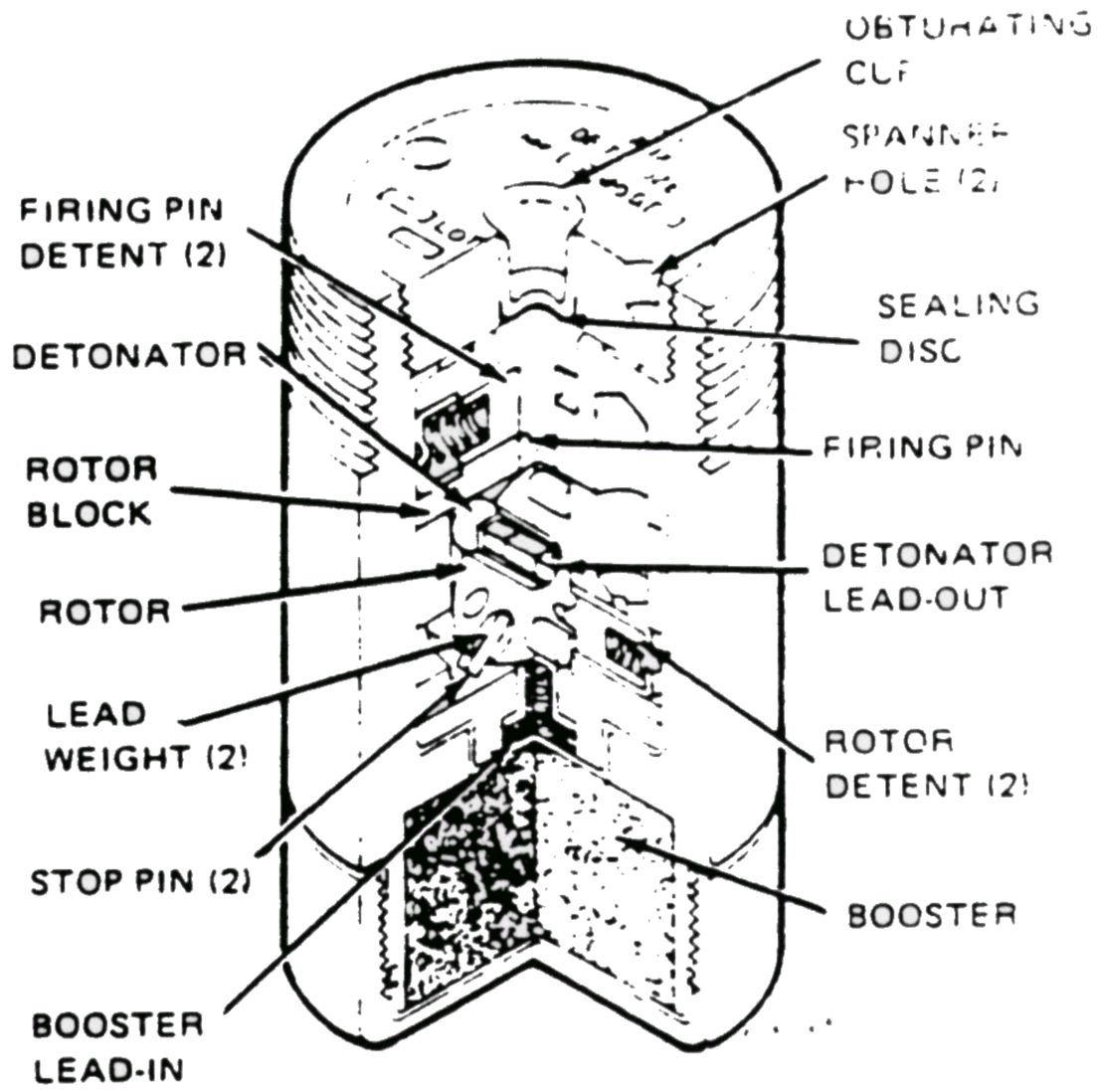


Figure 4-66. Fuze Mk 55 Mod 0 (Auxiliary Detonating). Unarmed Position, Cutaway View

4-17.3. Physical Characteristics.

Mod 0

Specification	MIL-F-18671
LD	SK109484
Drawing	2511090
Weight	0.760 pound
Length	2.500 inches
Thread size	1.375-20NS-2LH

4-17.4. Explosive Components.

Rotor detonator	Mk 28 Mod 0 or 1
Mk 28 Mod 1	NOL 130 mix, lead azide and tetryl
Booster lead-ins	Tetryl
Booster	Tetryl

4-17.5. Arming.

No arm	1600 revolutions per minute
Arm	1900 revolutions per minute
Arming distance (from muzzle)	5 to 6 feet

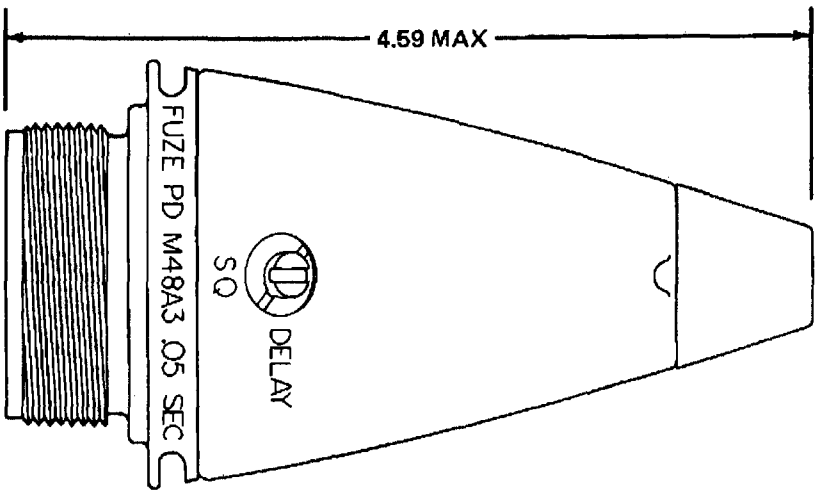
4-17.6. Function.

Type	Mechanical
Delay	Instantaneous

4-17.7. Packing.

150/box; 1.3 cubic feet

FUZE, POINT DETONATING: M48 SERIES



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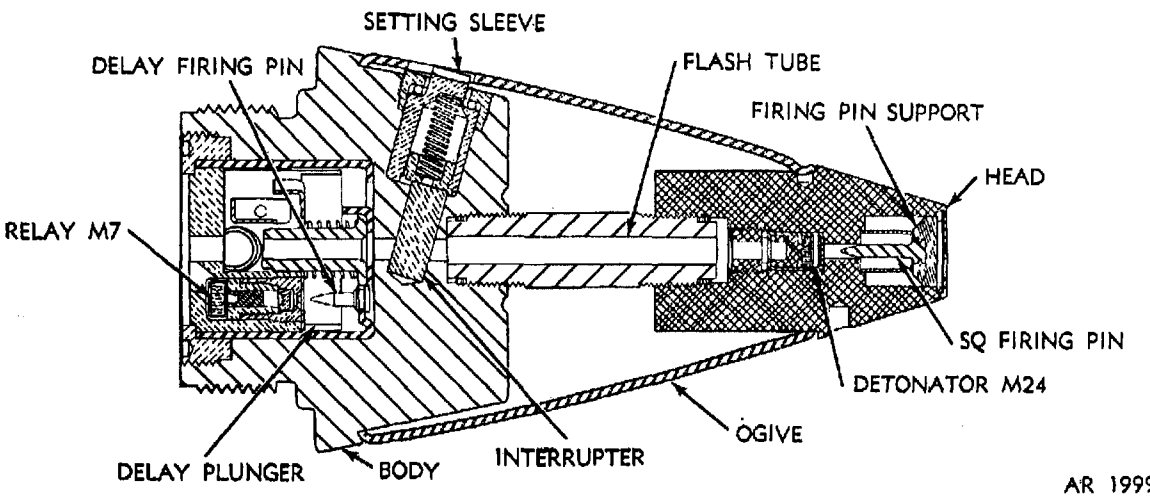

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Type Classification:

Std OTCM 36841 dtd 1958 OBS MSR 11756003 (M48A3).

Use:

The M48 series point detonating fuzes offer selection between superquick or 0.05 second delay action, and are used primarily to detonate Smoke, WP ammunition in calibers 75mm, 90mm and 4.2-inch.

Description:

The M48 series fuzes have a PD head assembly containing a firing pin held in position by a firing pin support which prevents initiation of Detonator M24 until impact. The fuze body contains an M1 delay plunger assembly and an interrupter assembly with a setting sleeve which provides a means of setting or selecting fuze PD (Super Quick Action) or delay functioning. The delay plunger assembly includes a firing pin and Delay Element M2. The delay element includes Primer M54, a black powder delay charge and Relay M7. The delay plunger assembly of the M48A2 fuze comes with delay times of 0.05 seconds or 0.15 seconds, the time delay being stamped on the fuze body. The head assembly is attached to the body by means of the flash tube which also positions the fuze windshield or ogive. The ogive is a thin-walled steel stamping utilized to provide an aerodynamic shape to the fuze.

Functioning:

No action occurs until after the projectile has left the muzzle of the cannon, when centrifugal force withdraws the flash tube interrupter if SQ action has been selected. thus opening the flash tube. At the same time, the delay plunger is armed in preparation for impact by centrifugal withdrawal of the plunger lock pins. Upon impact, the superquick firing pin is

driven against Detonator M24, exploding the projectile if the SQ mode has been selected. Should the superquick element fail, the delay train is also armed and will serve to detonate the projectile, thus avoiding a dud. When the fuze has been preset for delay, the superquick firing pin and detonator still function but have no effect, because the flash tube interrupter is prevented from moving, and functioning is solely the result of the delay element.

Difference Between Models:

M48A2	Mfg. w/separate delay settings; either 0.05 or 0.15 second
M48A3	One delay setting, 0.05 second

Tabulated Data:

Type	PD
Weight	1.41 lb
M48A3E2	1.63 lb
Length:	
Visible	3.74 in.
Overall	4.59 in.
M48A3E2	4.55 in.
Assembly Dwg. No.:	
M48A2	
M48A3	8798219
M48A3E2	9231837

Temperature Limits:

Firing:	
Lower limit	-40°F
Upper limit	+125°F
Storage:	
Lower limit	-80°F (for not more than 3 days)
Upper limit	+160°F (for not more than 4 hr/day)
*Packing	8 fuzes in metal container; 2 containers in wire-bound box
*Packing Box:	
Weight	66 lb
Dimensions	14-5/8 x 12-13/16 x 9-1/8 in.
Cube	1.04 cu ft

*NOTE: See DOD Consolidated Ammunition Catalog for complete packing data including NSN's. Fuzes may be supplied in assembly with ammunition.

Shipping and Storage Data:

Quantity-distance class	3
Storage compatibility group	B
DOT shipping claas	C
DOT designation	PERCUSSION FUZES
DODAC	1390-N318

Explosive Components:

SQ Action	Detonator M24
Delay Actlon	Primer, black powder delay charge, Relay M7

Limitations:

None.

References:

TM 9-1300-251-20
SC 1340/98-IL
SB 700-20

82. Fuze, Rocket: Nose Mk 149 Mod 0

a. General. This is an air-arming, impact-operated fuze for forward-firing aircraft rockets. It is detonator safe and functions with superquick action on impact with ground, water, or plate. It requires the use of an arming wire.

b. Description. This fuze (fig. 51) is streamlined and has a spring-loaded protective cap which protects the propeller and seals the fuze against the weather. The cap is held in position by a split clamp which, in then, is held together by a collar and pin through which the safety wire and arming wire are assembled. The mechanism of the fuze is similar to that of other AIR fuzes described above except that the detonator shutter is held in the safe position by a locking pin controlled by a setback pellet. Thus the detonator cannot move to the armed position until acceleration stops, even if the firing pin has been retracted by propeller action. Arming distance in the 5.0-inch rocket (HVAR), varies from 650 to 1,100 feet.

c. Fuzing.

(1) Remove fuze from packing and inspect to insure that it is free from serious corrosion or dents and that the threads are clean. If slight corrosion is present, work clamp back and forth so that it slides freely on fuze body and cap. If the fuze is more than slightly corroded, discard it.

(2) Remove shipping plug from rocket and inspect fuze seat to insure that threads are clean, the auxiliary booster (Mk 3 Mod 1) is in place, and that there is no foreign matter present or other evidence of unserviceability.

(3) Screw fuze into seat and tighten securely.

(4) After rocket is placed in launcher, turn clamp so that the safety wire is alined with launcher arming mechanism.

(5) Thread arming wire through second hole in clamp pin and collar.

(6) Attach arming wire to launcher arming mechanism. Pull wire through clamp pin so as to take up all slack but not to place any strain on the wire.

(7) Place one Fahnestock clip on the wire against the collar.

(8) Cut off excess wire and remove all kinks and burs.

(9) Remove safety wire from clamp pin.

d. Unfuzing. If the rocket is not used, first replace the safety wire in the clamp pin; then the arming wire may be removed. The rocket may be removed from the launcher and unfuzed. All components should be returned to their original condition and packings.

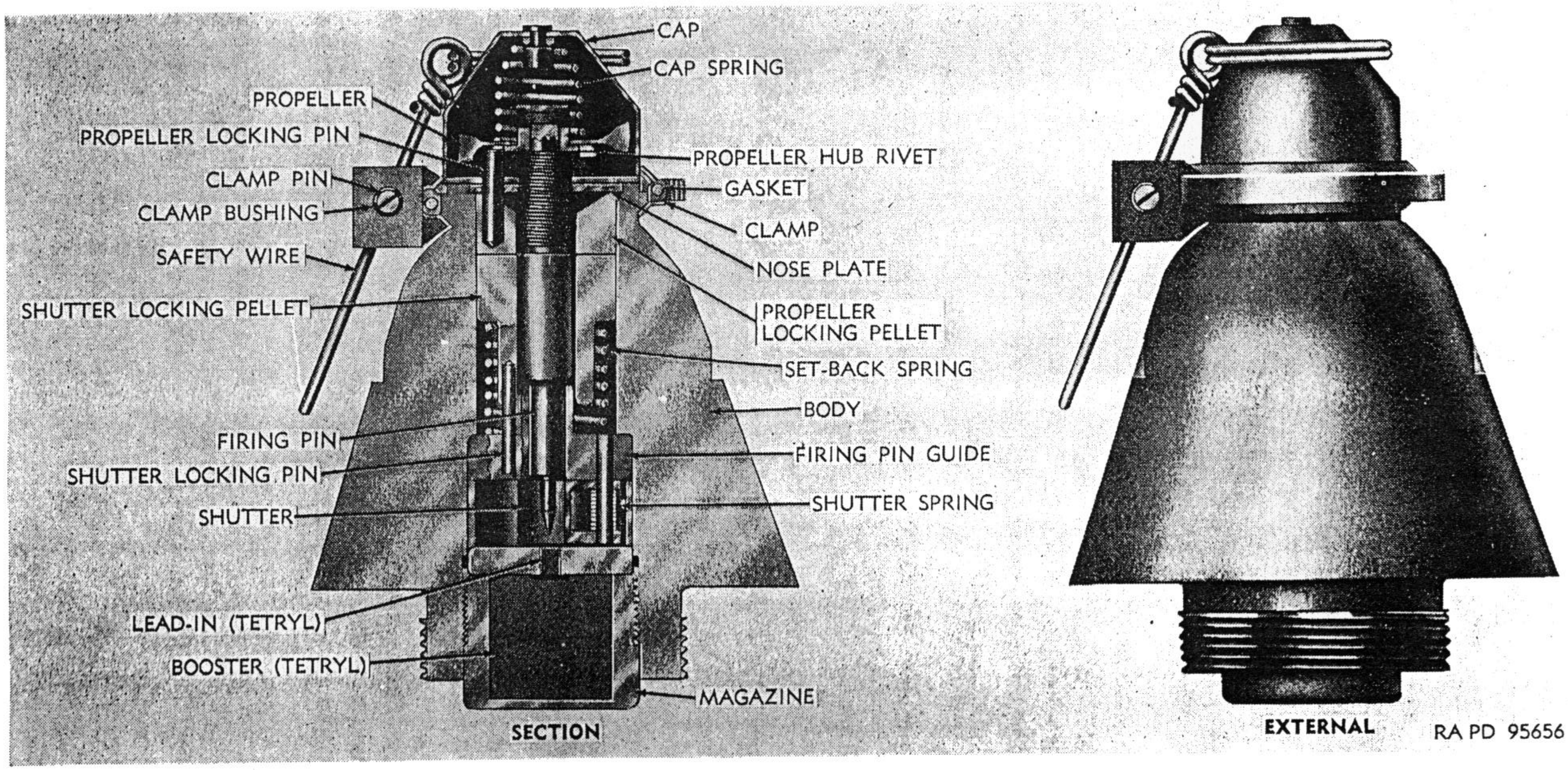


Figure 51. Fuze, rocket: nose, Mk 149 Mods.

CHAPTER 3

RIFLE GRENADES

Section I. INTRODUCTION

3-1. General

a. Rifle grenades (fig. 3-1) are fin stabilized. They are launched from a rifle. Some hand grenades may also be adapted for launching from a rifle by means of a projection adapter. The propelling force for the grenade is provided by a special gas-producing grenade cartridge, which is loaded into the rifle chamber. Rifle grenades may be used against armored targets, against personnel, for screening or signaling, or for incendiary effect against flammable targets. Rifle grenades may be fired at low angles (direct fire) or high angles (indirect fire), depending on the type of grenade being fired and effect desired. Figure 3-2 shows typical fiber containers for rifle grenades.

b. Three general types of rifle grenades are currently available:

(1) *Antitank (AT) rifle grenades.* Antitank rifle grenades are used against armored targets or fortifications. An AT rifle grenade is

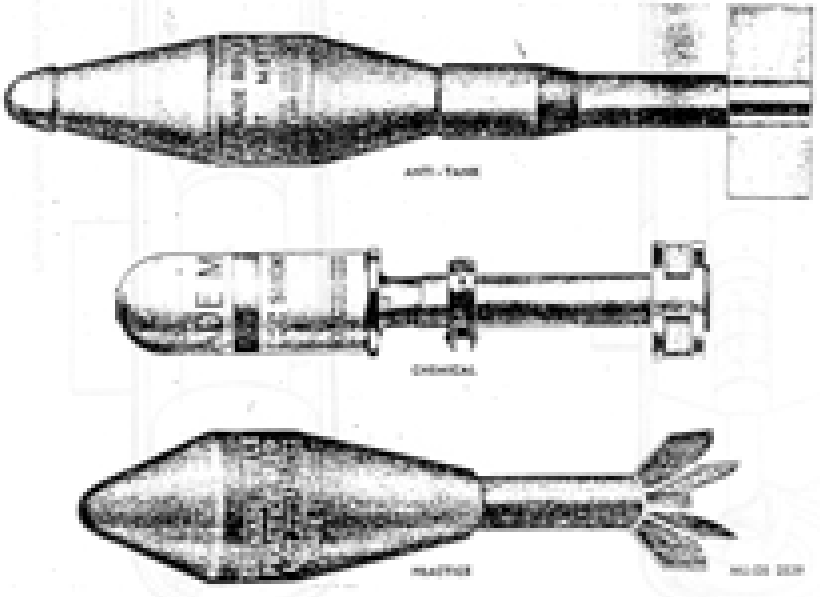
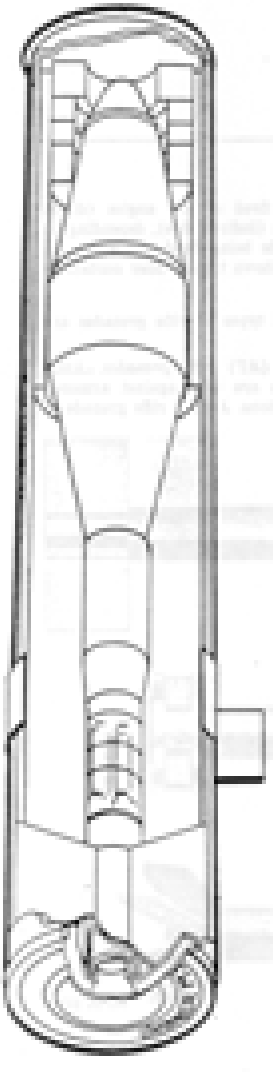


Figure 3-1. Typical rifle grenades.



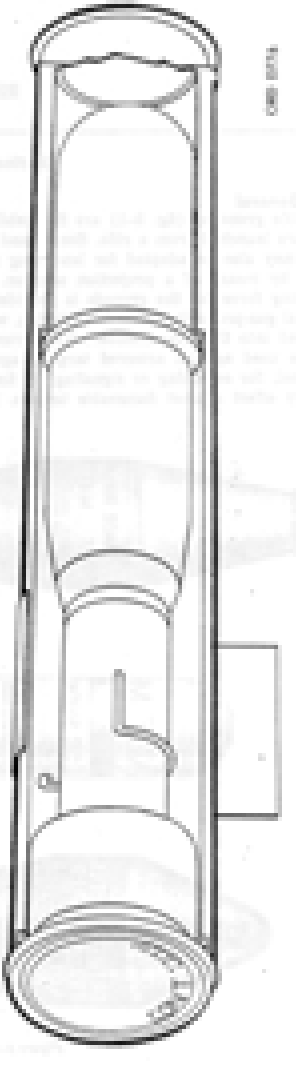


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Figure 2-8. Typical filler assemblies for rifle grenades.

a shaped charge capable of penetrating up to 10 inches of armor plate or up to 20 inches of reinforced concrete at an effective range of 115 meters.

(2) *Chemical rifle grenades.* Chemical rifle grenades are used primarily for screening or signaling purposes. The WP grenade can also be used for incendiary effect against flammable targets. They may be used against personnel. Chemical rifle grenades function either on impact with targets to produce clouds of smoke, or upon launching to produce a long trail of smoke through the air.

(3) *Practice rifle grenades.* Practice rifle grenades are used for training personnel in care, handling and use of service rifle grenades.

Section II. ANTITANK RIFLE GRENADES

3-2. General

Antitank rifle grenades produce a penetrating effect against targets by means of a shaped charge. Detonation of the charge travels from the fuze to the high explosive. There, the detonation wave is "focused" by the shape of the liner to produce a very high velocity jet of hot gases and metal. This jet will blast deep holes into or through steel, concrete and similar materials. In addition, a slug of metal formed from the shaped charge cavity liner acts as a projectile. This slug will be projected into or through the hole.

3-3. Grenade, Rifle: HEAT, M31

a. *General.* This rifle grenade (fig. 3-2) is a point-initiated, base-detonated (PIBD), high-explosive, antitank (HEAT) grenade. It employs a shaped charge to defeat armor plate or concrete, and will function against targets at all angles of obliquity up to 45°. The grenade uses a piezoelectric assembly which generates an electric current when crushed on impact with the target. This action initiates the explosive train. Only Rifle Grenades M31, which are assembled with modified nose assemblies, are authorized for use. The modified nose assembly has a positive ground between the piezoelectric crystal and the metal nose protector cap.

b. *Description.*

(1) *General.* Rifle Grenade M31 consist of three basic parts: the cylindrical body with conical ogive and conical rear section; the fuze; and the stabilizer. The ogive contains a piezoelectric assembly in the nose. A lead wire (in conduit) connects this assembly to the fuze, in the base of the body. The body contains Comp B molded against a copper shaped charge liner. A booster is contained in the fuze at the base of the body. Fuze M211 consists of a base, spring-driven detonator rotor and a cover. The detonator rotor contains an electric detonator. The base contains a setback leaf assembly. The cover contains a booster pellet. The aluminum stabilizer consists of a stabilizer tube, with an adapter at its forward end (for connection to the body), and a fin assembly at the other end. When assembled, the fuze is held within the adapter.

(2) *Data.*

Model	M31
Type	HEAT
Weight (as issued)	1.00 lb
Explosive charge (COMP B)	0.60 oz
Dimensions:	
Diameter	2.41 in.
Height	16.00 in.
Body	Steel
Fuze:	M211
Type	PIBD
Color	Olive drab w/yellow markings
Packing	1 per container; 10 containers per packing box with 20 grenade cartridges M3
Loaded packing box:	
Weight	70.0 lb
Dimensions	20.0" x 14.0" x 20.875"
Cube	5.83 cu ft
Boxes	Gets

c. *Functioning.* An inertia-actuated setback leaf assembly prevents alinement of the detonator with the booster in the fuze until the rifle grenade is launched. Prior to arming, the detonating circuit within the fuze is grounded. Thus, current cannot pass through the detonating circuit, and current from an accidentally crushed or stressed crystal is short circuited to the body of the grenade. The detonating switch is contained within a small rotor which is locked into the short-circuit position by a setback leaf assembly. When the grenade is launched, the setback leaf assembly releases the rotor. The rotor turns 90°, opening the shorting switch and closing the firing switch. Upon launching, the grenade functions as follows:

(1) Inertia setback causes the first of the three setback leaves in the setback leaf assembly to overcome the tension of its spring. This releases the second leaf.

(2) The second leaf rotates, releasing the third leaf.

(3) The third leaf rotates, releasing a rotor assembly containing the firing circuit.

(4) The rotor assembly turns 90° to close the firing circuit, thus arming the grenade.

(5) Upon impact with the target, the crystal is crushed and generates an electrical impulse.

(6) The electrical impulse is conducted through a lead wire in the conduit to the electric fuze.

(7) The electrical impulse passes through a resistance wire in the detonator, initiating the explosive train.

(8) The detonator detonates the booster and, in turn, the shaped charge.

(9) The principal explosive force of the shaped charge is directed forward to penetrate the target.

Section III. CHEMICAL RIFLE GRENADES

3-4. General

There are four basic types of chemical rifle grenades: WP smoke, HC and colored smoke, incendiary, and smoke streamer. All are used primarily to produce smoke: either for signaling or screening purposes. The WP smoke rifle grenade, however, also has incendiary capabilities and may be used to ignite flammable targets.

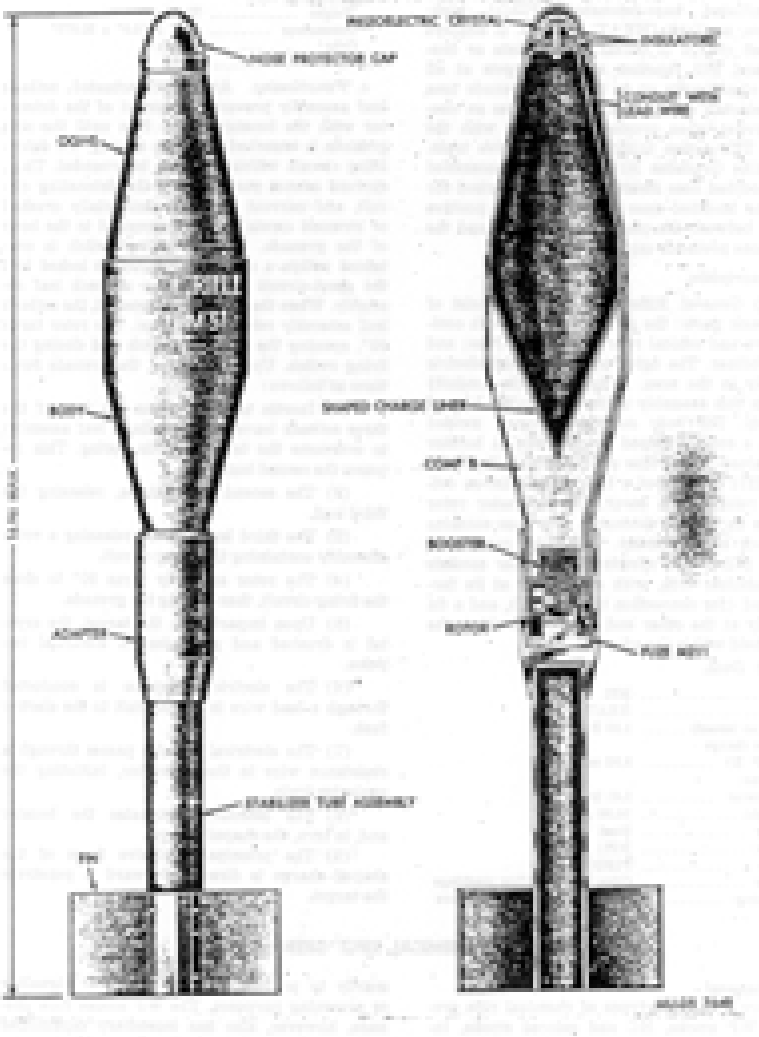


Figure 1-2. HEAT rifle grenade M31.

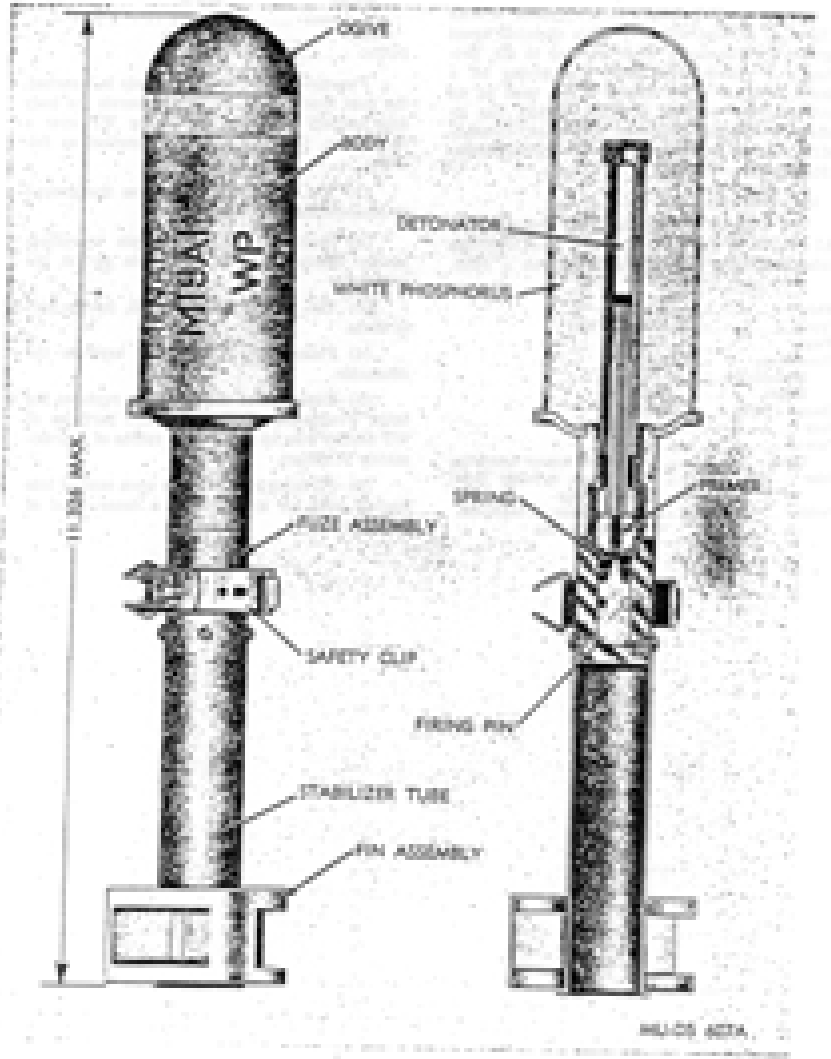


Figure 3-1. WP smoke rifle grenade M18A1.

3-6. Grenades, Rifle: Smoke, Green, Red, Violet or Yellow, M22 and M22A2

a. General. Colored Smoke Rifle Grenades M22 and M22A2 (fig. 3-5) are launched from a rifle. These grenades, used only for signaling and for laying smoke screens, produce green, red, violet or yellow smoke. The M22 and the M22A2 differ only in minor features. Colored Smoke Rifle Grenades M22 and M22A2 have a range of over 200 meters.

b. Description.

(1) General. Colored Smoke Rifle Grenades M22 and M22A2 are similar in appearance to WP Smoke Rifle Grenade M19A1 (para 3-5) but are somewhat smaller. The M22 and M22A2 consist of three basic parts: a steel stabilizer assembly, an integral fuze and a body. The fuze is a mechanical impact-igniting type. The body is filled with a burning-type smoke charge which contains a dye to color the smoke. The surfaces of the smoke charge within the body are coated with a starter mixture charge to facilitate ignition. A small opening or air hole in the nose of the ogive is covered by a nose closing plug.

(2) Data.

Model (s)	M22 or M22A2
Type	Smoke (colored)
Weight	1.00 lb
Dimensions:	
Diameter	1.6 in.
Height	10.70 in.
Charge (a mixture of boiling soda, potassium perchlorate, sugar and a dye to color the smoke)	0.4 lb
Body	Sheet steel
Fuze	Integral
Type	Mechanical impact igniting
Color	Light green w/color of smoke produced painted on body nose; black marking
Packing	1 per container; 10 containers per packing box
Loaded packing box:	
Weight	31.5 lb
Dimensions	19.5" x 12" x 14.625"
Cube	1.06 cu ft
DODIC:	
Green	G995
Red	R995
Violet	R995
Yellow	R995

c. Functioning. Colored Smoke Rifle Grenades M22 and M22A2 function on impact, emitting a cloud of colored smoke for approximately one minute. After being fired from a rifle equipped with a grenade launcher, these grenades function as follows:

(1) The grenade ogive strikes the ground or other resistant object.

(2) Inertia of the firing pin overcomes spring tension and the firing pin strikes the primer.

(3) The primer emits a small, intense spit of flame.

(4) Flame from the primer ignites the starter mixture charge.

(5) The burning starter mixture charge ignites the smoke charge.

(6) The smoke charge burns for approximately 1 minute, emitting a dense cloud of colored smoke through holes in the base of the body.

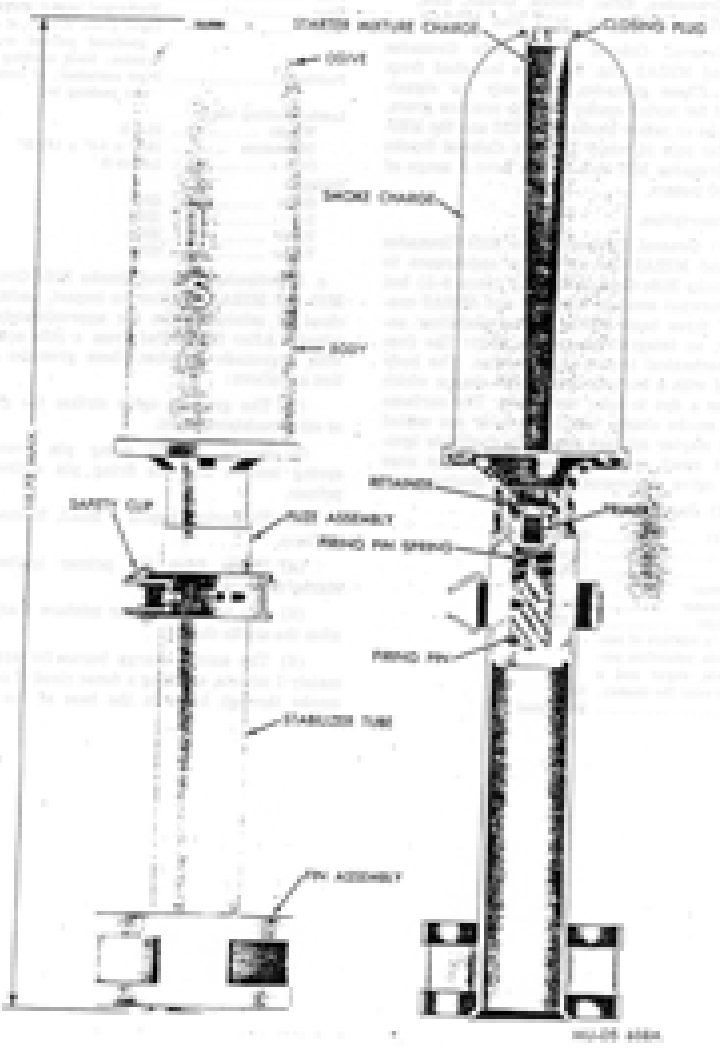


Figure 2-2. Colored smoke rifle grenade 66mm.

3-7. Grenades, Rifle: Smoke, Green, Red, Violet or Yellow, Streamer, M23 and M23A1

a. *General.* Colored Smoke Streamer Rifle Grenades M23 and M23A1 (fig. 3-6) are projected from a rifle assembled with a grenade launcher, using a grenade cartridge. These grenades, used only for signaling purposes, produce green, red, violet or yellow smoke streamers. The M23 and M23A1 differ only in minor features. Colored Smoke Streamer Rifle Grenades M23 and M23A1 have a range of over 200 meters.

b. *Description.*

(1) *General.* Colored Smoke Streamer Rifle Grenades M23 and M23A1 are fabricated from the same metal parts (except for the fuze) as Colored Smoke Rifle Grenades M22 and M22A2 (para 3-6). The M23 and M23A1 consist of three basic parts: a steel stabilizer tube assembly, a fuze and a body. The body is filled with a burning-type smoke charge which contains a dye to color the smoke. The surfaces of the smoke charge within the body are coated with a starter mixture charge (to facilitate ignition). A small air hole opening in the nose of the ogive is covered by a piece of tape (to protect the filler against moisture). The tape must be removed prior to firing.

(2) *Data.*

Model (s)	M23, M23A1
Type	Colored smoke streamer
Weight	1.15 lb
Dimensions:	
Diameter	1.6 in.
Height	5.89 in.
Charge (a mixture of baking soda, potassium perchlorate, sugar and a dye to color the smoke)	3.4 lb
Body	Sheet steel
Fuze	Integral
Type	Igniting
Color	Light green w/color of smoke produced painted on body ogive; black marking
Packing	1 per container; 10 containers per packing box
Loaded packing box:	
Weight	31.5 lb
Dimensions	19.5" x 13" x 14.625"
Cube	1.86 cu ft
Bullet:	
Green	Blank
Red	Blank
Violet	Blank
Yellow	Blank

c. *Functioning.* Colored Smoke Streamer Rifle Grenades M23 and M23A1 function on firing, emitting a stream of colored smoke over the entire trajectory. Upon firing the grenade cartridge in the rifle, these grenades are launched and function as follows:

(1) Flash from the grenade cartridge passes from the rifle through orifices in the fuze to ignite the igniting charge in the fuze.

(2) The igniting charge ignites the starter mixture charge.

(3) The starter mixture charge ignites the smoke charge.

(4) The smoke charge begins to burn, generating colored smoke.

(5) Air entering the air hole in the nose of the grenade forces smoke out of holes in the base of the body, producing streamers of colored smoke.

(6) The smoke charge continues to burn, producing smoke over the entire trajectory of the grenade, and for a few seconds after striking the ground. (Total burning time: approximately 12 seconds.)

Section IV. PRACTICE RIFLE GRENADES

3-8. General

Practice rifle grenades are used for training personnel in care, handling and use of rifle grenades prior to training with service grenades. One type of practice rifle grenade is issued ready for use. Other types are assembled from practice and training hand grenades and grenade projection adapters.

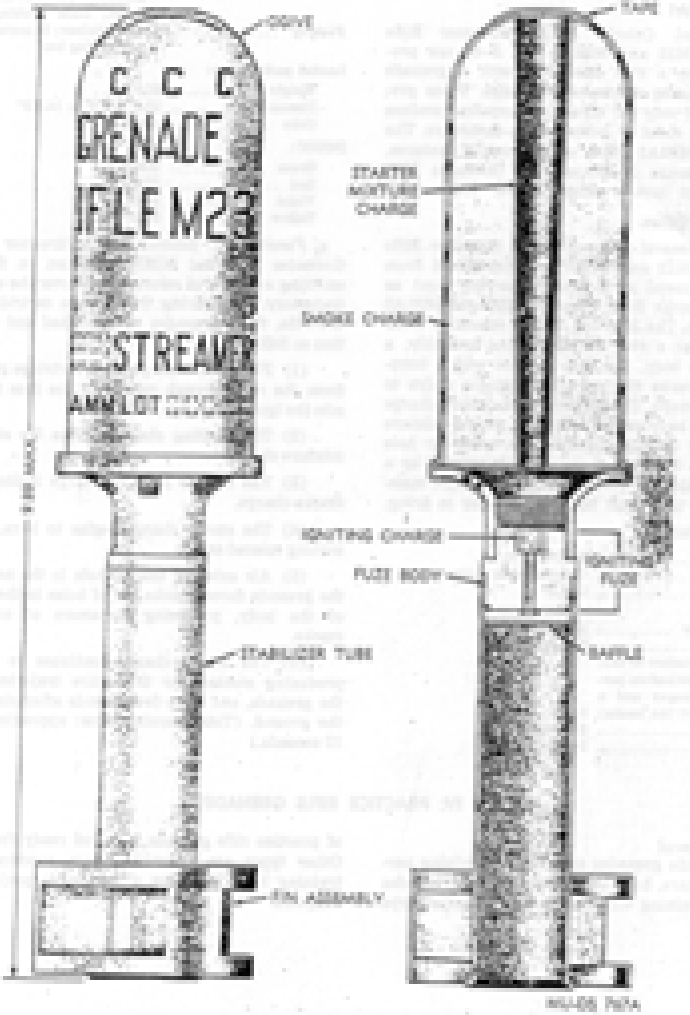


Figure 9-6. Colored smoke streamer rifle grenade (M23A1).

3-9. Grenade, Rifle: AT, Practice, M29

a. General. Practice AT Rifle Grenade M29 has no fuze or fuse. The M29 (fig. 3-7) may be fired at a target without danger to the target other than from impact. Grenade M29 may be used repeatedly if the stabilizer tube-fin assembly is replaced when it becomes damaged. Grenade M29 has a maximum range of approximately 150 meters.

b. Description.

(1) General. Practice AT Rifle Grenade M29 consists of two parts: a body and a stabilizer tube-fin assembly of steel. A separately issued stabilizer tube-fin assembly is available for replacement purposes.

(2) Data.

Model	M29
Type	Practice AT
Weight	1.8 lb
Dimensions:	
Diameter	2.0 in.
Height	14.6 in.
Charge	None
Body	Cast iron
Fuze	None
Color	Black w/white markings or blue w/white markings
Packing	1 per container; 20 containers per packing box
Loaded packing box:	
Weight	66.0 lb
Dimensions	20.75" x 15.75" x 17.25"
Cube	3.8 cu ft
(NSN)	(GSN)

c. Functioning: None.

Section V. GRENADE PROJECTION ADAPTERS

3-10. General

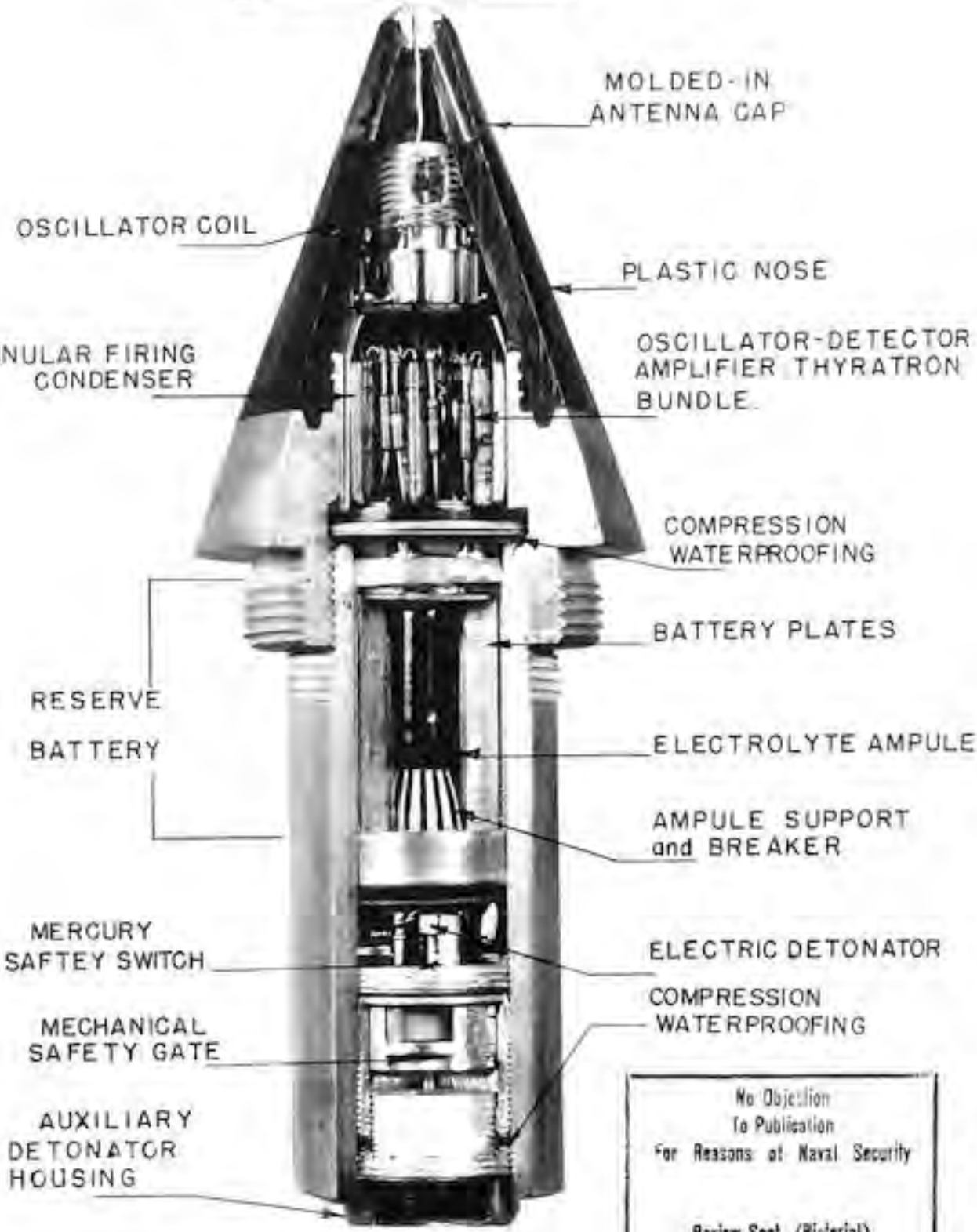
a. Grenade projection adapters are used to adapt hand grenades for launching from rifles assembled with grenade launchers. With a grenade projection adapter, a hand grenade can be converted into a rifle grenade, thus extending its range. Grenade projection adapters consist of a stabilizer tube with a fin assembly on one end and gripping claws on the other end. The claws, of spring steel, grip the hand grenade and hold it in place on the adapter. Grenade-adapter combinations are shown in table 3-1.

Table 3-1. Grenade-Adapter Combinations

Grenade projection adapter	Grenade
M1	Fragmentation hand grenade M61
M1A1 and M1A2	Dummy hand grenade M60 Fragmentation hand grenade M61, M26, M26A1, and M61 Practice hand grenade M69 WP smoke hand-rifle grenade M34
M2 and M2A1	CS riot hand grenade M7 and M7A1 CS hand grenade ABC-M7A2 and ABC-M7A3 HC smoke hand grenade AN-M8 TH3 incendiary hand grenade AN-M14 Colored smoke (red, green, yellow or violet) hand grenade M18

b. Grenade projection adapters fitted with hand grenades may be fired high angle or direct fire, depending on the effect desired. For example, a grenade projection adapter fitted with a fragmentation hand grenade may be fired high angle for an above-ground burst (18 meters maximum) to produce a free scattering of fragments. It may be projected to produce a more effective fragment dispersion against a concentration of personnel.

MARK 53



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4-11.2.4.2. Fuze Activation. When the projectile is fired, the ampule in the reserve energizer is shattered on the breaker as a result of setback forces, and the electrolyte is released. Centrifugal force distributes the electrolyte to the battery cells, and the battery becomes active. Centrifugal forces acting on the reed of the reed spin switch, when present, cause it to open immediately upon firing, thus removing the short circuit from across the firing capacitor. On later rear fitting safety devices, setback force unlocks the rear fitting setback pin on the clock, and centrifugal force releases two detents holding the clock mechanism and rotates the cam shaft to the rotor release position, which in turn breaks the safety wire. A short minimum time is required for this action.

4-11.2.4.2.1. Clock Mechanism. The clock mechanism remains in an unarmed position until setback forces remove a setback pin from its position in front of the sector gear. After the setback pin is removed, centrifugal force operates the detent levers and permits the clock mechanism to operate. The force of a helper spring behind the sector gear aids the centrifugal force to initiate the clock mechanism. Once the operation of the clock mechanism is initiated, centrifugal forces continue to act upon the sector gear until it has rotated fully to unlock the explosive train's rotor.

4-11.2.4.2.2. Explosive Train Alignment and Electrical Arming. At this time, the rotor, carrying an out-of-line detonator, turns to permit alignment of the explosive train under the impetus of centrifugal force. The turning of the rotor to the armed position breaks a shorting wire across the electric detonator leads to complete the arming of the rear fitting safety device. After the energizer is activated, it becomes a source of power for the electrical part of the fuze: the firing capacitor begins to receive a charge, and the transmitter starts to radiate a radio signal.

4-11.2.4.2.3 Auxiliary Detonating Fuze Arming. The auxiliary detonating fuze, when present, is also armed by centrifugal force. Centrifugal force throws the rotor detents outward, freeing the rotors. After setback forces are expended, centrifugal force causes the rotors to rotate into the armed position, so that their explosive charges are in-line with each other. In recent model fuzes the rear fitting safety devices combine the features of an auxiliary detonating fuze and incorporates a safety device that provides a time delay before allowing the rotor to turn and break a wire to remove a short circuit across the electric detonator. After the rotor turns, the intermediate detonator is aligned to complete the arming of the fuze.

4-11.2.4.3. Armed Flight. The fuze is fully armed when the safety wire is broken, the firing capacitor charged, and when present, the auxiliary detonator fuze armed. For most gun projectiles covered in this manual the arming time varies from 0.3 to 0.55 second and the arming distance varies from 780 to 1330 feet. The radio signals radiated by the fuze are reflected from targets such as metal objects, water, and earth. The engine and control cables of nonmetallic aircraft will also reflect signals. When the projectile comes into close proximity to the target, the reflected signal from the target reaches the required amplitude and causes the thyratron or silicon-controlled rectifier to discharge the firing capacitor through the detonator. The blast from the detonator initiates the relay detonator, which in turn initiates the auxiliary detonating fuze or booster. The auxiliary detonating fuze or booster detonates the main charge in the projectile.

4-11.2.4.4. Self-Destruction. Where the fuze is provided with the self-destruction feature and the projectile is not detonated before the self-destruction range is reached, the decrease in the spin of the projectile will close the reed spin switch. This closure causes self-destruction of the projectile by closing a circuit and discharging the firing capacitor through the detonator.

4-11.2.5. Safety Features. VT-RF fuzes are among the safest fuzes in the U.S. Navy. Many design features are provided to insure safe handling, safety in the bore, and freedom from muzzle bursts. Rough handling may cause damage, resulting in abnormal operation or duds, but it is improbable that such treatment will be hazardous. A severe blow to the fuze (such as dropping the fuzed projectile) will not reduce safety but may decrease operability and may even render the fuze a dud if the battery ampule is shattered. If dropping occurs within 1 minute before loading into the gun and firing, the round has a high probability of operating normally. After 1 minute the round is still safe to fire, but reliability will degrade rapidly with time because of the short battery life after activation. Components contributing to safety of the VT-RF fuze are the reserve energizer, the charging resistor, two spin detents, the setback pin, the malassembly pin, the clock unshorting wire, the out-of-line rotor, and, when used, the reed spin switch and the auxiliary detonating fuze. The features of these components have been described in the preceding paragraphs.

4-11.3. FUZE MARK 71 (VARIABLE TIME-RADIO FREQUENCY).

WARNING

Do not remove Fuze Mk 71 from projectile on board ship. Fuze removal could ignite loose explosives in threads.

CAUTION

Exercise care when handling Fuze Mk 71. Any severe blow to the ogive could impair operability.

4-11.3.1. General. Mods 11 and 12 are current. The solid-state Mods 15 and 16 will replace the earlier (vacuum tube) models of Fuze Mk 71. Fuze Mk 71, figure 4-42, is used against aircraft beyond the range of 450 yards. The fuze has a reduced effectiveness against airplanes at altitudes below 200 feet. Odd numbered mods have no self-destruct switch and may also be used against personnel, light equipment, installations, and surface craft.

4-11.3.2. Description.

4-11.3.2.1. Mods 15 and 16. The solid-state Mk 71 Mods 15 and 16 will replace the earlier (vacuum tube) models of the Mk 72 VT fuzes. They contain an impact switch to insure a point detonating backup to the primary radio proximity functioning mode. Rear Fitting Safety Device Mk 42 Mod 2 contains a self-destruct feature in the Mk 71 Mod 16. Rear Fitting Safety Device Mk 42 Mod 1 or 3, nonself-destruct, is used in the Mk 71 Mod 15. These rear fitting safety devices have been designed to arm within the required 780 to 1330 feet from the gun muzzle. Physically, the Mk 71 Mods 15 and 16 are interchangeable with the vacuum tube Mk 71 Mods 11 and 12. The exterior configurations (thread, ogive, and intrusion) are identical.

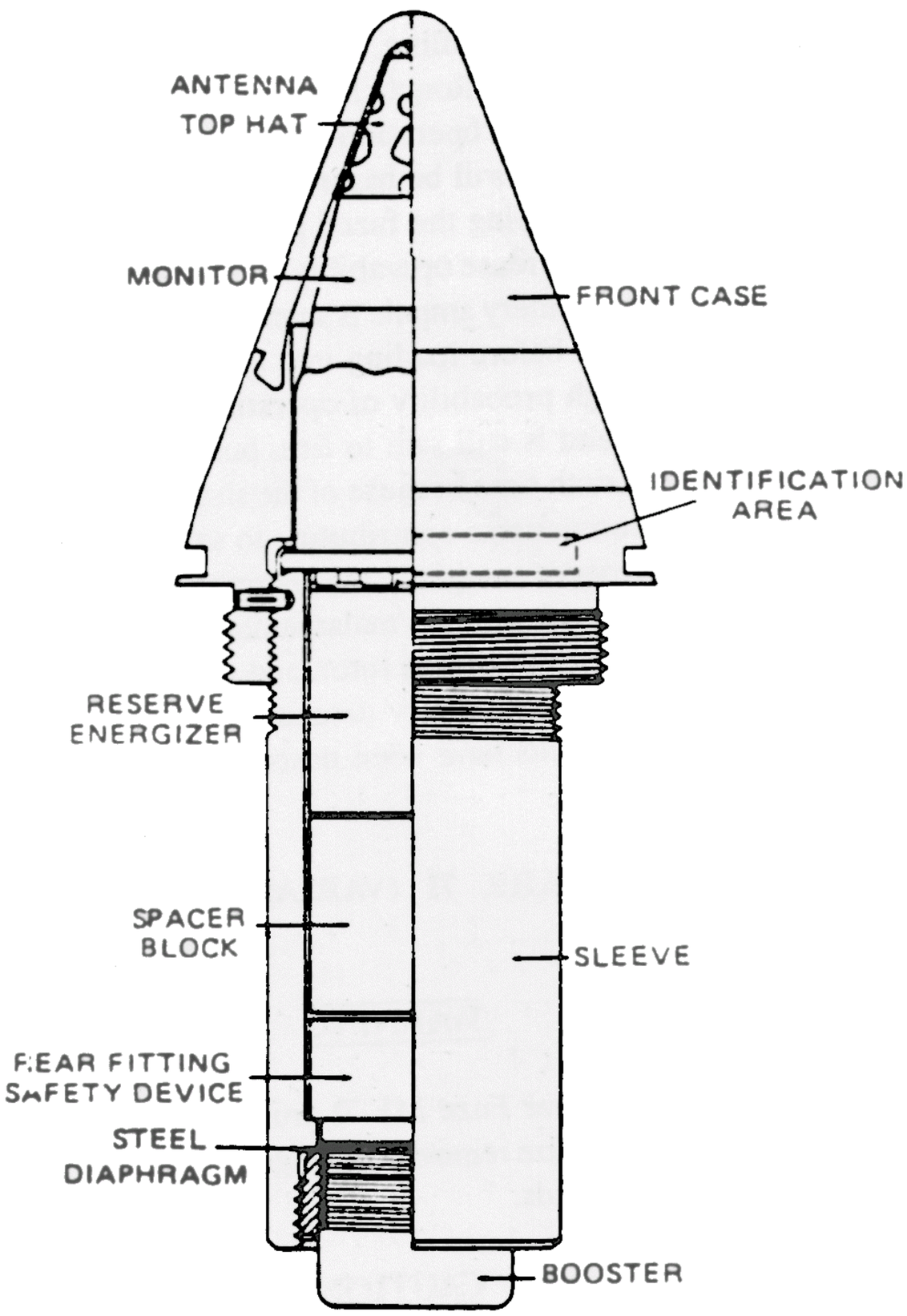


Figure 4-42. Fuze Mk 71 (Variable Time-Radio Frequency). Cutaway View

4-11.3.2.2. Mods 11 Through 16. Mods 11 and 15 have no self-destruct feature, and their noses are color coded green. Mods 12 and 16 do have a self-destruct feature incorporated in the safety device and are identified by a white plastic nose. The nose for the tube-type fuzes is crimped integral to the threaded steel insert. The nose for the solid-state-type fuzes is cemented in place, and a locking lip is rolled onto a groove, but no pressure is applied to the plastic. Mods 11, 12, 15, and 16 have a clock mechanism in the rear fitting safety device for handling safety. Mods 11 and 12 are of the downstairs oscillator design which results in improved foul weather performance. These mods employ high-voltage reserve energizers. This oscillator design is associated with the tube-type fuzes only.

4-11.3.3. Use.

5-inch, 38-caliber HE-VT and VT-NONFRAG projectiles

4-11.3.4. Physical Characteristics.

Mod 15	
Specification	WS 14106
DL	2512216
Drawing	2512216
Mod 16	
Specification	WS 14106
DL	2512217
Drawing	2512217
Weight	5.6 pounds
Length	9.22 inches
Intrusion	5.11 inches
Maximum diameter	3.31 inches
Sleeve diameter	2.00 inches
Thread size	2.650-10NS-2RH
Threaded length	0.71 inch

4-11.3.5. Fuze Components.

Fuze	Mk 71, Mods 11 and 12
Monitor	Mk 15 Mod 1
Reserve energizer	Mk 34 Mod 0
Safety device	Mk 18, Mods 1 and 6
Electric detonator	Mk 63 Mod 0; lead styphnate, lead azide, PETN
Rotor	Mk 64 Mod 0; lead azide
Booster lead-in	Tetryl
Booster assembly	Mk 30; tetryl lead; tetryl booster
Fuze	Mk 71 Mods 15 and 16
Monitor	Mk 36 Mod 0

Reserve energizer ..... Mk 38 Mod 0
Safety device ..... Mk 42 Mods 1, 2, or 3
Electric detonator ..... Mk 71 Mod 0; lead styphnate, lead azide, PETN
Rotor detonator ... Mk 64 Mod 0; lead azide
Booster lead-in
Early fuzes ..... Tetryl
Later fuzes PBXN-5
Booster assembly ..... Mk 39 Mod 0; tetryl

4-11.3.6. Arming.
Minimum spin ..... 145 revolutions per second
Normal spin of gun .... 208 revolutions per second
Arming distance ..... 780 to 1330 feet

4-11.3.7. Function.
Type ..... Proximity, impact, self-destruct (even no. fuze mods)
Delay ..... Instantaneous

4-11.3.8. Packing.
360/pallet, 41.0 cubic feet 2170 pounds (estimated gross weight)

4-11.4. FUZE MARK 72 (VARIABLE TIME-RADIO FREQUENCY).

WARNING

Do not remove Fuze Mk 72 from projectile on board ship. Fuze removal could ignite loose explosives in threads.

CAUTION

Exercise care when handling Fuze Mk 72. Any severe blow to the ogive could impair operability.

4-11.4.1. General. Mod 17 is current. The exterior view of Fuze Mk 72, as shown in figure 4-43, is the same for all mods except Mods 10 to 13, which have an ON-OFF switch on the ogive. Mods 12 and 13 have high-voltage reserve energizers. Fuze Mk 72 is used against aircraft beyond a range of 450 yards. It has a limited effectiveness against aircraft below 200 feet. Odd numbered mods have no self-destruct switch and may also be used against personnel, light equipment, installations, and surface craft.

4-11.4.2. Description.

4-11.4.2.1. Mods 2 Through 17.

4-11.4.2.1.1. Self-Destruct Feature. Odd numbered mods through 17 have no self-destruct feature, and their noses are color coded green. Even numbered mods through 16 have a self-destruct feature incorporated in the rear fitting safety device with the reed spin switch and are identified by a white plastic nose. (Note: Mod 16 documented but not produced.) The nose for the tube-type fuzes is crimped integral to the threaded steel insert. The nose for the solid-state type fuzes is cemented in place, and a locking lip is rolled into a groove, but no pressure is applied to the plastic.

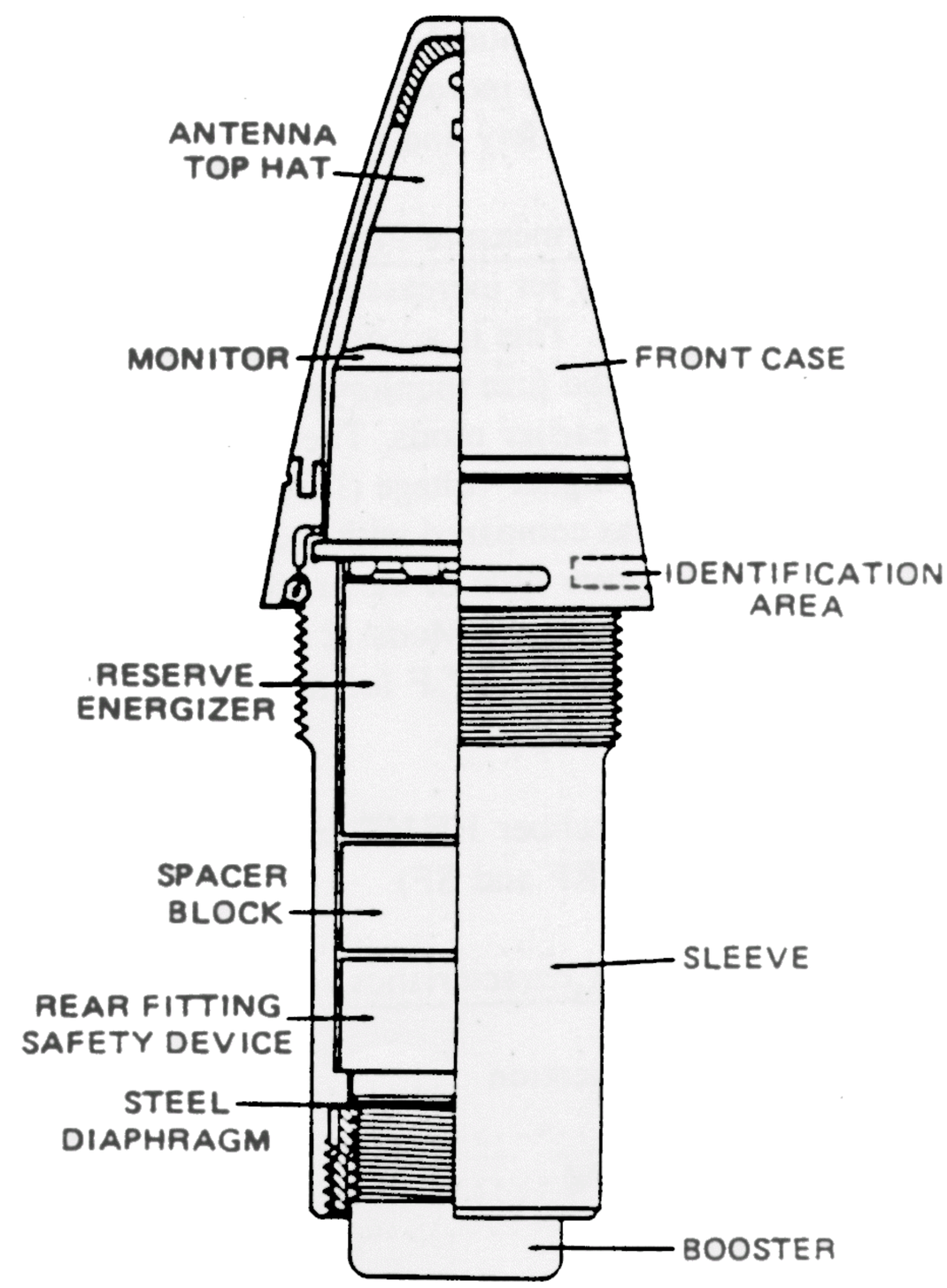


Figure 4-43. Fuze Mk 72 (Variable Time-Radio Frequency). Cutaway View

4-11.4.2.1.2. ON-OFF Switch. Mods 10 through 13 have an ON-OFF switch on the ogive that provides a choice between VT with point detonating backup or point detonating only action. The fuze is issued with the switch at the VT ON position (slot perpendicular to the longitudinal axis). If only point detonating action is desired, turn the slotted switch parallel to the OFF position (slot parallel to the longitudinal axis). For shore bombardment the odd mods should be used because with even mods the self-destruct action normally occurs before impact.

4-11.4.2.2. Mods 16 and 17. The solid-state Fuze Mk 72 Mods 16 and 17 will replace the earlier (vacuum tube) models of

the Fuze Mk 72. The fuze contains an impact switch to insure a point detonating backup to the primary radio proximity functioning mode. The ON-OFF switch has been eliminated so that an improvement could be made in the moisture seal. Rear Fitting Safety Device Mk 42 Mod 0 contains a self-destruct feature in the Mk 72 Mod 16. The Mk 42 Mod 3, a nonself-destruct, is used in the Mk 72 Mod 17. These rear fitting safety devices have been designed to arm within the required 780 to 1330 feet from the gun muzzle. Physically, the Mk 72 Mods 16 and 17 are interchangeable with the vacuum tube Mk 72 Mods 12 and 13. The exterior configurations (threads, ogive, and intrusion) are identical. Changes were made to the rear fitting safety device to increase handling safety of the electric detonator and the safety and reliability in gunfiring.

4-11.4.2.3. Countermeasure Protection. Mods 12 and 13 are designed primarily for increased protection against countermeasure attempts. This is accomplished by stepping up the power output of the fuze monitor beyond that of the oscillators used in the earlier mods. The increased power output results from the higher voltage (170V) of Reserve Energizer Mk 25 Mod 1, as compared with the energizers used in the other mods. A new type of electrochemical system in this reserve energizer for the Mods 12 and 13 produces a lower temperature limit of −20° F for fuze operation.

4-11.4.3. Use.
3-inch, 50-caliber HE-VT and VT-NONFRAG projectiles (RF and SF)

4-11.4.4. Physical Characteristics.

Mod 17	
Specification	WS 13934
LD	2512219
Drawing	2512219
Weight	2.86 pounds
Length	
Mods 16, 17	7.98 inches
Intrusion	4.23 inches
Maximum diameter	2.40 inches
Sleeve diameter	1.78 inches
Thread size	2.00-12NS-2RH
Threaded length	0.83 inches

4-11.4.5. Fuze Components.

Fuze	Mk 72 Mods 12 and 13
Monitor	Mk 17 Mod 0
Reserve energizer	Mk 25 Mod 1
Safety device	Mk 18 Mods 2 and 3
Electric detonator	Mk 63 Mod 0; lead styphnate, lead azide, PETN
Rotor detonator	Mk 64 Mod 0; lead azide
Booster lead-in	Tetryl
Booster assembly	Mk 30 Mod 0; tetryl lead, tetryl booster
Fuze	Mk 72 Mods 16 and 17
Monitor	Mk 35 Mod 0
Reserve energizer	Mk 38 Mod 0
Safety device	Mk 42 Mods 0 and 3
Electronic detonator	Mk 71 Mod 0; n-lead styphnate, lead azide, PETN
Rotor detonator	Mk 64, Mod 0; lead azide
Booster lead-in	
Early fuzes	Tetryl
Later fuzes	PBXN-5
Booster	Mk 39 Mod 0; tetryl

4-11.4.6. Arming.

Minimum spin	145 revolutions per second
Normal spin	338 revolutions per second
Arming distance	780 to 1330 feet

4-11.4.7. Function.

Type	Proximity, impact, self-destruct (even no. fuze mods)
Delay	Instantaneous

4-11.4.8. Packing.
576/pallet; 41 cubic feet; 1837 pounds

4-11.5. FUZE MARK 73 (VARIABLE TIME-RADIO FREQUENCY).

WARNING

Do not remove Fuze Mk 73 from projectile on board ship. Fuze removal could ignite loose explosives in threads.

CAUTION

Exercise care when handling Fuze Mk 73. Any severe blow to the ogive could impair operability.

4-11.5.1. General. Mod 13 is current. The exterior view of Fuze Mk 73, as shown in figure 4-44, is the same for all mods. Fuze Mk 73 is used against aircraft beyond a range of 450 yards. The fuze has a limited effectiveness against airplanes below 200 feet. Mods without self-destruct feature can also be used against personnel; light equipment, installations, and surface craft.

4-11.5.2. Description.

4-11.5.2.1. Self-Destruct Features. Odd numbered mods through 13 have no self-destruct feature; their noses are color coded green. Even numbered mods through 12 do have a self-destruct feature incorporated in the rear fitting safety device and are identified by a white plastic nose. (Note: Mod 12 is documented but not reproduced.) The nose for the tube-type

fuzes is crimped integral to the threaded steel insert. The nose for the solid-state-type fuze is cemented in place, and a locking lip is rolled into a groove, but no pressure is applied to the plastic.

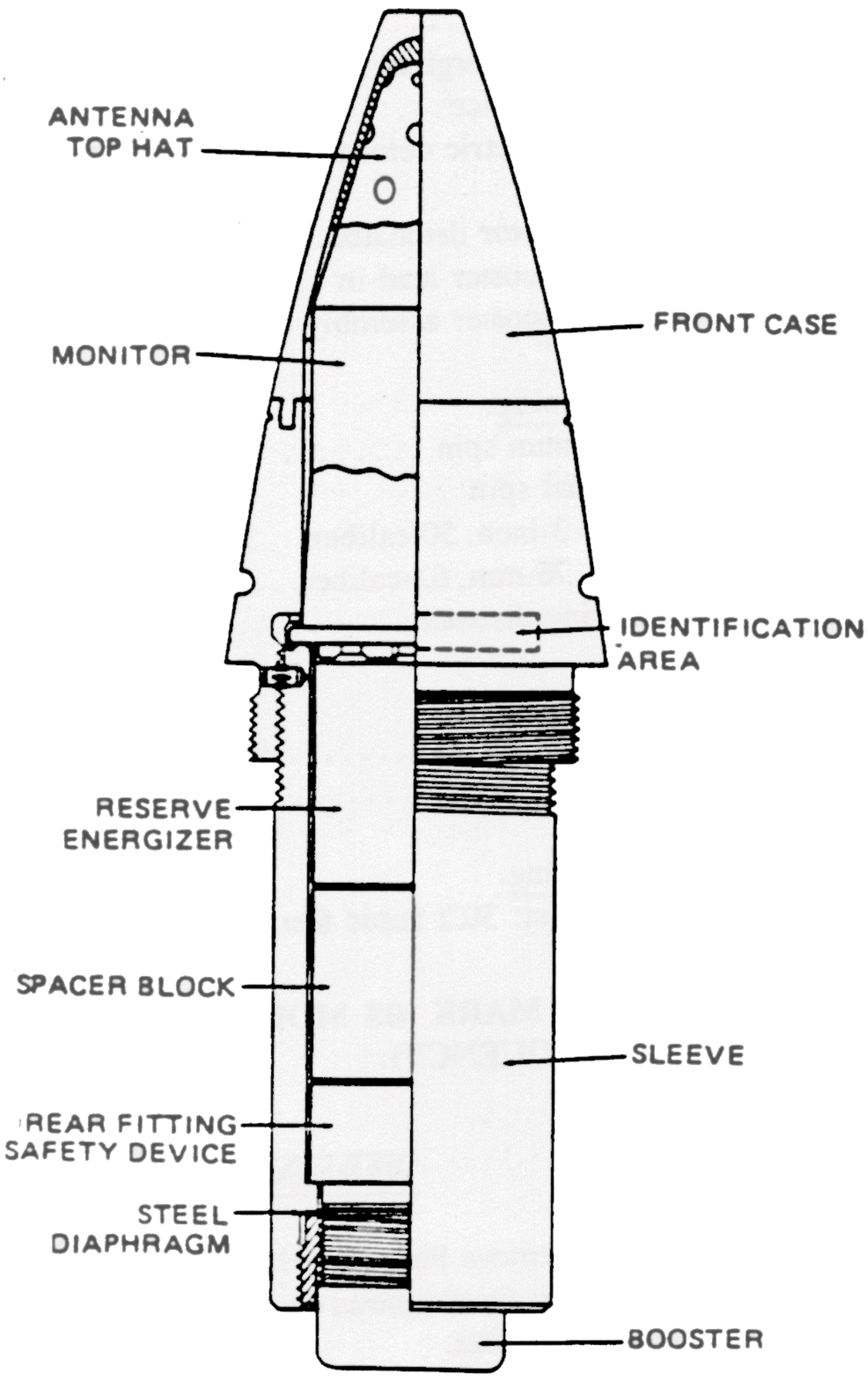


Figure 4-44. Fuze Mk 73 (Variable Time-Radio Frequency), Cutaway View

4-11.5.2.2. Mods 12 and 13. The solid-state Mk 73 Mod 12 and 13 will replace the earlier (vacuum tube) models of the Mk 73 VT fuzes. These fuzes contain an impact switch to insure point detonating backup to the primary radio proximity functioning mode. Rear Fitting Safety Device Mk 42 Mod 1 or 3, a nonself-destruct, is used in the Mk 73 Mod 13. Rear Fitting Safety Device Mk 42 Mod 4, a self-destruct, is used in the Mk 73 Mod 12. These rear fitting safety devices have been designed to arm within the required 780 to 1330 feet from the gun muzzle. Physically, the Mk 73 Mod 12 and 13 are interchangeable with the vacuum tube Mk 73 Mods 4 through 11. The exterior configurations (thread, ogive, and intrusion) are identical. Changes were made to the rear fitting safety device to increase the handling safety of the electric detonator and safety and reliability in gun firing.

4-11.5.3. Use.

5-inch, 54-caliber HE-VT and VT-NONFRAG projectiles

4-11.5.4. Physical Characteristics.

Mod 13

Specifications	WS 14370
DL	2512221
Drawing	2512221
Weight	4.3 pounds
Length	9.83 inches
Intrusion	5.11 inches
Maximum diameter	2.72 inches
Sleeve diameter	2.00 inches
Thread size	2.350-10NS-2RH
Thread length	0.710 inch

4-11.5.5. Fuze Components.

Fuze	Mk 73 Mods 8, 9
Monitor	Mk 16 Mod 0
Reserve energizer	Mk 25 Mod 1
Safety device	Mk 18 Mod 5 and 1
Electronic detonator	Mk 63 Mod 0; lead styphnate, lead azide, PETN
Rotor detonator	Mk 64 Mod 0; lead azide
Booster lead-in	Tetryl
Booster	Mk 39 Mod 0; tetryl
Fuze	Mk 73 Mods 12 and 13
Monitor	Mk 37 Mod 0
Reserve energizer	Mk 38 Mod 0
Safety device	Mk 42 Mod 4 and 1
Electronic detonator	Mk 71 Mod 0; n-lead styphnate, lead azide, PETN
Rotor detonator	Mk 64 Mod 0; lead azide
Booster lead-in	
Early fuzes	Tetryl
Later fuzes	PBXN-5
Booster	Mk 39 Mod 0; tetryl

4-11.5.6. Arming.

Minimum spin	145 revolutions per second
Normal spin	254 revolutions per second
Arming distance	780 to 1330 feet

4-11.5.7. Function.

Type	Proximity, impact, self-destruct (even no. fuze models)
Delay	Instantaneous

4-11.5.8. Packing.

360/pallet; 41 cubic feet; 1919 pounds (estimated gross weight)

A safety post is provided beneath the hammer spring, preventing arming of the fuze as the result of accidental dropping.

The Nose Time Fuze Mk 63 is designed to replace the Nose Time Fuzes Mk 18 and Mk 50 in all projectiles where the Mk 50 is now in use. Its internal construction is identical to that of the Mk 61, except that the escapement movement has been regulated for a higher spin rate —12,600 revolutions per minute—the average spin rate of the 5"/38 projectile at service velocities.

Remarks: These fuzes, like the Mk 50 type, have complete moisture-resistant features incorporated. These measures include gaskets between the time-setting ring and the upper cap and body assemblies, a silica-gel capsule in the base of the fuze to absorb excess moisture, and joints and openings coated with approved luting or bakelite varnish.

The Nose Time Fuze Mk 62 is designed to replace the spring-driven Nose Time Fuzes Mk 42 in all assemblies.

The Nose Time Fuze Mk 62 differs in operation from the Mk 61 only in the functioning of the safety post. This safety post consists merely of a stud fastened by a screw to the uppermost ring of the clockwork mechanism. With the fuze set on "Safe", this stud is located beneath a projecting end of the hammer spring, preventing the hammer from disengaging the setting lug from the setting pin as the result of accidental dropping. When the fuze is set off the "Safe" position preparatory to firing, the hammer assembly is moved away from above the safety post, allowing the hammer to move down on set-back.

Part I — Chapter 3 — Section 4

V.T. FUZES

Mks 32 and 40 Type (Obsolete)

Operation: When the round is fired, acceleration in the gun causes the three set-back switches to close. This action connects the battery to the electrical mechanism and initiates charging of the firing condenser throught its high-resistance delay circuit. Simultaneously, the set-back pin in the centrifugal clock moves back against its spring, freeing and starting the clock escapement mechanism. In the armed position, the set-back pin is locked by the locking spring.

Centrifugal force drives the clock through its permanent setting of 0.4 to 0.6 second, at which time the tripping lever moves over the spring-loaded arming pin. The arming pin moves forward, withdrawing from the interrupter cavity. This allows the interrupter pin to be moved outward by centrifugal force, thereby clearing the flash channel between the electric primer and the auxiliary detonating fuze, hitting the short-circuit plug, and breaking the short-circuit wire away from the electric primer leads.

Meanwhile, the firing condenser has been accumulating an electric charge. When this charge is sufficient to allow firing of the electric primer, normally 0.6 to 0.8 second in the dry-battery type fuze, the fuze is fully armed.

On approach to a target under the proper conditions, the reflected electromagnetic signal from the target causes the V.T. element to discharge the firing condenser through the electric primer. The blast from the primer operates the auxiliary detonating fuze, which in turn initiates detonation of the projectile.

Operation of the wet-energized fuzes of this type is identical, except that the electrolyte vial in the reserve energizer is broken by acceleration of the round, and centrifugal force distributes the electrolyte throughout the energizer. Charging of the firing condenser is not begun when the set-back switches close, but must wait until the electrolyte is uniformly

distributed through the reserve energizer. This normally occurs 0.2 to 0.3 seconds after set-back, thereby delaying complete arming of the unit until 0.8 to 1.1 seconds after set-back.

Mks 45, 47, 53, 58, and 59 Type

Operation: When the round is fired, acceleration in the gun barrel causes the fingers of the crown breaker to open up, allowing the electrolyte vial to break against the bottom of the breaker. Centrifugal force distributes the electrolyte throughout the energizer, activating it in 0.2 to 0.3 second. Centrifugal force also opens the handling safety switch, which previously had been shorting out the firing condenser.

The firing condenser begins to accumulate a charge through its high-resistance electrical delay, and electrical energy is fed to the electric mechanism in the V.T. element. Centrifugal force causes the small globule of mercury in the mercury switch to move through a porous membrane into the lower chamber, thereby removing the electric short circuit across the primer leads. This requires from 0.2 to 0.9 seconds, depending on the fuze and the rate of rotation of the projectile. When the firing condenser has accumulated enough electrical energy to allow firing of the electric primer, 0.6 to 1.0 second, the fuze is fully armed.

Upon approach to a target under proper conditions, the reflected electromagnetic signal from the target causes the V.T. element to discharge the firing condenser through the electric primer. The blast from the primer functions the auxiliary detonating fuze, which, in turn, initiates the detonation of the projectile.

The V. T. Fuzes Mk 53, Mk 47, and Mk 59 are equipped with two mercury switches instead of the single switch incorporated in the Mk 45 and Mk 58. This feature is provided to insure additional safety; in all other respects, these five fuzes are mechanically identical.

The differences in these fuzes lie in dimensions and contour of the head, thread sizes, and electrical characteristics (for slower spin, less set-back, etc.).

Mk 32 Mods 0—20, Mod 30, and Mod 40 (Obsolete)

Projectiles used in	5"/38/25/51* A.A. Common
Over-all length, inches	12 (approx.)
Diameter at base of ogive, inches	3.3 (approx.)
Threaded length, inch	0.6 (approx.)
Threads	6 R.H.
Material	Steel base rings, black plastic nose ogive, aluminum nose cap or button tip
Weight, pounds	6.81
Minimum range, yards	Mods 0–20, 40—600 Mod 30—1,000
Energizer	Mods 0–20, 40—Dry Mod 30—Wet
Wave-suppression feature	Mod 40 only
Self-destructive feature	None

Description: This fuze was designed to initiate detonation when passing within the maximum influence radius of about sixty feet. The Mod 40 has reduced sensitivity against low-flying aircraft because of the wave-suppression feature (for values, see V.T. Fuze Mk 40). Burst heights above water for all Mods without the wave suppression feature will be high at most ranges, averaging 130 feet at 12,200 yards in the 5"/38 projectile, with burst heights varying widely between rounds. Burst heights over water will average lower at shorter ranges, but a wide dispersion in heights will occur. These fuzes are especially affected by water surface conditions. Burst heights of the Mod 40 above water (WSF) will vary between 10 and 50 feet.

Random premature bursts of rounds assembled with this fuze will occur along the trajectory after the fuze is armed but before it approaches a target. With targets at long range, 20 per cent of the rounds may burst before approaching the target, and a somewhat smaller percentage of prematures will occur at shorter ranges. If a target at long range is approached

*Mods 0–20 and 40 of this fuze can be used in the 5"/51 gun at 2600 ft./sec., I.V. reduced charge only. Mod 30 cannot be used in the 5"/51 rounds.

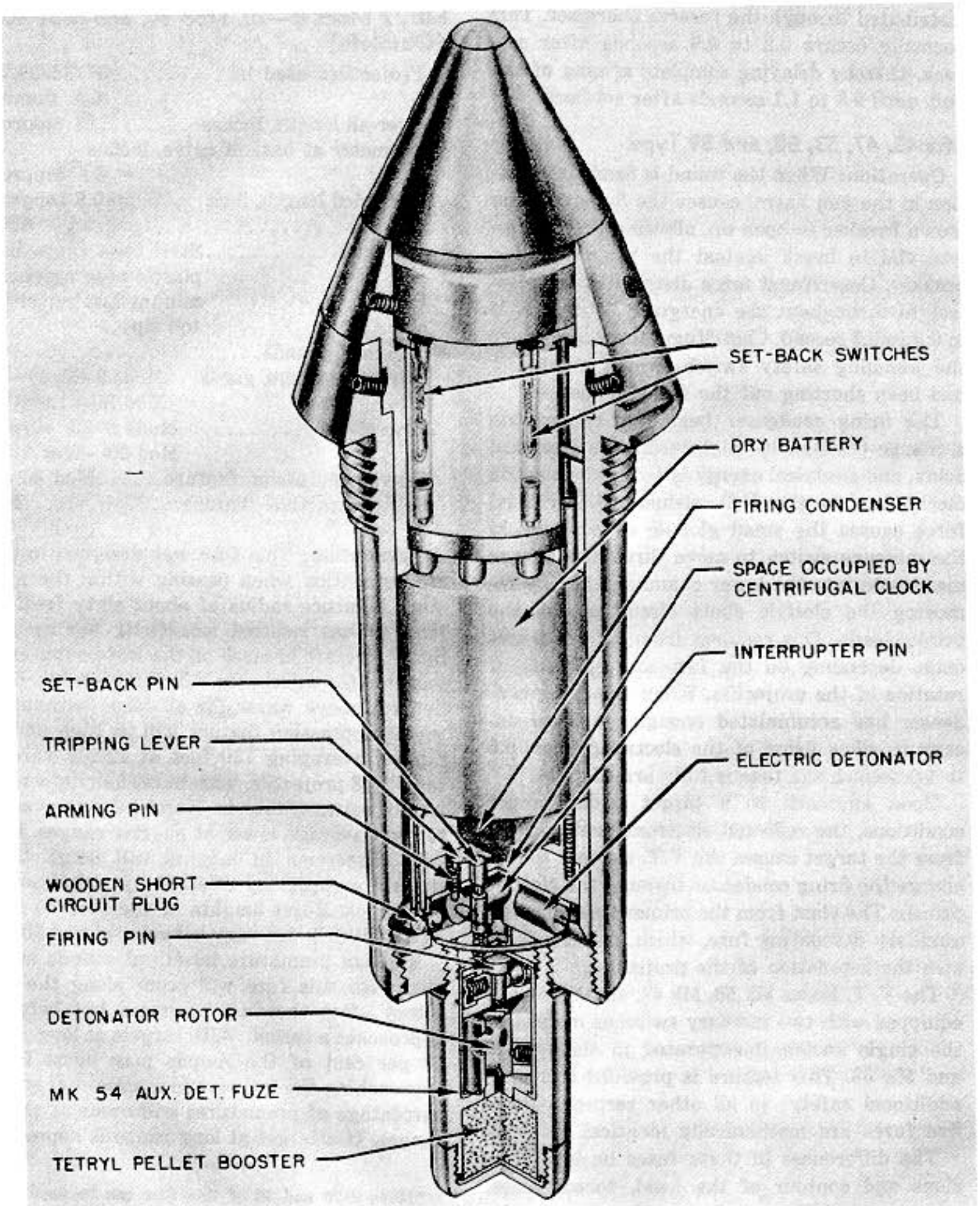


Figure 96. V.T. Fuze Mks 32 and 40 Type

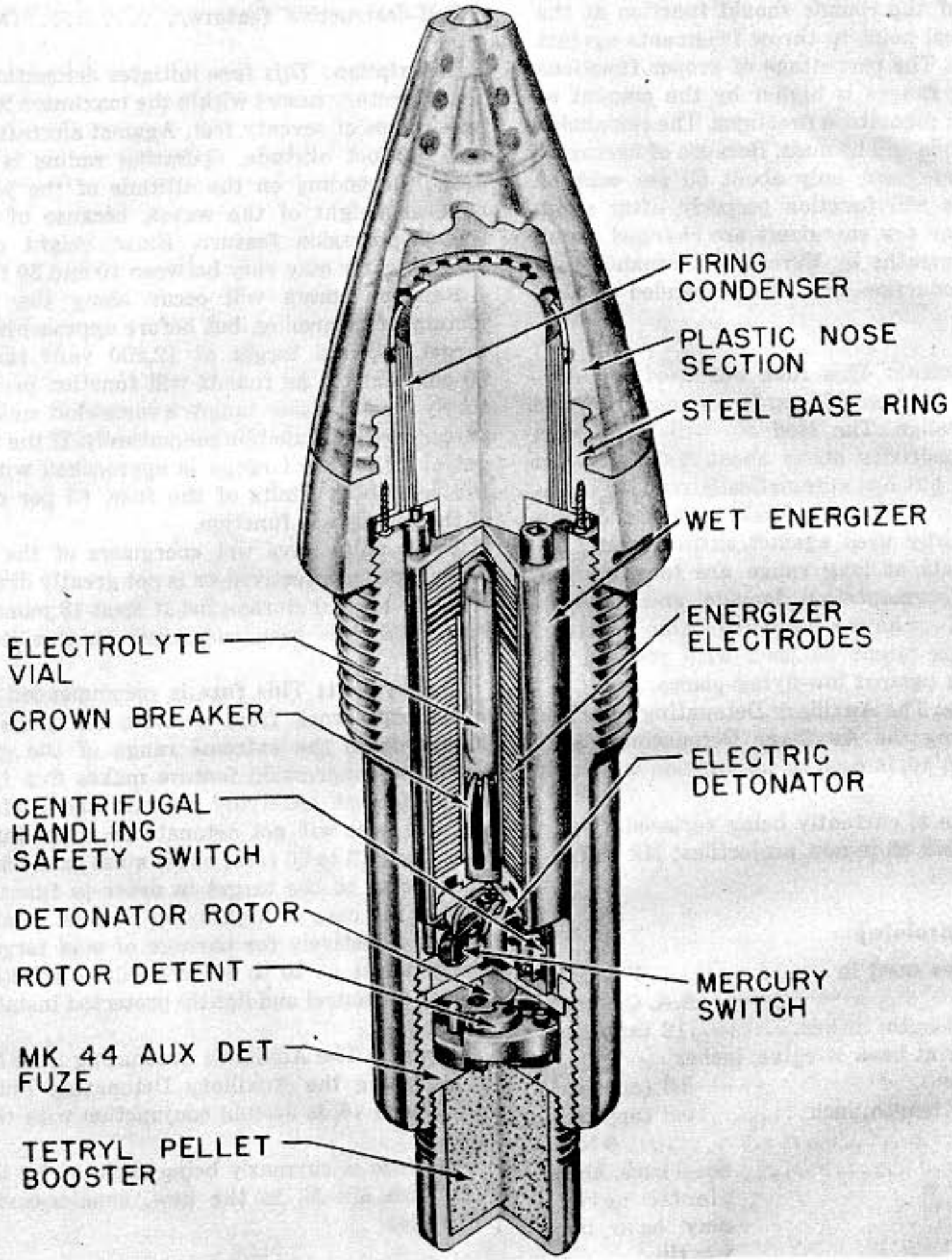


Figure 96A. V.T. Fuze Mk 45 (and above) Type

within the sensitivity limits of the fuze, 65 per cent of the rounds should function at the most critical point to throw fragments against the target. The percentage of proper functions at shorter ranges is higher by the amount of decrease in premature functions. The remainder of the rounds will be duds. Because of ageing of the dry energizer, only about 50 per cent of the rounds will function properly after eight months. The dry energizers are changed about every six months by Bureau of Ordnance personnel. Production has been suspended on this item.

Employment: This fuze was used for antiaircraft work from 600 yards minimum range to extreme range. The Mod 40, with WSF, has normal sensitivity above about 200 feet from the water, but has automatically reduced sensitivity below this level. Mods 0–20 and 30 are not ordinarily used against surface craft, because bursts at long range are too high for effective fragmentation damage, and those on low trajectory have a large dispersion in range. These Mods might be used with reduced effectiveness against low-flying planes.

Remarks: The Auxiliary Detonating Fuze Mk 54, replacing the Auxiliary Detonating Fuzes Mks 17 and 46, is used in conjunction with this fuze.

This fuze is currently being replaced by the V.T. Fuze Mk 53 in new projectiles; Mk 53 cavity is smaller.

Mk 40 (Obsolete)

Projectiles used in.....5"/25/38 A.A. Common
Over-all length, inches.....12 (approx.)
Diameter at base of ogive, inches 3.3 (approx.)
Threaded length, inch.....0.5 (approx.)
Threads ..... 6 R.H.
Material.....Steel base, black plastic ogive; may have button tip.
Weight, pounds 6.81
Minimum range, yards.....800
Energizer .....Wet
Wave-suppression feature.....Present
Self-destructive feature.....None

Description: This fuze initiates detonation if the trajectory passes within the maximum influence radius of seventy feet. Against aircraft below 200-foot altitude, operating radius is reduced, depending on the altitude of the plane and the height of the waves, because of the wave-suppression feature. Burst height over land or water may vary between 10 and 30 feet.

Random bursts will occur along the trajectory after arming, but before approaching a target. With a target at 12,200 yard range, 20 per cent of the rounds will function prematurely; and at closer ranges a somewhat smaller percentage will function prematurely. If the target at 12,200-yard range is approached within the sensitivity limits of the fuze, 65 per cent of the rounds will function.

These units have wet energizers of the reserve type; so effectiveness is not greatly diminished by normal storage for at least 18 months. Production has been suspended on this item.

Employment: This fuze is recommended for antiaircraft work from a minimum range of 800 yards to the extreme range of the gun. The wave-suppression feature makes this fuze useful against low-flying aircraft and surface targets, as it will not detonate on water influence above 15 to 20 feet; but it must pass somewhat closer to the target in order to function than in the case of high-flying targets. It may be used effectively for barrage of land targets where bursts at 10 to 30 feet will be effective against personnel and lightly protected installations.

Remarks: The Auxiliary Detonating Fuze Mk 54, replacing the Auxiliary Detonating Fuzes Mks 17 and 46, is used in conjunction with this fuze.

This fuze is currently being replaced by the V.T. Fuze Mk 53 in the new, smaller-cavity projectiles.

Mk 45 Mods 11 and 12 (Obsolete)

Projectiles used in.....3"/50 A.A.
Over-all length, inches.....7.7 (approx.)

Diameter at base of ogive, inches
2.4 (approx.)
Threaded length, inch.....1.0 (approx.)
Threads .....12 R.H.
Material.....Plastic ogive molded integral to steel base; perforated nose cap molded into forward end of plastic ogive
Weight, pounds 2.40
Minimum range, yards.....600
Energizer .....Wet
Centrifugal handling safety switch..Present

Description: This fuze initiates detonation within the maximum influence radius of fifty feet. Burst heights over water at long range will average around 75 feet, with wide variations in burst height occuring as a result of wave effect and variations in sensitivity between rounds. Burst heights over water at shorter ranges will generally average to lower levels.

Random bursts will occur along the trajectory after arming; so that approximately 30 per cent of the rounds will have burst prematurely before approach to a target at extremely long range. At long range, after 30 per cent of the rounds have functioned prematurely, 50 per cent of the rounds will function when passing the target within the sensitivity limits of the fuze.

These fuzes have wet energizers of the reserve type.

Employment: This fuze is used for antiaircraft work from a minimum range of 600 yards to the extreme range of the gun. The V.T. Fuze Mk 45 is useful for low-level attack against torpedo bombers or surface craft, if it is realized that the fuze functions on approach to water as outlined above. The fuze is less sensitive at shorter ranges.

Remarks: The original V.T. Fuze Mk 45 Mod 11, with longer stem, has been declared unserviceable and recalled, to be replaced by the Mod 12.

The V.T. Fuze Mk 45 Mod 12 is currently being replaced by the V.T. Fuze Mk 58.

The Auxiliary Detonating Fuze Mk 44 is used in conjunction with these fuzes.

Mk 47 Mod 0

Projectiles used in.....6"/47 H.C.
Over-all length, inches.....8.9 (approx.)
Diameter at base of ogive, inches
3.3 (approx.)
Threaded length, inch.....0.5
Threads .....6 R.H.
Material.....Plastic ogive molded integral with steel base ring, and steel nose cap molded inside of forward end of plastic ogive
Weight, pounds.....4.28
Minimum range, yards.....800
Energizer .....Wet
Wave-suppression feature.....Present
Self-destructive feature .....None
Centrifugal handling safety switch..Present

Description: This fuze is designed for the H.C. round of the 6"/47 dual-purpose gun. It is expected that its sensitivity against aircraft will be of the same order as that of the V.T. Fuze Mk 53. The Auxiliary Detonating Fuze Mk 44 is used with this fuze.

Mk 53 Mods 0—6

Projectiles used in.....5"/25/38/51 A.A. Common
Over-all length, inches.....8.9 (approx.)
Diameter at base of ogive, inches
3.3 (approx.)
Threaded length, inch.....0.5 (approx.)
Threads .....6 R.H.
Material.....Steel base with integral molded plastic nose; some Mods may have steel insert molded in forward end of plastic nose
Weight, pounds 4.28
Minimum range, yards
Mods 0–2—700
Mods 3 and later—500
Energizer .....Wet

Wave-suppression feature.....Present
Self-destructive feature..... None

Description: This fuze functions within a maximum influence radius of about eighty feet. Sensitivity to aircraft below 200-foot altitude will be somewhat less, depending on the altitude of the plane and the height of the waves, because of the wave-suppression feature. Burst heights above water will vary between 10 and 30 feet.

Random bursts along the trajectory will occur after arming, but before reaching a target. At 12,200-yard range on test firing, approximately ten per cent of the rounds will function prematurely. Upon approaching a target within the sensitivity limits of the fuze at 12,200-yard range, 80 per cent of the rounds will function at the most advantageous point for enveloping the target with fragments. The percentage of normal functioning at shorter ranges will be higher by the amount of decrease of premature bursts. The remainder of the rounds will be duds.

These fuzes have wet energizers of the reserve type.

Employment: This fuze is used for antiaircraft work from a minimum range, as shown above, to the maximum range of the gun at all elevations. It is useful against low-flying aircraft and surface craft where aerial-burst fuze action is desired. It is also effective for barrage work against personnel, light equipment, and land targets. Later Mods may have self-destructive action to initiate detonation at around 10,000 yards to protect outlying friendly ships and troops on the beach.

Remarks: This fuze is replacing the V.T. Fuzes Mk 32 and Mk 40 in all assemblies of new ammunition. The Auxiliary Detonating Fuze Mk 44 is used.

Mods 1, 2, and 3 have been declared unserviceable. Mods 5 and 6 have additional water-resistance and are not interchangeable with the previous Mods.

Mk 58 Mod 0—5

Projectiles used in.....3"/50 A.A.
Over-all length, inches.....8.5 (approx.)
Diameter at base of ogive, inches 2.4 (approx.)
Threaded length, inch.....1.0 (approx.)
Threads .....12 R.H.
Material.....Plastic ogive molded integral to steel base; steel cap molded in forward end of plastic ogive
Weight, pounds 1.98
Minimum range, yards.....500
Energizer .....Wet
Wave-suppression feature.....Present
Self-destructive element.....Mod 5 only
Centrifugal handling safety switch..Present

Description: The maximum influence radius varies between 40 and 100 feet for different lots and Mods. Sensitivity to aircraft flying below 200-ft altitude will be reduced by the wave-suppression feature. Burst heights over water will average between 5 and 15 feet.

Random bursts of rounds will occur along the trajectory after arming, so that approximately 20 per cent of the rounds will have functioned before reaching a target at long range. When fired at a target at long range, after 20 per cent of the rounds have burst prematurely, 65 per cent will function.

Employment: This fuze is used for antiaircraft work for ranges of 500 yards to the extreme range. It is useful against low-flying aircraft and surface craft, and in land barrage against personnel and light equipment.

Remarks: The Auxiliary Detonating Fuze Mk 44 is used with this V.T. Fuze.

The V.T. Fuze Mk 58 is currently replacing the Mk 45 Mod 12 in the 3"/50 assembly.

Mods 3, 4, and 5 have additional water-resistance and are not interchangeable with previous Mods.

Mod 5 will have a self-destructive switch to function at a range of 6,000 to 9,000 yards. The switch is not adjustable.

Mod 0 is now obsolete.

Mk 59 Mod 0

Projectiles used in.....5"/54 H.C.
Over-all length, inches.....1-13/16
Diameter at base of ogive, inches.....2.71
Threaded length, inch.....0.5
Threads .....6 R.H.
Material.....Capless plastic ogive molded integral with steel base
Weight, pounds.....4.05
Minimum range, yards.....500
Energizer .....Wet
Wave-suppression feature.....Present
Self-destructive element .....None
Centrifugal handling safety switch..Present

Description: This fuze is designed for use in the H.C. round of the new 5"/54 guns. It is designed for antiaircraft work from a minimum range of 500 yards to the extreme range of the gun at all elevations. The Auxiliary Detonating Fuze Mk 44 Mod 0 is used.

Part I — Chapter 3 — Section 5

AUXILIARY DETONATING FUZES FOR PROJECTILES

Mk 17 Mods 0—13

Fuzes found with.....Mk 18 Mods 2–4
Mk 22 and Mods 1–5
Mk 29 Mods 1–3
Mk 30 Mods 1–3
Over-all length, inches.....2.5
Diameter, inches 1.38
Weight, grams 348
Threaded length, inch.....0.96
Threads .....10 L.H.
Material.....Steel body, not painted
Arming speed, r.p.m.....3,000–4,500

Description: The fuze is composed of a one-piece body, with a booster cap and plug closing the ends. The body assembly consists of the firing-pin housing and rotor housing, both of which are contained in the sealing cup. In the middle of the closing plug is an obturating cup with a sealing disc between the plug and the firing-pin housing. The firing-pin housing contains a metal firing pin which is held in position by two firing-pin detents. Contained within the rotor housing are a rotor and two rotor detents. The rotor, which contains two lead counterweights and the detonator, is assembled in the housing with the axis of the detonator at an angle of about 55 degrees from the axis of the fuze. The line of centers of the lead counterweights is at an angle of about 35 degrees from the axis. The rotor is held in the unarmed position by the two rotor detents, the tapered ends of which engage in holes in the side of the rotor.

Operation: As the projectile is fired from the gun, centrifugal force moves the firing pin and rotor detents back against their springs. Then centrifugal force, acting upon the lead counterweights in the rotor, will cause the rotor to turn until the detonator assembly is in line with the booster lead-in and firing pin. In this position, the rotor is dynamically balanced, centrifugal force holding the two lead counterweights at a maximum radius from the axis of rotation of the fuze. When the nose fuze functions, the gas pressure from it forces the obturating cup down, shearing the sealing disc adjacent to the firing pin and driving the firing pin down into the primer-detonator assembly which fires the booster lead-in and the booster.

Remarks: This fuze is not designed to function by itself, but will function only by the gas pressure from a nose fuze.

Mods 0–6, representing different manufacturers, were originally assigned for use in 3-inch to 16-inch A.A., A.A. Common, and H.C. projectiles. Later assignments restricted their use to 3-inch to 6-inch projectiles. Mods 0 to 6 were then withdrawn from service and replaced

CHAPTER 6

PRIMERS

Section I. INTRODUCTION

6-1. **GENERAL.** For gun ammunition the term "primer" usually means the small tube of sensitive explosive which initiates the burning of the propellant charge. This chapter describes Navy gun-type ammunition primers for 20-mm to 16-inch gun ammunition in current use. The information presented is arranged by primer classification and then by mark and mod numbers. A synopsis of primers with assignment to gun or use is given in figure 6-1.

TYPE OF CALIBER OF AMMUNITION USED IN / PRIMER	20-MM	40-MM	76-MM, 62 CAL	3-IN, 50 CAL	5-IN, 38 CAL	5-IN, 54 CAL	8-IN, 47 CAL (FULL)	6-IN, 47 CAL (RED.)	8-IN, 55 CAL (FULL)	8-IN, 55 CAL (RED.)	8-IN, 55 CAL (SHORT)	BAG GUNS ALL CAL	CASE GUNS ALL CAL
MK 13 MOD 0, 1, 2						CC	CCI						
MK 14 MOD 0, 1				CPI									
MK 15 MOD 1, 2, 3, 4					LCT	LCT						LC	
MK 22 MOD 0, 1, 2		CP											
MK 35 MOD 0, 1											CC		
MK 37 MOD 0, 1, 2									CE				
MK 38 MOD 1, 2										CE			
MK 39 MOD 0, 1, 2,							CE						
MK 40 MOD 0, 1, 2								CE					
MK 41 MOD 0				CPI									
MK 42 MOD 0, 1, 2, 3, 4				CE									
MK 44 MOD 0													CET
MK 45 MOD 0, 1						CE							
MK 47 MOD 0	PCE												
MK 48 MOD 0, 1, 2					CE								
MK 153 MOD 0, 1						CE							
MK 161 MOD 0			CPI										
M36A1 (ARMY)	PC												
M52A3B (ARMY)	PCE												

PRIMER LEGEND

CC = Case, Combination
CCI = Case, Combination, Ignition
CE = Case, Electric
CET = Case, Electric (Test)
CP = Case, Percussion
CPI = Case, Percussion Ignition
LC = Lock, Combination
LCT = Lock, Combination (Test)
LE = Lock, Electric
PC = Percussion Cap
PCE = Primer Cap, Electric

Figure 6-1. Primers by Mark and Mod With Assignment to Gun or Use

6-2. **CLASSIFICATION OF PRIMERS.**

6-2.1. Method of Firing. Primers can be classified according to the methods used in firing them as follows:

6-2.1.1. Electric. Electric primers are fired by passing a current through a built-in resistance filament which is surrounded by an initiating explosive mixture, or they are fired by passing a current through an initiating explosive mixture which is electrically conductive.

6-2.1.2. Percussion. Percussion primers are fired by the mechanical impact of the firing pin.

6-2.1.3. Combination. Combination primers can be fired by either electricity or percussion. Electrical firing is considered the primary method; the percussion feature is a standby for use when the electrical firing fails.

6-2.2. Usage. Primers can be further classified by their usage, as follows:

6-2.2.1. Case. Case primers are used in fixed and separated ammunition wherein they are normally an integral part of the cartridge case as received aboard ship. Such primers are threaded or press-fitted into the base of the cartridge case. The case primer contains a sufficient charge of black powder or other ignition mixture to ignite the propellant in the case.

6-2.2.2. Lock. These primers are for use in the primer lock of the breech plug of a gun with bag charges only. This type does not require as much ignition charge, proportionately, as the case primer. Each bag charge has a black powder ignition charge on its after end. All Navy lock primers are the same size, regardless of the caliber of the gun. Each time the gun is loaded, the primer is inserted in the firing lock of the gun by hand.

6-2.2.3. Test. Test primers are for use in testing the electric firing circuit of a gun. This type of primer is used only in case guns at present. They contain only a small amount of black powder as a charge. The black powder furnishes audible and visual evidence of the firing current having fired the primer. The test primers are normally threaded into the base of an empty, shortened cartridge case.

Section III. PERCUSSION PRIMERS

6-17. **GENERAL.** Percussion primers require an initiating explosive, or a mixture of such explosives, sensitive to the blow of a firing pin but insensitive to the shocks of ordinary handling. The smallest, simplest percussion primers are percussion caps. Other types of percussion primers are case percussion primers, case combination ignition primers, and lock combination primers. The combination primers are described in section IV.

6-18. **PERCUSSION CAPS.** These are the simplest primers (figure 6-15). They are used in small-caliber ammunition where they are press-fitted into the base of the cartridge; they are also a component of more complex primers for larger ammunition.

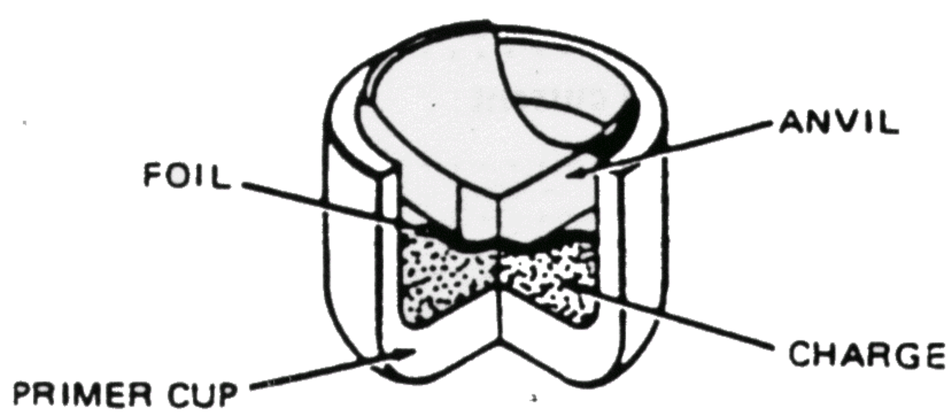


Figure 6-15. Percussion Cap Type Primer, Cutaway View

6-18.1. Description. A percussion cap consists of a brass or gilding metal cup containing a percussion-sensitive explosive mixture and a brass anvil. A typical mixture for a simple percussion cap consists of fulminate of mercury (initiating explosive), potassium chlorate (oxygen supplier), antimony sulfide (to prolong the flame), and ground glass (for friction).

6-18.2. Operation. When the cup is struck by a firing pin, the primer mixture is compressed between the cup and the anvil. Pressure and friction initiate the explosive mixture. Flame passes through the flash vents to the anvil to initiate the propellant powder. The sensitivity of this type of primer is determined by the amounts and proportions of the primer mixture, the pressure under which the mixture is loaded, and the thickness and type of metal in the cup and the anvil.

6-19. **CASE PERCUSSION PRIMER.** The case percussion primer is used in ammunition for heavy machine guns such as 40-mm, in slow-fire 3-inch, 50-caliber guns, 76-mm guns, and in certain saluting cartridges.

6-19.1. Description. This type (figure 6-16) consists of a percussion cap to which is attached a perforated tube filled with black powder. Some case percussion primers contain a metal firing plug aft of the percussion cap to receive and direct the blow of the firing pin of the gun. Other primers of this type have the percussion cap located in the base surface. Also, primers of this type can have an ignition tube centrally located in the perforated primer tube. The ignition tube is filled with a finer grain of black powder than that in the primer tube. The burning of the

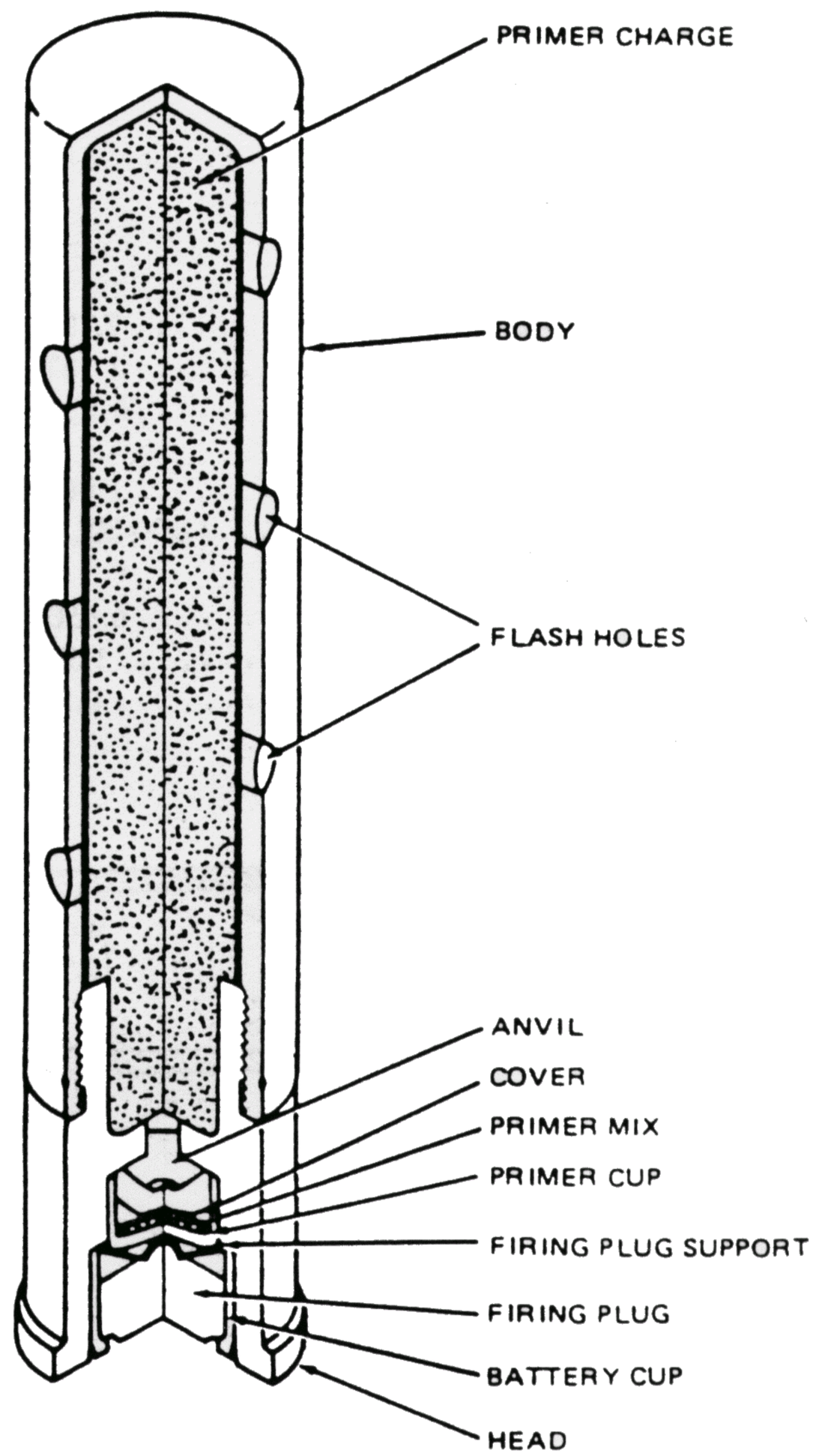


Figure 6-16. Typical Case Percussion Primer, Cutaway View

black powder in the ignition tube ignites the black powder in the primer tube. The perforations in the primer tube provide for a more even and widespread distribution of the flash from the black powder to the propellant.

6-19.2. Operation. The primer charge is ignited by the flash from the primer cap when the latter is struck by the firing pin of the gun.

6-20. PRIMER MARK 14 MODS (PERCUSSION IGNITION)

6-20.1. General. This primer is used in 3-inch, 50-caliber guns. This primer is serviceable, but there should be no need for the further procurement of this primer. Primers Mk 41 and Mk 42 are adequate for the 3-inch, 50-caliber guns.

6-20.2. Description. All mods have a main charge of 110 grains of Class 4 black powder. Primer Mk 14 Mod 1 differs from the Mod 0 (figure 6-17) in that it uses a pyralin retainer and retainer plug instead of the primer stock extension plug.

6-20.3. Interface.

3-inch, 50-caliber saluting

6-20.4. Physical Characteristics.

Design Data

Overall length	5.021 inches
Boss diameter	0.800 inch
Weight	0.21 pound
Thread dimensions	0.619-20NS-3
Primer tube	
Length	4.156 inches
Unvented length	0.445 inch
Vent diameter	0.14 inch
No. of vents	22

Components

Stock	Brass
Ignition tube	Brass
Primer tube	Brass
Primer cap	Winchester No. 2½

6-20.5. Explosive Data.

Primer cap charge

Mercury fulminate, potassium chlorate and antimony sulfide	26 milligrams
Ignition tube, Class 6 black powder	292 milligrams
Primer tube, Class 4 black powder	7.13 grams

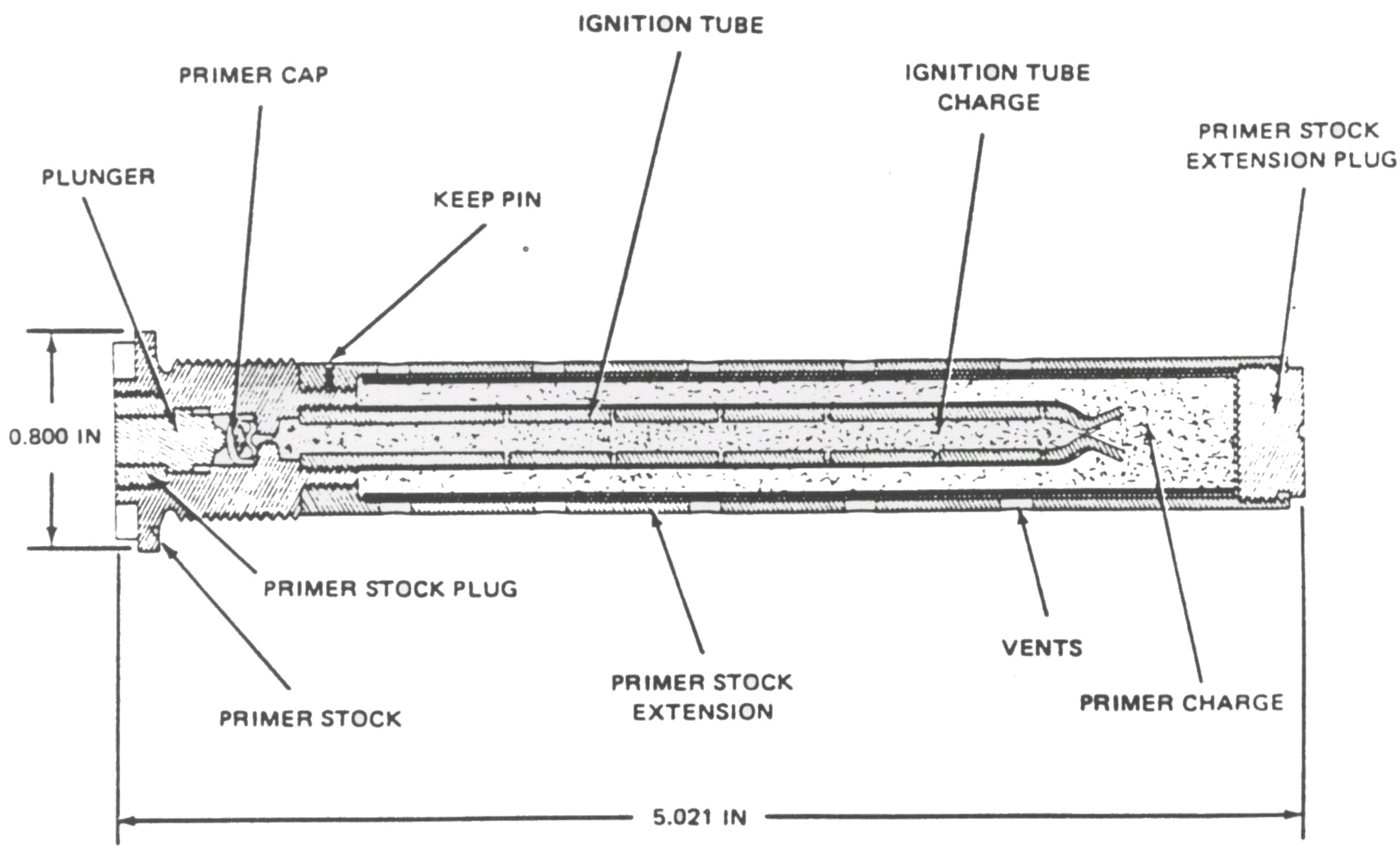


Figure 6-17. Primer Mk 14 Mod 0 (Case Percussion Ignition), Cross-Sectional View

6-20.6. Functioning Data.

Percussion sensitivity . . . . . .16 ounce ball
All fire . . . . . 10 inches
No fire . . . . . 3 inches

6-20.7. Packing Data.

05-737 . . . . . Inner pack, 50 primers per copper box
05-737 . . . . . Outer pack, 10 boxes per wooden box
No palletization standard established.

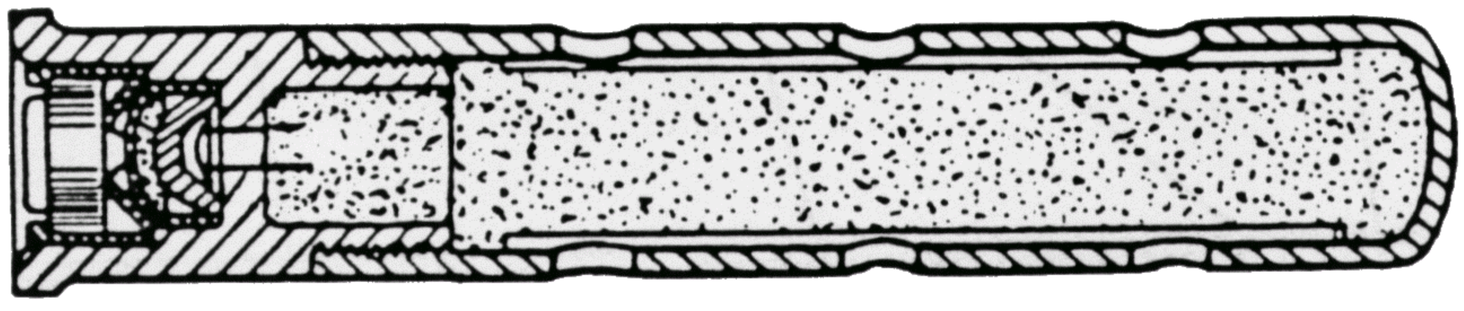
6-21. PRIMER MARK 22 MODS (PERCUSSION)

6-21.1. General. This case percussion (press-fit) primer was developed to replace Primer Mk 21 which had performed unsatisfactorily. Consideration was given to adopting Primer Mk 19; however, it was found to be too small, and the firing plug construction was such that the firing pin travel in guns already in production was insufficient to fire the primer. Tests performed on Army Primer M23A2 proved satisfactory, and it was adopted for use in 40-mm ammunition with the designation changed to Mk 22 Mod 0. Preliminary acceptance tests revealed that the primer was more sensitive than the Mk 21 when subjected to the rapid deceleration drop test. This resulted in the use of a conical washer made from 95-5 gilding metal placed between the firing plug and percussion element to act as a firing plug support or "dampening device." This change was made before the primer was adapted for service so the designation Mk 22 Mod 0 remained unchanged. The performance of the Mod 0 was satisfactory except that it had a tendency to blow back. However, by uniformly tapering the bearing surface of the primer stock and by manufacturing the primer from material somewhat harder than the cartridge case base, blowbacks were virtually eliminated. Therefore, this change was made and the designation changed to Mk 22 Mod 1. Mods 1 and 2 (figure 6-18), along with the Mod 0, are now in current stocks of ammunition. They are serviceable and ballistically, functionally, and dimensionally interchangeable.

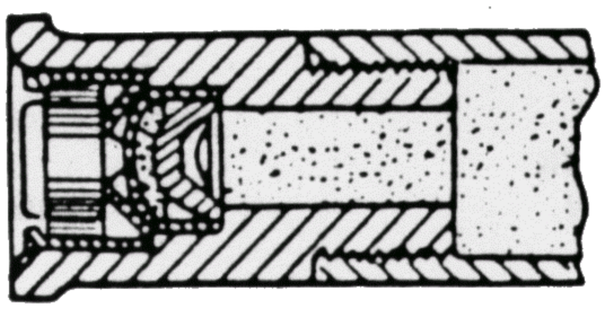
6-21.2. Description. Primer Mk 22 consists of a tapered, press-fit stock containing a percussion primer element and a brass primer tube containing 64 grains of Class 2 black powder main charge. The Mod 1 differs from the Mod 0 in that the primer stock has been given a uniform taper, and the primer material is harder than the cartridge case base. The Mod 2 is identical to the Mod 1 except the primer stock throat diameter has been increased from 0.080 to 0.155 inch.

6-21.3. Interface.

40-mm ammunition



MOD 1



MOD 2

Figure 6-18. Primer Mk 22 Mods 1 and 2 (Case Percussion), Cross-Sectional View

Section IV. COMBINATION PRIMERS

6-25. **GENERAL.** As indicated by their name, these primers can be fired either electrically or by percussion. Electrical firing is considered the primary method; the percussion feature is a standby for use when the electrical firing fails. Two types of combination primers are given—the case combination ignition primer and the lock combination primer.

6-26. **LOCK COMBINATION PRIMERS.** This primer is used in guns with bag charges only. It is fundamentally similar in construction and operation to the case combination ignition primer. A cutaway view of a typical lock combination primer is shown in figure 6-22. The main differences are the following:

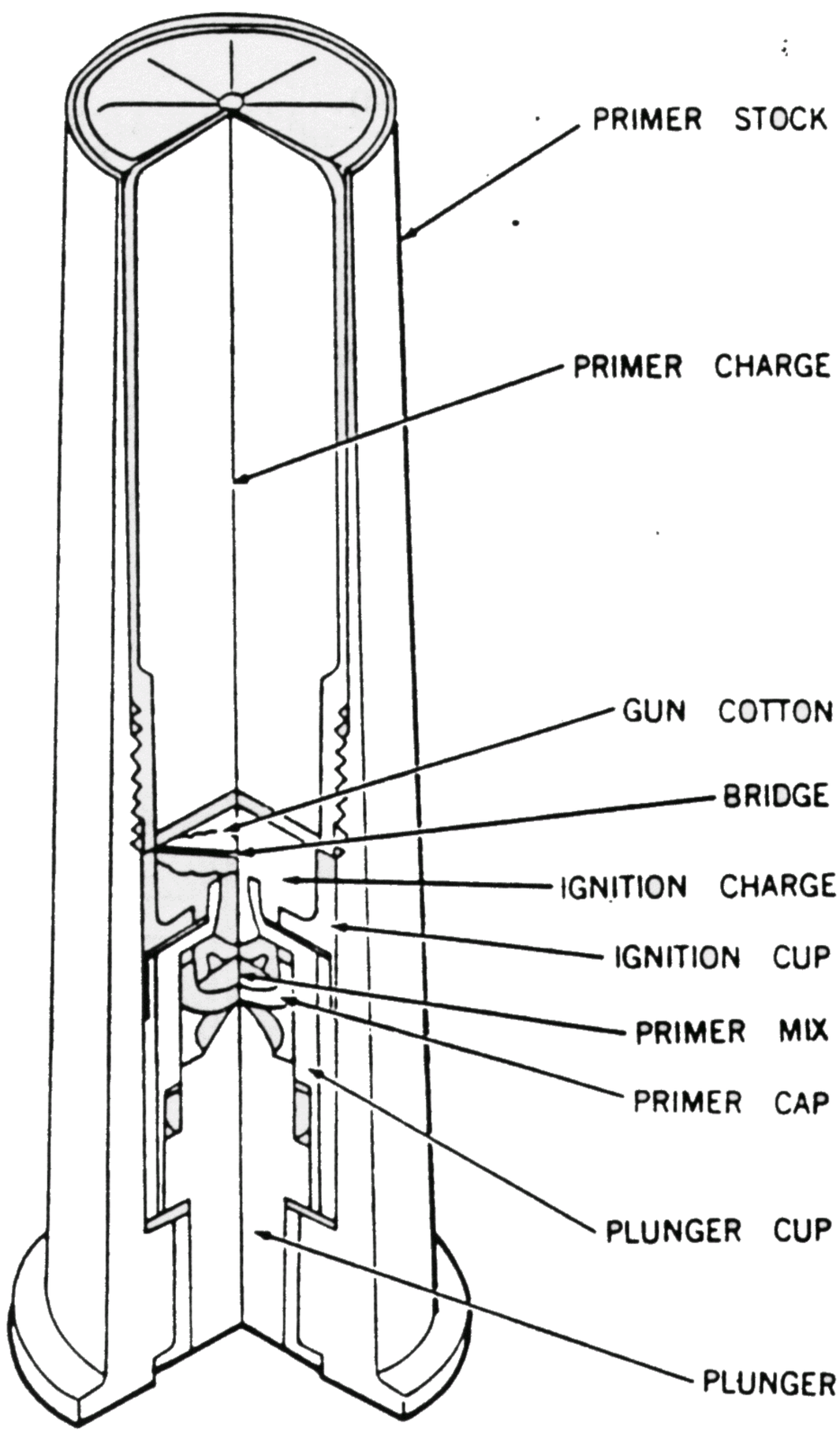


Figure 6-22. Typical Lock Combination Primer, Cutaway View

a. There is no ignition tube.

b. The case of the lock primer is made of special, high-tensile-strength bronze, designed to prevent it from sticking in the firing lock of the breech plug.

c. The lock primer case has no flash holes; instead the mouth is closed with a paper disc and crimped brass prongs. This construction facilitates the forward expulsion of the flame of the black powder through the mushroom stem to ignite the ignition charge on the rear of the powder bag.

d. The primer case of the lock primer has no threads; it is inserted by hand into the firing lock of the breech plug each time the gun is loaded.

6-27. **CASE COMBINATION IGNITION PRIMERS.** This type of primer is secured to the cartridge case by the threads on the primer stock. It is used in medium and large caliber case guns as well as in depth charge projector charges and torpedo impulse charges.

6-27.1. Description. A cutaway view of the typical case combination ignition primer is shown in figure 6-23.

6-27.2. Operation.

6-27.2.1. Percussion. The percussion element is similar to that of the case percussion primer. The firing pin of the gun strikes a plunger which, in turn, explodes the cap against the anvil. The flames produced by the percussion cap act directly upon the explosive in the electric ignition cup.

6-27.2.2. Electric. The electric element consists of a high-resistance wire surrounded by a small quantity of initiating explosive and is contained in a cup. The initiating explosive is a mixture of approximately 98 percent normal lead styphnate and 2 percent nitrocellulose. The resistance bridgewire is connected at one end to the plunger cup, which is insulated from the primer stock. The other end of the wire is grounded through the primer stock and the cartridge case to the metal of the gun. When the gun is fired, an electric current is passed through the firing pin to the plunger and plunger cup; this heats the bridgewire and ignites the initiating explosive. The explosive mixture in the ignition cup is initiated and, in turn, fires the fine-grain black powder (Class 6) ignition tube charge. The

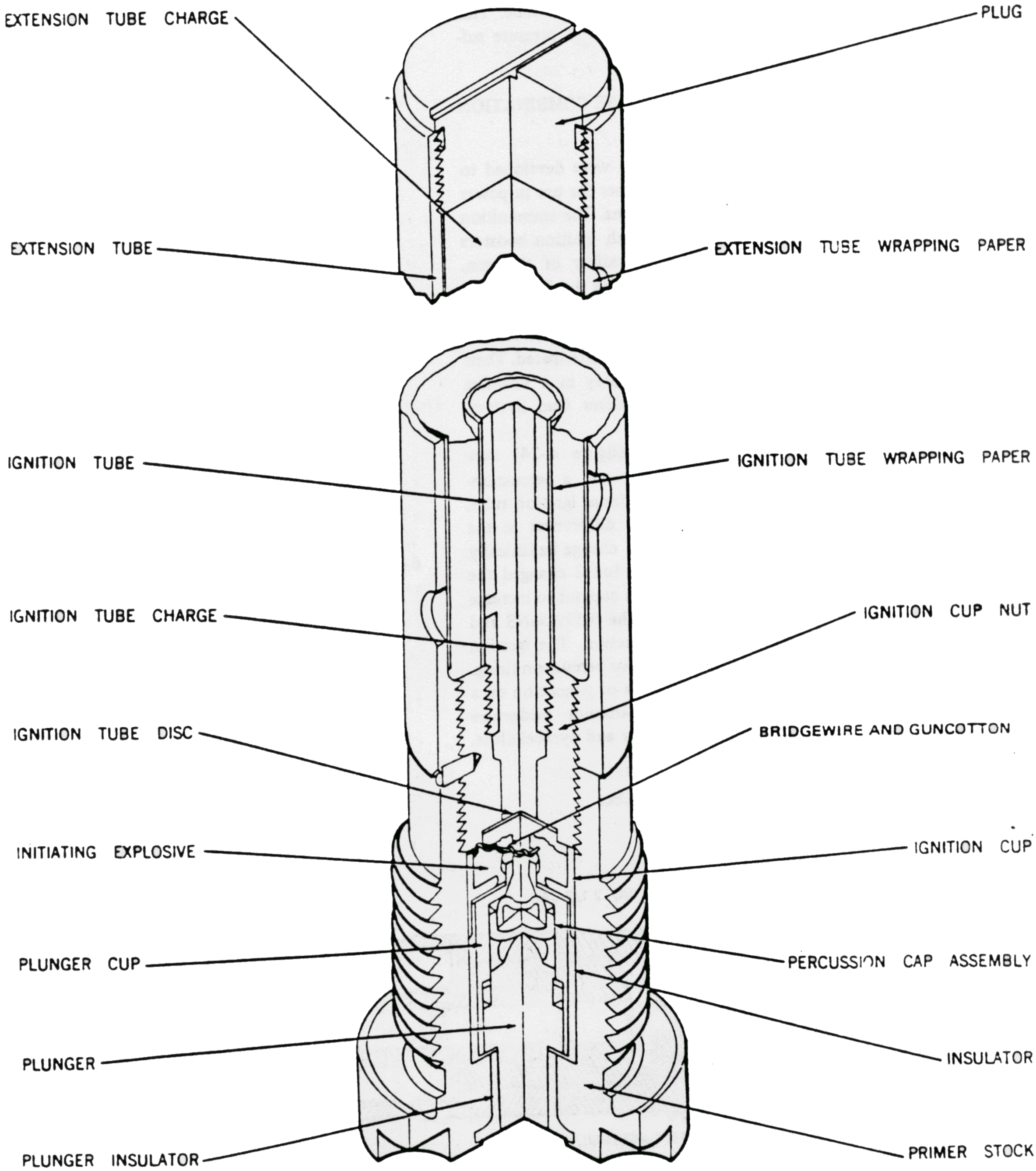


Figure 6-23. Typical Case Combination Ignition Primer, Cutaway View

ignition tube charge is surrounded by a coarser grain (Class 2) black powder charge in the primer tube. This coarse-grain charge intensifies the heat and pressure sufficiently to initiate the propellant charge.

6-28. PRIMER MARK 13 MODS (CASE COMBINATION IGNITION)

6-28.1. General. Primers in this series were developed to provide an electric and percussion primer for use in power rammed 5- and 6-inch caliber case guns. The ammunition in these guns uses Primer Mk 13 with ignition boosters of varying sizes depending on the caliber of the gun. Primer Mk 13 has been used as the basis for the design of all major case gun primers used by the Navy today. Mods 0, 1, and 2 are in current stocks of service ammunition; however, no further production of these primers is inticipated. Their application has been limited for use only in a slow-fire gun when used in the 5-Inch, 54-Caliber Gun System.

6-28.2. Description. Primer Mk 13 (figure 6-24) consists of a brass stock and ignition cup nut, a percussion-electric ignition element and a brass inner ignition tube, and a brass primer tube. The only differences in the Mods 0, 1, and 2 are dimensional; no change ballistically or functionally has been made. The Mod 2 changed the length of the primer stock and ignition cup nut to increase the length of the thread runout on the 0.399-36NS and 7/32-32NS threads to facilitate production. The ignition element uses a Winchester No. 2½ cap for percussion firing. The electric element consists of a wisp of guncotton on a single 0.002-inch-diameter platinum-iridium bridgewire with a booster charge of black powder and pyrocellulose.

6-28.3. Interface.

5-inch, 54-caliber; 6-inch, 47-caliber

6-28.4. Physical Characteristics.

Design Data	
Overall length	
Mod 0	9.745 inches
Mod 1	9.770 inches
Mod 2	9.835 inches
Boss diameter	0.800 inch
Weight	0.360 pound
Thread dimensions	0.619-20NS-3
Primer tube	
Length	
Mod 0	8.560 inches
Mod 1	8.562 inches
Mod 2	8.562 inches
Unvented length	0.445 inch
Vent diameter	0.141 inch
No. of vents	48
Components	
Stock	Brass
Ignition tube	Brass
Primer tube	Brass
Ignition element (drawing)	437780

6-28.5. Explosive Data.

Percussion,	
Winchester cap	No. 2½
Electrical	
Guncotton	12.0 milligrams
Booster, Class 6 black powder,	
Nitrocellulose	18.000 milligrams
Ignition tube, Class 6	
black powder	292 milligrams
Primer tube, Class 4	
black powder	17.17 grams

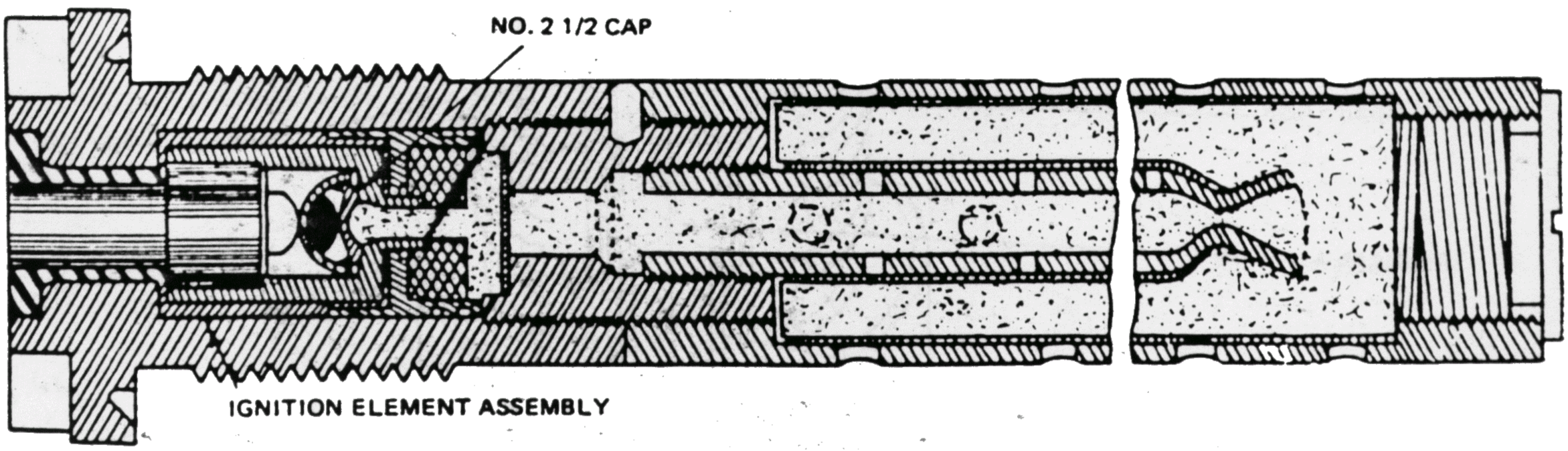


Figure 6-24. Primer Mk 13 Mods (Case Combination), Cross-Sectional View

6-28.6. Functioning Data.

Primer resistance . . . . . 0.55-0.70 ohm
Recommended current
Testing . . . . . <50 milliamps
Firing . . . . . >10 amps
Firing voltage . . . . . 20 Vac or Vdc
Percussion sensitivity . . . . . 16 ounce ball
All fire . . . . . 10 inches
No fire . . . . . 3 inches

6-28.7. Packing Data.

Drawing 563645 . . . . Inner pack, 21 primers per can
Drawing 512849 . . . Outer pack, 4 cans per container
MIL-STD-1322/851 . . . . . Palletization, 16 containers per pallet

6-29. PRIMER MARK 15 MODS (LOCK COMBINATION)

6-29.1. General. Primers in the Mk 15 series were developed to provide a combination electric and percussion primer for use in bagged guns. The Mod 1 is similar to the Mod 2 (figure 6-25) except that the Mod 1 has a Winchester cap No. 2½, same as the Mods 3 and 4, and the Mod 1 is the only mod without lead styphnate applied to the bridgewire. The Mk 15 Mod 2 originally had an electrical bridgewire surrounded with a wisp of long-fiber guncotton. To reduce the latent time of firing a dab of lead styphnate was applied to the bridgewire. All Mod 2s produced since August 1954 have been processed accordingly. No additional mod number has been assigned for this change. Mods 1, 3, and 4 are inactive, and no further production is anticipated. The Mod 2 is current and serviceable.

6-29.2. Description. Primer Mk 15 consists of a tapered stock containing a percussion electric ignition element and about 30 grains of Class 4 black powder main charge. The Mod 2 uses the ignition element developed for Primer Mk 13 Mod 2 modified as previously described. This ignition element uses a No. 34 cap for percussion firing. The electric element consists of a dab of lead styphnate and a wisp of guncotton on a single 0.002-inch-diameter platinum-iridium bridgewire with a booster charge of black powder and pyrocellulose. The main charge is contained in a brass thimble with an embossed end to allow uniform opening. The addition of lead styphnate to the bridgewire was the major change from the Mod 1 to the Mod 2. This change was made to improve electrical function reliability. The Mod 3 differs from the Mod 2 in that the electrical element consists of a lead styphnate charge buttered around a double-arm 0.002-inch-diameter platinum-iridium bridgewire and its resistance is lower. It functions the same as the Mod 2 in single fire but, because of its low resistance, will not function properly when used with delay coils. The Mod 4 has the same ignition element as the Mod 3 but its main charge is loaded directly into the stock instead of using a separately loaded thimble.

6-29.3. Interface. 5-inch Test Cartridges

6-29.4. Physical Characteristics.

Design Data
Overall length . . . . . 1.99 inches
Boss diameter . . . . . 0.596 inch
Weight . . . . . 0.060 pound
Thread dimensions . . . . . Press-fit
Components
Stock
Mod 1 . . . . . Brass
Mod 2 . . . . . Brass
Mod 3 . . . . . Brass
Mod 4 . . . . . Steel
Thimble . . . . . Brass
Ignition element
Mod 1 . . . . . Drawing 437780
Mod 2 . . . . . Drawing 2846997
Mod 3 . . . . . Drawing 1410962
Mod 4 . . . . . Drawing 1410962

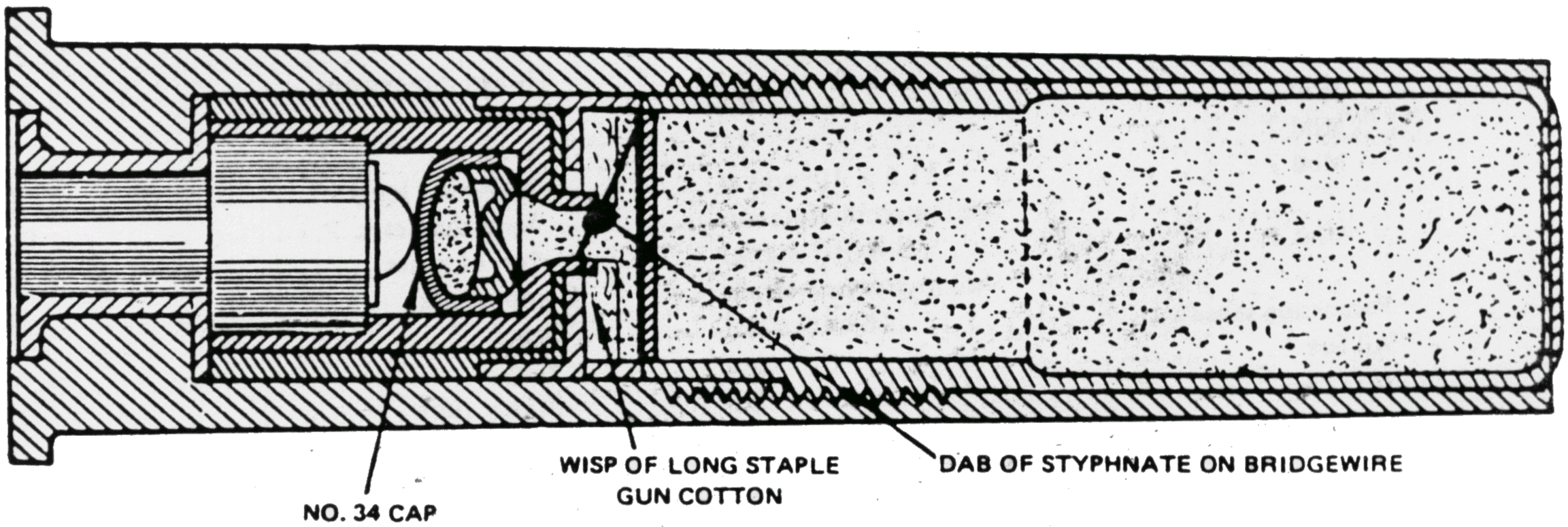


Figure 6-25. Primer Mk 15 Mod 2 (Lock Combination), Cross-Sectional View

Chapter 26

MECHANICAL TIME FUZE MARK 50

General Data

Designation and Type

Mechanical Time Fuze Mk 50 Mods 0, 1, 2, and 3

Projectiles Used In

Illum.	AA Common		HC
4″/50	5″/25	5″/51	
5″/25	5″/38	6″/47	(Single purpose)
5″/38		6″/53	
5″/51		8″/55	
6″/47			
6″/53			

Overall Dimensions and Weight

Length ..... 4.313 in.
Body threads ..... 1.70-in.—14NS-1RH
Weight ..... 2.28 ± 0.06 lb.

Material

Body ..... Brass
Lower cap ..... Brass
Upper cap ..... Zinc

Applicable OS 3645

General Arrangement Drawing No.

(Not yet prepared)

Explosives Used

Primer cap contains either F.A. 70 primer mixture consisting of potassium chlorate, antimony sulphide, TNT and lead sulfocyanate, or the F.A. 70 primer mixture modified to contain 8% ground glass. Magazine charge consists of not less than 40 grains of black powder in a moistureproof plastic container. This is the same as for the Fuze Mk 18.

Description

The description of the Fuze Mk 18 in this OP is equally applicable to the Fuze Mk 50. The Mk 50 differs from the Mk 18 only in that it is a moistureproof design intended to give longer life and greater reliability than the Mk 18. The moistureproofing is accomplished as follows:

(a) The Fuze Mk 50 contains an internal desiccator unit of silicia gel in the base cavity of the fuze body. This silica gel absorbs and retains all moisture in the air entrapped in the fuze at assembly, thus preventing rusting of steel parts or deterioration of explosive components.

(b) Special gaskets are inserted between the upper cap and the lower cap, and also between the lower cap and the body, to hinder the entrance of moisture.

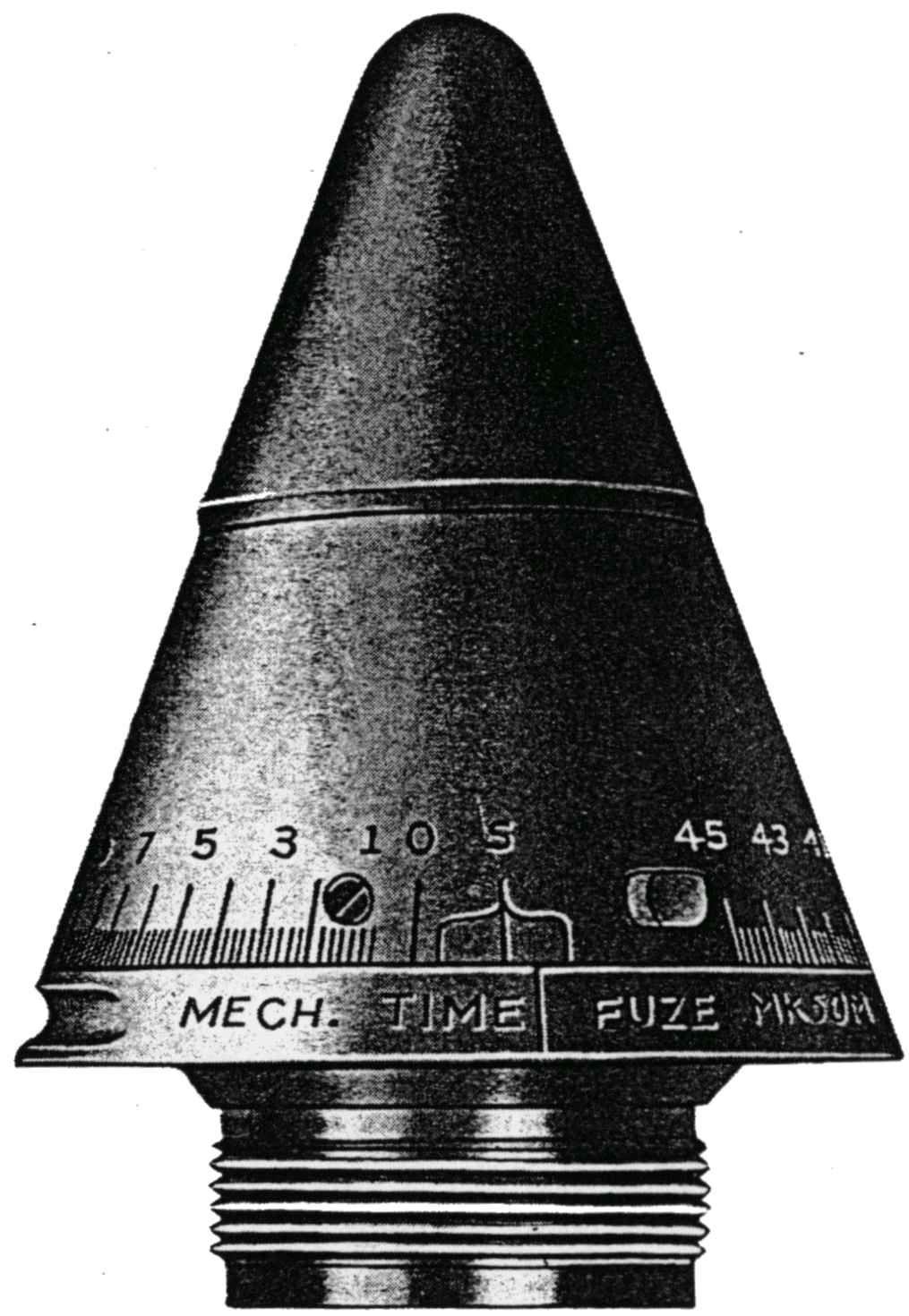


Figure 52.—Mechanical Time Fuze Mk 50 Exterior View Full Size

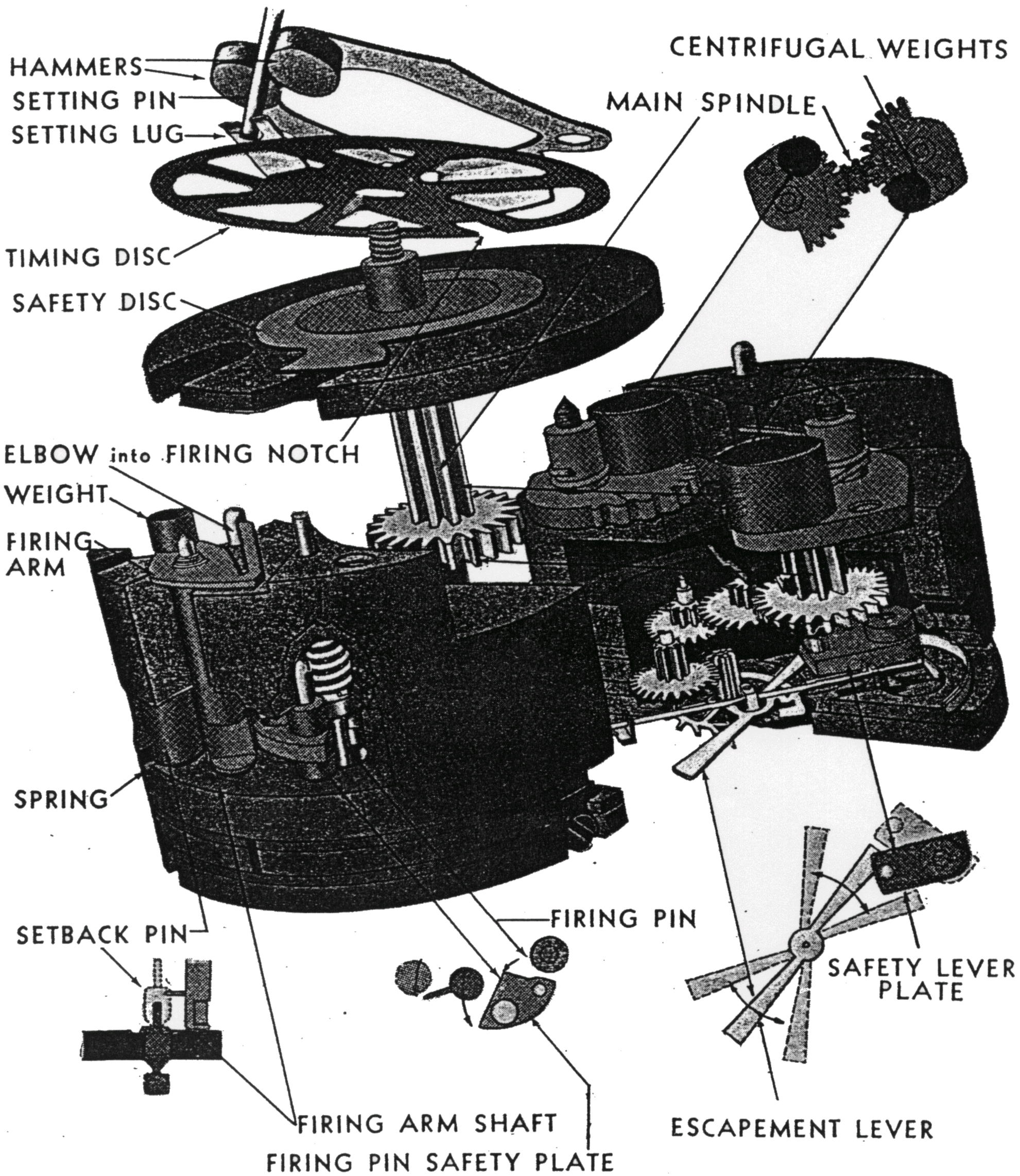


Figure 53.—Mechanical Time Fuze Mk 50—Sectional View

(c) The gasketed joint between the upper and lower caps is coated externally with Bakelite varnish. This film of varnish is practically impervious to moisture, hence serves as a mechanical barrier to its passage.

(d) The primer screw assembly is moisture-proofed by inserting a vinylite disc under the black-powder relay pellet and by coating both ends of the primer screw assembly with Bakelite varnish.

(e) Thread luting compound is applied to the joint between the body and the bottom closing screw, serving to exclude moisture and keep the joint mechanically tight.

(f) The brass disc at the center of the bottom closing screw is crimped in under a washer, then coated with Bakelite varnish.

(g) All tension screw heads, or other screw heads, visible on the outside of the fuze body are coated with a glyptal lacquer to prevent the passage of moisture.

(h) The hole for locating and preventing any shift of the tensioning wire is no longer drilled completely through the fuze lower cap, but is drilled blind from the inside of the lower cap.

Operation

The operation of this fuze is exactly the same as that of the Mechanical Time Fuze Mk 18 Type.

Safety Features

(a) A setback pin prevents rotation of the firing arm and hence tripping of the spring-loaded firing pin through a connecting linkage until the setback pin is moved rearward by setback force.

(b) A spring-loaded safety lever prevents oscillation of the clockwork escapement until it rotates out of engagement by centrifugal force.

(c) When the fuze is set on SAFE or anything less than the prescribed minimum setting, the firing slot in the timing disc is covered by a safety disc, so that if the timing disc were rotated into firing position it could not release the firing arm and trip the firing pin.

(d) The timing disc is prevented from rotating by the setting pin, which passes between two prongs of a raised forked lug near the edge of the timing disc itself. This lug is bent down out of the way of the setting pin by the hammer in the upper cap when setback occurs.

Acceptance Functioning Test

Sample fuzes from each production lot are fired at settings of 3, 10, 15, 30, and 40 seconds at various gun elevations. The actual mean time of flight and the dispersion obtained shall not differ from the setting by more than 0.08 second plus 0.005 times the setting.

Markings on the Fuze

Mech. Time Fuze Mk 50 Mod 0 (1, 2, or 3); Initials of Manufacturer and of Navy Inspector; Lot No. —.

Remarks

(a) Fuzes Mk 50 Mod 0, 1, 2, and 3 are essentially the same and represent four different manufacturers (Elgin National Watch Co., Thos. A. Edison, Inc., Eclipse Machine Division of Bendix Aviation Corp., and Frankford Arsenal, respectively).

(b) Time Setting Characteristics: The Fuzes Mk 50 Mod 0, 1, 2, and 3 function as follows for various settings:

Setting	Action
Safety zone to and including 0.0 second	Dud caused by built-in feature (safety disc)
*0.0 to 0.3 second	May be a dud or may function somewhere between 0.6 and 0.8 second
0.3 to 0.6 second	Will function somewhere between 0.6 and 0.8 second
0.6 to 45.0 second	Will function at time set (within allowable calibration error)

***NOTE:** These settings are not recommended because the resultant actions are variable due to manufacturing tolerances.

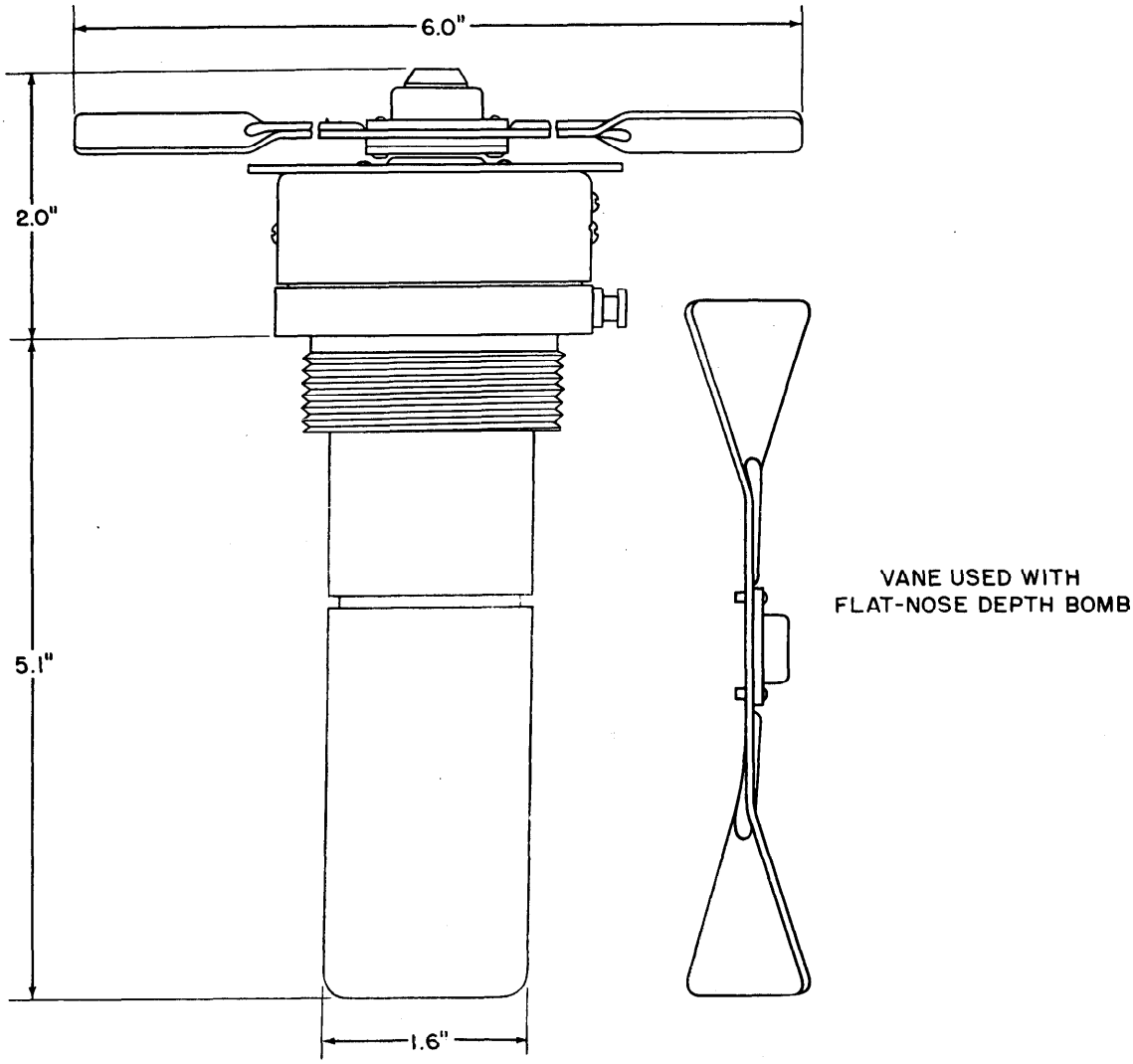


Figure 38.—Outline Drawing of Nose Fuze AN-M103A1

Weight and Packing

Weight of Fuze Fully Loaded—Approximately 3.7 lb.
Weight of Booster—1.9 oz. tetryl.
Standard Packing—Twenty-five fuzes each in a metal container, are packed in a wooden crate measuring 22.3 in. x 17.3 in. x 9.2 in. and weighing 132 lb. gross.

Characteristics

Action—Impact, instantaneous, or 0.1-sec. delay.

Modifications—M103 and AN-M103. M103 differs from the AN-M103 in that it requires a longer air travel to arm. Fuze AN-M103 differs from Fuze AN-M103A1 in having inadequate safety features.

Status—M103 and AN-M103—Obsolete.
AN-M103A1—Service.

Restrictions on Use—M103 and AN-M103—Not to be used by Naval activities. No restriction on use of AN-M103A1.

Air Travel to Arm—(Approximate).

M103	1140 ft. for delay. 1710 ft. for instantaneous.
AN-M103, AN-M103A1	510 ft. for delay. 765 ft. for instantaneous.

Indication of Arming—If the arming discs are missing, the fuze is armed.

Bombs in Which Used

1000-lb. Aircraft Mine AN-Mk 13 Mod 1.
90-lb. Frag. Bomb M82.
All bombs* 100 lb. and over that receive a nose fuze except the Chemical Bomb AN-M47A2, Chemical Bomb M70, and Navy 100-lb. G. P. Bomb Mk 4 and Mods.

*One auxiliary booster is required when used in Navy bombs. Must use special vane assembly when used with flat-nosed depth bombs. Special 4-in. diameter vane, required for use in the 90-lb. Frag. Bomb M82, is supplied with fin assemblies of bombs.

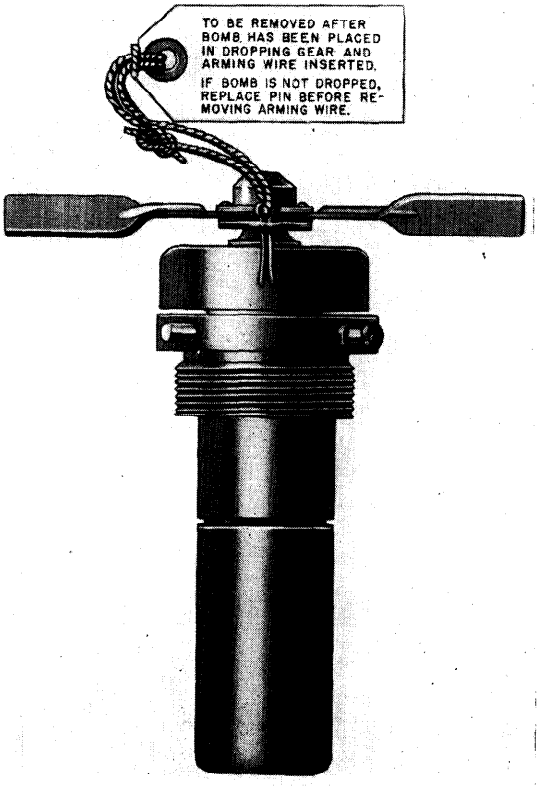


Figure 39.—Nose Fuze AN-M103A1

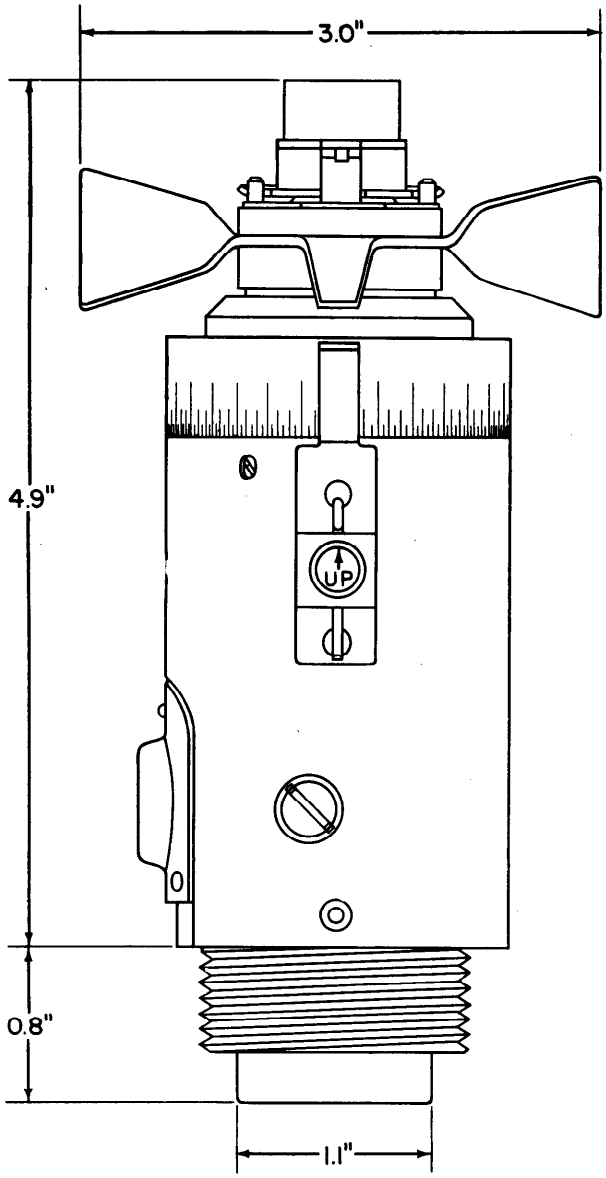


Figure 85.—Outline Drawing of Nose Fuze AN–M147

Weight and Packing

Weight of Fuze Fully Loaded—Approximately 1.6 lb.
Weight of Booster—0.3 oz. tetryl.
Standard Packing—Fifteen fuzes, each in a metal container, are packed in a wooden crate measuring 20.6 in. x 9.0 in. x 12.2 in. and weighing about 45 lb. gross.

Characteristics

Action—Mechanical time, 5–92 sec. or instantaneous upon impact.

Modifications—None.

Status—Service.

Restrictions on Use—None

Air Travel to Arm—Approximately 1300 ft.

Indication of Arming—Safety block missing.

Bombs in Which Used

100-lb. Target Identification Bomb M84

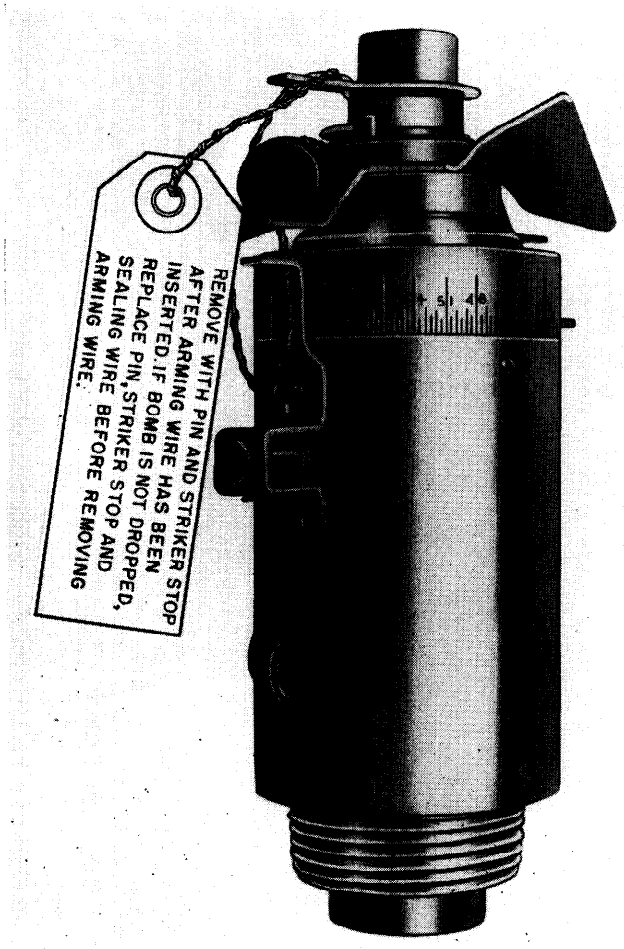


Figure 86.—Nose Fuze AN-M147

APPENDIX H

Summary of Analytical Data

Table 5-1.1. AL120 Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**AL120**		**AL120**		**AL120**		**AL120**		**AL120**	
			Sample Date	**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**	
			Sample ID	**AL120ID-01-1**		**AL120ID-01-2**		**AL120ID-01-3**		**AL120ID-01-4**		**AL120ID-01-5**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.098	U	0.1	U	0.099	U	0.1	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**AL120**		**AL120**		**AL120**		**AL120**		**AL120**	
			Sample Date	**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**	
			Sample ID	**AL120ID-01-6**		**AL120ID-01-7**		**AL120ID-01-8**		**AL120ID-01-8D**		**AL120ID-02-1**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.098	U	0.099	U	0.1	U	0.1	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-1.1. AL120 Soil Analytical Results (Continued, Page 2 of 5)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	AL120		AL120		AL120		AL120		AL120	
			Sample Date	03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008	
			Sample ID	AL120ID-02-2		AL120ID-02-2D		AL120ID-02-3		AL120ID-02-4		AL120ID-02-5	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.1	U	0.1	U	0.1	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	AL120		AL120		AL120		AL120		AL120	
			Sample Date	03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008	
			Sample ID	AL120ID-02-6		AL120ID-02-7		AL120ID-02-8		AL120ID-03-1		AL120ID-03-1D	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.1	U	0.098	U	0.099	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-1.1. AL120 Soil Analytical Results
(Continued, Page 3 of 5)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**AL120**		**AL120**		**AL120**		**AL120**		**AL120**	
			Sample Date	**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**	
			Sample ID	**AL120ID-03-2**		**AL120ID-03-3**		**AL120ID-03-4**		**AL120ID-03-5**		**AL120ID-03-6**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.1	U	0.098	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**AL120**		**AL120**		**AL120**		**AL120**		**AL120**	
			Sample Date	**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**	
			Sample ID	**AL120ID-03-7**		**AL120ID-03-8**		**AL120ID-04-1**		**AL120ID-04-2**		**AL120ID-04-3**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.098	U	0.1	U	0.098	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-1.1. AL120 Soil Analytical Results
(Continued, Page 4 of 5)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	AL120		AL120		AL120		AL120		AL120	
			Sample Date	03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008	
			Sample ID	AL120ID-04-4		AL120ID-04-5		AL120ID-04-6		AL120ID-04-7		AL120ID-04-8	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.098	U	0.1	U	0.099	U	0.099	U	0.098	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	AL120		AL120		AL120		AL120		AL120	
			Sample Date	03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008		03-Mar-2008	
			Sample ID	AL120ID-05-1		AL120ID-05-2		AL120ID-05-3		AL120ID-05-3D		AL120ID-05-4	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.098	U	0.098	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-1.1. AL120 Soil Analytical Results
(Concluded, Page 5 of 5)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**AL120**		**AL120**		**AL120**		**AL120**	
			Sample Date	**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**		**03-Mar-2008**	
			Sample ID	**AL120ID-05-5**		**AL120ID-05-6**		**AL120ID-05-7**		**AL120ID-05-8**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)											
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.098	U	0.1	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-3.1. AL771 Old Cable Site Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**AL771 Old Cable Site**		**AL771 Old Cable Site**		**AL771 Old Cable Site**		**AL771 Old Cable Site**		**AL771 Old Cable Site**	
			Sample Date	**01-Mar-2008**		**01-Mar-2008**		**01-Mar-2008**		**01-Mar-2008**		**01-Mar-2008**	
			Sample ID	**AL771-01-1**		**AL771-02-1**		**AL771-02-2**		**AL771-02-2D**		**AL771-02-3**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.1	U	0.1	U	0.1	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**AL771 Old Cable Site**		**AL771 Old Cable Site**		**AL771 Old Cable Site**		**AL771 Old Cable Site**		**AL771 Old Cable Site**	
			Sample Date	**01-Mar-2008**		**01-Mar-2008**		**01-Mar-2008**		**01-Mar-2008**		**01-Mar-2008**	
			Sample ID	**AL771-02-4**		**AL771-02-5**		**AL771-02-6**		**AL771-02-7**		**AL771-02-8**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.099	U	0.1	U	0.098	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-3.1. AL771 Old Cable Site Soil Analytical Results (Continued, Page 2 of 5)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site	
			Sample Date	01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008	
			Sample ID	AL771-03-1		AL771-03-1D		AL771-03-2		AL771-03-3		AL771-03-4	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.099	U	0.1	U	0.098	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site	
			Sample Date	01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008	
			Sample ID	AL771-03-5		AL771-03-6		AL771-03-7		AL771-03-8		AL771-04-1	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.1	U	0.1	U	0.1	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-3.1. AL771 Old Cable Site Soil Analytical Results (Continued, Page 3 of 5)

			Site ID	AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site	
			Sample Date	01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008	
			Sample ID	AL771-04-2		AL771-04-3		AL771-04-4		AL771-04-5		AL771-04-6	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.099	U	0.098	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

			Site ID	AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site	
			Sample Date	01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008	
			Sample ID	AL771-04-7		AL771-04-7D		AL771-04-8		AL771-05-1		AL771-05-2	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.099	U	0.098	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-3.1. AL771 Old Cable Site Soil Analytical Results (Continued, Page 4 of 5)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Site ID	AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site	
				Sample Date	01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008	
				Sample ID	AL771-05-3		AL771-05-4		AL771-05-5		AL771-05-6		AL771-05-7	
				Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
					Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)														
2,4,6-Trinitrotoluene	30.6	16	NA		0.099	U	0.099	U	0.098	U	0.098	U	0.1	U
RDX	44.2	4.4	NA		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Site ID	AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site	
				Sample Date	01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008	
				Sample ID	AL771-05-8		AL771-06-1		AL771-06-2		AL771-06-3		AL771-06-4	
				Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
					Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)														
2,4,6-Trinitrotoluene	30.6	16	NA		0.1	U	0.1	U	0.098	U	0.099	U	0.1	U
RDX	44.2	4.4	NA		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

Table 5-3.1. AL771 Old Cable Site Soil Analytical Results (Concluded, Page 5 of 5)

			Site ID	AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site		AL771 Old Cable Site	
			Sample Date	01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008		01-Mar-2008	
			Sample ID	AL771-06-5		AL771-06-6		AL771-06-6D		AL771-06-7		AL771-06-8	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**KAFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.1	U	0.099	U	0.098	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Site ID	**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**	
			Sample Date	**29-Feb-2008**		**29-Feb-2008**		**29-Feb-2008**		**29-Feb-2008**		**29-Feb-2008**	
			Sample ID	**ML125A1-01-1**		**ML125A1-01-2**		**ML125A1-01-3**		**ML125A1-01-4**		**ML125A1-02-1**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
				Result	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.098	U	0.098	U	0.15		0.098	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	2.2	UJ	2.3	UJ	2.1	UJ	2.2	UJ	2.4	UJ
Cadmium	39	39	<1	0.54		0.51		*2.7*		0.5		0.54	
Copper	3,130	2,900	15.4	*26*	J	*18*	J	*77*	J	*16*	J	15	J
Lead	400	400	21.4	21		18		21		19		21	
Mercury	100,000	23	<0.25	0.02	J	0.019	J	0.011	J	0.012	J	0.026	J
Zinc	23,500	2,300	62	50	J	49	J	*68*	J	48	J	48	J

Table 5-7-1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 2 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008	
			Sample ID	ML125A1-02-2		ML125A1-02-3		ML125A1-02-3D		ML125A1-02-4		ML125A1-03-1	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.1	U	0.1	U	0.1	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	2	UJ	2.4	UJ	2.1	U	2.2	U	1.9	U
Cadmium	39	39	<1	0.31		0.43		0.41		0.23		0.34	
Copper	3,130	2,900	15.4	10	J	15	J	15		10		11	
Lead	400	400	21.4	19		*23*		*23*		18		19	
Mercury	100,000	23	<0.25	0.0084	J	0.019	J	0.028		0.012	J	0.018	J
Zinc	23,500	2,300	62	40	J	52	J	52		39		42	

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 3 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008	
			Sample ID	ML125A1-03-2		ML125A1-03-3		ML125A1-03-4		ML125A1-04-1		ML125A1-04-2	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.099	U	0.098	U	0.098	U	0.098	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	1.9	U	2.1	U	2.1	U	2.1	U	2	U
Cadmium	39	39	<1	0.25		0.31		0.32		0.31		0.29	
Copper	3,130	2,900	15.4	9.8		11		12		12		11	
Lead	400	400	21.4	15		18		20		20		19	
Mercury	100,000	23	<0.25	0.0092	J	0.021		0.019	J	0.018	J	0.016	J
Zinc	23,500	2,300	62	35		43		46		42		43	

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 4 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008	
			Sample ID	ML125A1-04-3		ML125A1-04-4		ML125A1-05-1		ML125A1-05-2		ML125A1-05-3	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Result	Qualifier	Result	Qualifier	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.099	U	0.099	U	0.098	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	2	U	2	U	2.1	U	2.2	U	2.1	U
Cadmium	39	39	<1	0.19	J	0.3		0.32		0.36		0.6	
Copper	3,130	2,900	15.4	8.6		11		12		*19*		*41*	
Lead	400	400	21.4	16		19		19		17		18	
Mercury	100,000	23	<0.25	0.016	J	0.02		0.02		0.017	J	0.0097	J
Zinc	23,500	2,300	62	38		43		41		40		51	

Table 5-7-1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 5 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		01-Mar-2008		01-Mar-2008		29-Feb-2008	
			Sample ID	ML125A1-05-4		ML125A1-05-4D		ML125A2-06-1		ML125A2-07-1		ML125A3-08-1	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**KAFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	0.63	J	2.1	U	NS		NS		1.9	UJ
Cadmium	39	39	<1	0.41		0.43		NS		NS		0.4	J
Copper	3,130	2,900	15.4	*21*		*18*		NS		NS		*97*	J
Lead	400	400	21.4	20		19		NS		NS		19	J
Mercury	100,000	23	<0.25	0.015	J	0.016	J	NS		NS		0.016	J
Zinc	23,500	2,300	62	46		45		NS		NS		42	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 6 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008	
			Sample ID	ML125A3-08-2		ML125A3-08-2D		ML125A3-08-3		ML125A3-08-4		ML125A3-09-1	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**KAFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.1	U	0.1	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	1.9	UJ	1.9	UJ	1	J	2	UJ	2	UJ
Cadmium	39	39	<1	0.29	J	0.31	J	0.74	J	0.55	J	*1.6*	J
Copper	3,130	2,900	15.4	12	J	14	J	13	J	*22*	J	*33*	J
Lead	400	400	21.4	18	J	16	J	*37*	J	18	J	20	J
Mercury	100,000	23	<0.25	0.064	J	0.088	J	0.021	J	0.015	J	0.052	J
Zinc	23,500	2,300	62	42	J	41	J	62	J	39	J	53	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 7 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008	
			Sample ID	ML125A3-09-2		ML125A3-09-3		ML125A3-09-4		ML125A3-10-1		ML125A3-10-2	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.098	U	0.1	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.17	J	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	1.9	UJ	2	UJ	2.2	UJ	1.9	UJ	2.1	UJ
Cadmium	39	39	<1	*2.6*	J	*2.4*	J	0.74	J	0.32	J	0.16	J
Copper	3,130	2,900	15.4	*61*	J	*71*	J	*21*	J	9.3	J	10	J
Lead	400	400	21.4	*28*	J	*22*	J	15	J	15	J	12	J
Mercury	100,000	23	<0.25	0.15	J	0.079	J	0.068	J	0.019	UJ	0.014	J
Zinc	23,500	2,300	62	53	J	47	J	52	J	41	J	32	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 8 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		28-Feb-2008		28-Feb-2008		28-Feb-2008	
			Sample ID	ML125A3-10-3		ML125A3-10-4		ML125A4-11-1		ML125A4-11-2		ML125A4-11-3	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.098	U	0.1	U	0.099	U	0.1	U	0.098	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	1.9	UJ	2	UJ	2	UJ	0.52	J	1.9	UJ
Cadmium	39	39	<1	0.26		0.12	J	0.32		0.25		0.33	
Copper	3,130	2,900	15.4	9.4	J	7.8	J	7.4		8.6		8.5	
Lead	400	400	21.4	11		10		13	J	14	J	12	J
Mercury	100,000	23	<0.25	0.045	J	0.01	J	0.012	J	0.0062	J	0.013	J
Zinc	23,500	2,300	62	32	J	30	J	22	J	24	J	21	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 9 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	28-Feb-2008		28-Feb-2008		28-Feb-2008		28-Feb-2008		28-Feb-2008	
			Sample ID	ML125A4-11-4		ML125A4-12-1		ML125A4-12-2		ML125A4-12-3		ML125A4-12-4	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.1	U	0.1	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	2.1	UJ	2	UJ	2	UJ	2.2	UJ	0.55	J
Cadmium	39	39	<1	0.38		0.3		0.36		0.53		0.84	
Copper	3,130	2,900	15.4	10		10		11		10		11	
Lead	400	400	21.4	14	J	13	J	15	J	18	J	15	J
Mercury	100,000	23	<0.25	0.0081	J	0.017	J	0.011	J	0.02		0.017	J
Zinc	23,500	2,300	62	26	J	26	J	28	J	38	J	26	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 10 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range			ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range			
			Sample Date	28-Feb-2008		28-Feb-2008			28-Feb-2008		28-Feb-2008		28-Feb-2008			
			Sample ID	ML125A4-13-1		ML125A4-13-2			ML125A4-13-3		ML125A4-13-4		ML125A4-14-1			
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.			0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.			
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**KAFB Background Levels[c]**		**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**		**Result**	**Result**	
Explosives (mg/kg)															
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.1	U	0.098	U	0.1	U		0.099	U	
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U		0.2	U	
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U		0.2	U	
Metals (mg/kg)															
Antimony	31.3	31	3.9	1.9	UJ	2.1	UJ	2	UJ	2	UJ		1.9	UJ	
Cadmium	39	39	<1	0.37		0.49		0.39		0.3			0.41		
Copper	3,130	2,900	15.4	9.9		11		9.8		9.1			11		
Lead	400	400	21.4	15	J	13	J	17	J	13	J		14	J	
Mercury	100,000	23	<0.25	0.017	J	0.018		0.018		0.012	J		0.023		
Zinc	23,500	2,300	62	26	J	26	J	27	J	24	J		29	J	

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 11 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Site ID										
			Sample Date	28-Feb-2008		28-Feb-2008		28-Feb-2008		28-Feb-2008		28-Feb-2008	
			Sample ID	ML125A4-14-2		ML125A4-14-3		ML125A4-14-4		ML125A4-15-1		ML125A4-15-2	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Qualifier	Result	Qualifier	Qualifier					Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.099	U	0.098	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	2.2	UJ	2.1	UJ	2.3	UJ	1.8	UJ	2.2	UJ
Cadmium	39	39	<1	0.41		0.32		0.3		0.16	J	0.18	J
Copper	3,130	2,900	15.4	13		9.8		11		9.2		11	
Lead	400	400	21.4	16	J	18	J	16	J	10	J	13	J
Mercury	100,000	23	<0.25	0.02		0.038		0.025		0.0083	J	0.012	J
Zinc	23,500	2,300	62	30	J	24	J	31	J	27	J	35	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 12 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	28-Feb-2008		28-Feb-2008		28-Feb-2008		28-Feb-2008		28-Feb-2008	
			Sample ID	ML125A4-15-3		ML125A4-15-4		ML125A4-15-4D		ML125A4-16-1		ML125A4-16-2	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**KAFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**					**Result**	**Qualifier**
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.098	U	0.098	U	0.1	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	1.9	UJ	2	UJ	2.1	UJ	2.1	UJ	1.8	UJ
Cadmium	39	39	<1	0.31		0.18	J	0.14	J	0.1	J	0.074	J
Copper	3,130	2,900	15.4	13		11		12		14		14	
Lead	400	400	21.4	16	J	13	J	14	J	*27*	J	*23*	J
Mercury	100,000	23	<0.25	0.033		0.029		0.012	J	0.012	J	0.018	U
Zinc	23,500	2,300	62	38	J	33	J	42	J	30	J	30	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 13 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	28-Feb-2008		28-Feb-2008		21-May-2008		21-May-2008		21-May-2008	
			Sample ID	ML125A4-16-3		ML125A4-16-4		ML125A5-01-1		ML125A5-01-2		ML125A5-01-3	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.099	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.088	J
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	2.2	UJ	1.9	UJ	1.4	UJ	0.39	UJ	1.3	UJ
Cadmium	39	39	<1	0.08	J	0.14	J	0.73	J	*1.6*	J	***43***	J
Copper	3,130	2,900	15.4	15		*18*		13		13		*130*	
Lead	400	400	21.4	*23*	J	20	J	18	J	*26*	J	*140*	J
Mercury	100,000	23	<0.25	0.0075	J	0.016	J	0.014	U	0.017	U	0.045	UJ
Zinc	23,500	2,300	62	34	J	36	J	39	J	*110*	J	*1,200*	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 14 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**	
			Sample Date	**21-May-2008**		**21-May-2008**		**21-May-2008**		**21-May-2008**		**21-May-2008**	
			Sample ID	**ML125A5-01-4**		**ML125A5-02-1**		**ML125A5-02-1D**		**ML125A5-02-2**		**ML125A5-02-3**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.099	U	0.1	U	0.1	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	3.5	J	0.4	UJ	0.47	UJ	1.7	UJ	0.34	UJ
Cadmium	39	39	<1	*30*	J	*4.4*	J	*3.3*	J	*1.8*	J	*10*	J
Copper	3,130	2,900	15.4	***3,300***		12		12		14		*31*	
Lead	400	400	21.4	*160*	J	19	J	*28*	J	16	J	*23*	J
Mercury	100,000	23	<0.25	0.034	UJ	0.017	U	0.011	U	0.017	U	0.008	U
Zinc	23,500	2,300	62	*260*	J	46	J	50	J	54	J	*110*	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 15 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	21-May-2008		21-May-2008		21-May-2008		21-May-2008		21-May-2008	
			Sample ID	ML125A5-02-4		ML125A5-03-1		ML125A5-03-1D		ML125A5-03-2		ML125A5-03-3	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**KAFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.099	U	0.099	U	0.098	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	0.41	UJ	1.8	UJ	1.9	UJ	0.46	J	1.8	UJ
Cadmium	39	39	<1	*1.7*	J	0.54	J	0.47	J	*16*	J	*18*	J
Copper	3,130	2,900	15.4	9.2		*20*		*16*		13		*20*	
Lead	400	400	21.4	15	J	21	J	21	J	*29*	J	*23*	J
Mercury	100,000	23	<0.25	0.0073	U	0.032	UJ	0.039	UJ	0.032	UJ	0.03	UJ
Zinc	23,500	2,300	62	37		43	J	41	J	*230*	J	*93*	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Continued, Page 16 of 17)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**		**ML125 Field Firing Range**	
			Sample Date	**21-May-2008**		**21-May-2008**		**21-May-2008**		**21-May-2008**		**21-May-2008**	
			Sample ID	**ML125A5-03-4**		**ML125A6-01-1**		**ML125A6-01-2**		**ML125A6-01-3**		**ML125A6-01-4**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Explosives (mg/kg)													
2,4,6-Trinitrotoluene	30.6	16	NA	0.1	U	0.099	U	0.099	U	0.099	U	0.099	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)													
Antimony	31.3	31	3.9	0.62	UJ	2	UJ	1.7	UJ	2	UJ	1.9	UJ
Cadmium	39	39	<1	***66***	J	0.19	J	0.071	J	0.15	J	0.085	J
Copper	3,130	2,900	15.4	*32*		*16*		14		14		11	
Lead	400	400	21.4	*56*	J	*130*	J	*130*	J	*120*	J	*120*	J
Mercury	100,000	23	<0.25	0.051	J	0.034	UJ	0.027	UJ	0.014	U	0.029	UJ
Zinc	23,500	2,300	62	*450*	J	57	J	44	J	46	J	39	J

Table 5-7.1. ML125 Field Firing Range Soil Analytical Results (Concluded, Page 17 of 17)

			Site ID	ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range		ML125 Field Firing Range	
			Sample Date	29-Feb-2008		29-Feb-2008		29-Feb-2008		29-Feb-2008	
			Sample ID	AL120A1-1		AL120A1-2		AL120A1-3		AL120A1-4	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**KAFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Explosives (mg/kg)											
2,4,6-Trinitrotoluene	30.6	16	NA	0.099	U	0.1	U	0.1	U	0.1	U
RDX	44.2	4.4	NA	0.2	U	0.2	U	0.2	U	0.2	U
HMX	3,030	3,100	NA	0.2	U	0.2	U	0.2	U	0.2	U
Metals (mg/kg)											
Antimony	31.3	31	3.9	2	UJ	2	UJ	2	UJ	1.9	UJ
Cadmium	39	39	<1	0.11	J	0.098	J	0.12	J	0.1	J
Copper	3,130	2,900	15.4	8.2	J	8.9	J	9.4	J	7.7	J
Lead	400	400	21.4	12	J	12	J	13	J	12	J
Mercury	100,000	23	<0.25	0.014	J	0.017	J	0.025	J	0.01	J
Zinc	23,500	2,300	62	32	J	31	J	32	J	32	J

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-8.2. .50 Caliber Target (within ML200) Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**.50 Caliber Range**		**.50 Caliber Range**		**.50 Caliber Range**	
			Sample Date	**30-Oct-2007**		**30-Oct-2007**		**30-Oct-2007**	
			Sample ID	**50CAL-001**		**50CAL-001D**		**50CAL-002**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Metals (mg/kg)									
Antimony	31.3	31	3.9	1.9	UJ	1.7	UJ	1.8	UJ
Barium	15,600	16,000	130	62		63		66	
Copper	3,130	2,900	15.4	7.2		7.1		6.9	
Iron	23,500	55,000	NA	11,000		12,000		9,100	
Lead	400	400	21.4	6.8		7		9.3	
Magnesium	NA	NA	NA	2,600	J	2,900	J	2,400	J
Zinc	23,500	2,300	62	25	J	27	J	25	J

Table 5-8.2. 50 Caliber Target (within ML200) Soil Analytical Results (Concluded, Page 2 of 2)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**.50 Caliber Range**		**.50 Caliber Range**		**.50 Caliber Range**	
			Sample Date	**30-Oct-2007**		**30-Oct-2007**		**05-Mar-2008**	
			Sample ID	**50CAL-003**		**50CAL-004**		**50CAL-005**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Metals (mg/kg)									
Antimony	31.3	31	3.9	1.9	UJ	2	UJ	1.9	UJ
Barium	15,600	16,000	130	62		51		54	
Copper	3,130	2,900	15.4	8.7		5.1		6.5	J
Iron	23,500	55,000	NA	8,700		7,500		8,600	
Lead	400	400	21.4	11		7.3		6.8	J
Magnesium	NA	NA	NA	2,200	J	2,000	J	2,100	
Zinc	23,500	2,300	62	24	J	20	J	21	J

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-20.2. SR763 Rifle Range Soil Analytical Results

			Site ID	SR763 Rifle Range		SR763 Rifle Range		SR763 Rifle Range		SR763 Rifle Range		SR763 Rifle Range	
			Sample Date	29-Oct-2007		29-Oct-2007		29-Oct-2007		29-Oct-2007		29-Oct-2007	
			Sample ID	SR763-001		SR763-002		SR763-003		SR763-004		SR763-005	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**Kirtland AFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Metals (mg/kg)													
Antimony	31.3	31	3.9	1.9	UJ	1.9	UJ	1.9	UJ	1.9	UJ	0.55	J
Barium	15,600	16,000	200	76		98		120		74		140	
Copper	3,130	2,900	17	15		7.2		13		13		15	
Iron	23,500	55,000	NA	10,000		7,400		8,900		8,900		9,600	
Lead	400	400	39	15		28		*47*		14		*100*	
Magnesium	NA	NA	NA	2,600		2,100		2,200		2,100		3,500	
Zinc	23,500	2,300	76	28	J	30	J	58	J	39	J	25	J

Table 5-20.2. SR763 Rifle Range Soil Analytical Results (Concluded, Page 2 of 2)

			Site ID	SR763 Rifle Range		SR763 Rifle Range		SR763 Rifle Range	
			Sample Date	29-Oct-2007		29-Oct-2007		05-Mar-2008	
			Sample ID	SR763-006		SR763-007		SR763-008	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**Kirtland AFB Background Levels[c]**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Metals (mg/kg)									
Antimony	31.3	31	3.9	1.6	J	1.9	UJ	2	UJ
Barium	15,600	16,000	200	120		81		82	
Copper	3,130	2,900	17	13		12		7.8	J
Iron	23,500	55,000	NA	9,100		10,000		8,800	
Lead	400	400	39	*310*		*66*		8	J
Magnesium	NA	NA	NA	2,700		2,800		2,600	
Zinc	23,500	2,300	76	19	J	29	J	22	J

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-21.2. SR764 Rifle Range Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]						
			Site ID	SR764 Rifle Range		SR764 Rifle Range		SR764 Rifle Range	
			Sample Date	26-Oct-2007		26-Oct-2007		26-Oct-2007	
			Sample ID	SR764-001		SR764-002		SR764-003	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Antimony	31.3	31	3.9	0.66	J	0.59	J	1.8	UJ
Barium	15,600	16,000	200	130		82		86	
Copper	3,130	2,900	17	8.7	J	8	J	17	J
Iron	23,500	55,000	NA	9,700		8,600		10,000	
Lead	400	400	39	13	J	26	J	30	J
Magnesium	NA	NA	NA	3,100	J	2,400	J	2,700	J
Zinc	23,500	2,300	76	38	J	41	J	50	J

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]						
			Site ID	SR764 Rifle Range		SR764 Rifle Range		SR764 Rifle Range	
			Sample Date	26-Oct-2007		26-Oct-2007		26-Oct-2007	
			Sample ID	SR764-004		SR764-005		SR764-006	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	2	UJ	1.8	UJ	0.58	J
Barium	15,600	16,000	200	71		160		99	
Copper	3,130	2,900	17	8	J	5.5	J	8.5	J
Iron	23,500	55,000	NA	10,000		7,800		11,000	
Lead	400	400	39	14	J	5.9	J	15	J
Magnesium	NA	NA	NA	2,500	J	3,300	J	3,400	J
Zinc	23,500	2,300	76	32	J	17	J	31	J

Table 5-21.2. SR764 Rifle Range Soil Analytical Results (Continued, Page 2 of 3)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	SR764 Rifle Range		SR764 Rifle Range		SR764 Rifle Range	
			Sample Date	26-Oct-2007		26-Oct-2007		26-Oct-2007	
			Sample ID	SR764-007		SR764-008		SR764-009	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	0.73	J	0.52	J	2	UJ
Barium	15,600	16,000	200	84		66		72	
Copper	3,130	2,900	17	8.6	J	6.9	J	6.9	J
Iron	23,500	55,000	NA	11,000		8,600		8,400	
Lead	400	400	39	19	J	11	J	14	J
Magnesium	NA	NA	NA	2,900	J	2,300	J	2,400	J
Zinc	23,500	2,300	76	32	J	24	J	25	J

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	SR764 Rifle Range		SR764 Rifle Range		SR764 Rifle Range	
			Sample Date	26-Oct-2007		26-Oct-2007		26-Oct-2007	
			Sample ID	SR764-010		SR764-010D		SR764-011	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	2	UJ	1.1	J	0.84	J
Barium	15,600	16,000	200	82		75		100	
Copper	3,130	2,900	17	8.4	J	7.4	J	10	J
Iron	23,500	55,000	NA	10,000		9,400		9,300	
Lead	400	400	39	13	J	11	J	25	J
Magnesium	NA	NA	NA	2,700	J	2,500	J	3,000	J
Zinc	23,500	2,300	76	26	J	24	J	27	J

Table 5-21.2. SR764 Rifle Range Soil Analytical Results (Concluded, Page 3 of 3)

			Site ID	SR764 Rifle Range		SR764 Rifle Range		SR764 Rifle Range		SR764 Rifle Range	
			Sample Date	26-Oct-2007		26-Oct-2007		25-Oct-2007		05-Mar-2008	
			Sample ID	SR764-012		SR764-013		SR764-014		SR764-015	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Analyte	**NMED Soil Screening Levels[a]**	**EPA Region 6 Screening Levels[b]**	**Kirtland AFB Background Levels[c]**	**Result**	**Result**	**Qualifier**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Metals (mg/kg)											
Antimony	31.3	31	3.9	1.9	UJ	1.7	UJ	0.81	J	2	UJ
Barium	15,600	16,000	200	99		94		110		110	
Copper	3,130	2,900	17	8.4	J	11	J	10	J	12	J
Iron	23,500	55,000	NA	9,900		12,000		12,000		12,000	
Lead	400	400	39	15	J	23	J	17	J	22	J
Magnesium	NA	NA	NA	3,000	J	3,300	J	3,700	J	3,800	
Zinc	23,500	2,300	76	28	J	38	J	34	J	38	J

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-22.2. SR765 WWII Pistol Range Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**SR765 WWII Pistol Range**		**SR765 WWII Pistol Range**		**SR765 WWII Pistol Range**		**SR765 WWII Pistol Range**		**SR765 WWII Pistol Range**	
			Sample Date	**30-Oct-2007**		**30-Oct-2007**		**30-Oct-2007**		**30-Oct-2007**		**04-Mar-2008**	
			Sample ID	**SR765-001**		**SR765-002**		**SR765-003**		**SR765-004**		**SR765-005**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Metals (mg/kg)													
Antimony	31.3	31	3.9	1.9	UJ	2	UJ	2	UJ	2	UJ	2	UJ
Barium	15,600	16,000	200	120		110		200		190		150	
Copper	3,130	2,900	17	13		9.7		*23*		*21*	J	11	J
Iron	23,500	55,000	NA	13,000		9,100		14,000		15,000		9,900	
Lead	400	400	39	20		22		*49*		*42*	J	13	J
Magnesium	NA	NA	NA	3,500	J	3,000	J	5,000	J	5,000		3,100	
Zinc	23,500	2,300	76	43	J	38	J	*79*	J	*78*	J	23	J

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-23-2. SR766 Submachine Gun Range Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	**SR766 Submachine Gun Range**		**SR766 Submachine Gun Range**		**SR766 Submachine Gun Range**	
			Sample Date	**13-Nov-2007**		**13-Nov-2007**		**13-Nov-2007**	
			Sample ID	**SR766-001**		**SR766-002**		**SR766-003**	
			Sample Depth	**0.00-0.50 ft.**		**0.00-0.50 ft.**		**0.00-0.50 ft.**	
Metals (mg/kg)									
Antimony	31.3	31	3.9	1.9	UJ	2	UJ	1.7	UJ
Barium	15,600	16,000	200	76		78		69	
Copper	3,130	2,900	17	8.5		8.6		6.9	
Iron	23,500	55,000	NA	10,000		10,000		8,400	
Lead	400	400	39	16		16		12	
Magnesium	NA	NA	NA	2,300	J	2,400	J	2,100	J
Zinc	23,500	2,300	76	24	J	29	J	23	J

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-24-2. SR767 Rifle Range Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	SR767 Rifle Range		SR767 Rifle Range		SR767 Rifle Range	
			Sample Date	26-Oct-2007		26-Oct-2007		26-Oct-2007	
			Sample ID	SR767-001		SR767-002		SR767-003	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	2	UJ	0.59	J	0.62	J
Barium	15,600	16,000	200	100		170		100	
Copper	3,130	2,900	17	12	J	6.5	J	9.5	J
Iron	23,500	55,000	NA	11,000		8,900		10,000	
Lead	400	400	39	24	J	7.5	J	20	J
Magnesium	NA	NA	NA	3,300	J	3,400	J	2,900	J
Zinc	23,500	2,300	76	37	J	21	J	32	J

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	SR767 Rifle Range		SR767 Rifle Range		SR767 Rifle Range	
			Sample Date	26-Oct-2007		26-Oct-2007		26-Oct-2007	
			Sample ID	SR767-004		SR767-005		SR767-006	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	1.9	UJ	2	UJ	0.61	J
Barium	15,600	16,000	200	99		74		120	
Copper	3,130	2,900	17	11	J	7.2	J	13	J
Iron	23,500	55,000	NA	11,000		7,700		11,000	
Lead	400	400	39	24	J	15	J	36	J
Magnesium	NA	NA	NA	3,200	J	2,300	J	3,700	J
Zinc	23,500	2,300	76	37	J	22	J	42	J

Table 5-24-2. SR767 Rifle Range Soil Analytical Results (Concluded, Page 2 of 2)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	Kirtland AFB Background Levels[c]	Site ID: SR767 Rifle Range		Site ID: SR767 Rifle Range	
			Sample Date	26-Oct-2007		04-Mar-2008	
			Sample ID	SR767-006D		SR767-007	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier
Metals (mg/kg)							
Antimony	31.3	31	3.9	1.8	UJ	1.9	UJ
Barium	15,600	16,000	200	110		130	
Copper	3,130	2,900	17	13	J	6.6	J
Iron	23,500	55,000	NA	11,000		7,600	
Lead	400	400	39	36	J	11	J
Magnesium	NA	NA	NA	3,500	J	3,000	
Zinc	23,500	2,300	76	41	J	23	J

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-30-2. TS775 Airfield Skeet Range Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Site ID	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Sample Date	13-Nov-2007		13-Nov-2007		13-Nov-2007	
			Sample ID	TS775-001		TS775-002		TS775-003	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	1.8	UJ	0.93	J	***760***	J
Barium	15,600	16,000	200	60		76		79	
Copper	3,130	2,900	17	10		9.8		*34*	
Iron	23,500	55,000	None	7,300		9,400		7,800	
Lead	400	400	39	19		*130*		***55,000***	
Magnesium	NA	NA	None	1,700	J	2,100	J	2,000	J
Zinc	23,500	2,300	76	30	J	36	J	45	J
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.12	J	1.5		0.16	J
Acenaphthylene	NA	NA	NA	0.16	U	0.33	U	0.17	U
Anthracene	22,000	2,200	NA	0.16	J	4.3		1.1	
Benzo(a)anthracene	6.21	0.15	NA	1.3		**29**		3.7	
Benzo(a)pyrene	0.621	0.015	NA	**2**		**32**		**3.8**	
Benzo(b)fluoranthene	6.21	0.15	NA	2.2		**34**		4.2	
Benzo(g,h,i)perylene	NA	NA	NA	1.4		21		2.8	
Benzo(k)fluoranthene	62.1	1.5	NA	1.4		21		3	
Chrysene	615	15	NA	1.7		33		4	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.43		**6.8**		**0.9**	
Fluoranthene	2,290	2,300	NA	2.5		44		8.3	
Fluorene	2,660	2,600	NA	0.16	U	0.51		0.11	J
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	1.2		**18**		2.3	
Naphthalene	79.5	120	NA	0.16	U	0.6		0.043	J
Phenanthrene	1,830	NA	NA	0.94		17		4.5	
Pyrene	2,290	2,300	NA	1.9		37		5.9	

Table 5-30-2. TS775 Airfield Skeet Range Soil Analytical Results (Continued, Page 2 of 6)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Site ID	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Sample Date	13-Nov-2007		13-Nov-2007		13-Nov-2007	
			Sample ID	TS775-004		TS775-005		TS775-006	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	1.6	J	1.4		0.072	J
Acenaphthylene	NA	NA	NA	0.33	U	0.32	U	0.16	U
Anthracene	22,000	2,200	NA	3	J	5.6		0.12	J
Benzo(a)anthracene	6.21	0.15	NA	**29**	J	**27**		1.1	J
Benzo(a)pyrene	0.621	0.015	NA	**31**	J	**29**		**1.6**	J
Benzo(b)fluoranthene	6.21	0.15	NA	**36**	J	**33**		1.7	J
Benzo(g,h,i)perylene	NA	NA	NA	21	J	19		1.3	J
Benzo(k)fluoranthene	62.1	1.5	NA	18	J	18		1.1	J
Chrysene	615	15	NA	30	J	30		1.4	J
Dibenz(a,h)anthracene	0.621	0.15	NA	**7.1**	J	**6.6**		0.44	J
Fluoranthene	2,290	2,300	NA	41	J	48		1.9	J
Fluorene	2,660	2,600	NA	0.49	J	0.72		0.16	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	**17**	J	**16**		1	J
Naphthalene	79.5	120	NA	0.44	J	0.39		0.16	U
Phenanthrene	1,830	NA	NA	12	J	21		0.67	J
Pyrene	2,290	2,300	NA	34	J	39		1.5	J

Table 5-30-2. TS775 Airfield Skeet Range Soil Analytical Results (Continued, Page 3 of 6)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Site ID	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Sample Date	13-Nov-2007		13-Nov-2007		13-Nov-2007	
			Sample ID	TS775-006D		TS775-007		TS775-008	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.17		0.022	J	0.033	U
Acenaphthylene	NA	NA	NA	0.16	U	0.033	U	0.033	U
Anthracene	22,000	2,200	NA	0.99	J	0.089		0.012	J
Benzo(a)anthracene	6.21	0.15	NA	3.4	J	0.47		0.08	
Benzo(a)pyrene	0.621	0.015	NA	**3.9**	J	0.58		0.12	
Benzo(b)fluoranthene	6.21	0.15	NA	4.1	J	0.74		0.12	
Benzo(g,h,i)perylene	NA	NA	NA	2.8	J	0.49		0.12	
Benzo(k)fluoranthene	62.1	1.5	NA	2.6	J	0.37		0.089	
Chrysene	615	15	NA	3.7	J	0.57		0.1	
Dibenz(a,h)anthracene	0.621	0.15	NA	**0.87**	J	0.15		0.034	J
Fluoranthene	2,290	2,300	NA	7.6	J	0.99		0.17	
Fluorene	2,660	2,600	NA	0.11	J	0.0092	J	0.033	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	2.2	J	0.4		0.077	
Naphthalene	79.5	120	NA	0.16	U	0.0066	J	0.033	U
Phenanthrene	1,830	NA	NA	4.1	J	0.46		0.065	
Pyrene	2,290	2,300	NA	5.5	J	0.71		0.13	

Table 5-30-2. TS775 Airfield Skeet Range Soil Analytical Results (Continued, Page 4 of 6)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Site ID	TS775 Airfield Skeet Range		TS775 Airfield Skeet Range		TS775 Airfield Skeet Range	
			Sample Date	13-Nov-2007		13-Nov-2007		06-Mar-2008	
			Sample ID	TS775-009		TS775-0010		TS775-011	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		1.8	UJ
Barium	15,600	16,000	200	NS		NS		50	
Copper	3,130	2,900	17	NS		NS		8.3	J
Iron	23,500	55,000	None	NS		NS		7,000	
Lead	400	400	39	NS		NS		13	J
Magnesium	NA	NA	None	NS		NS		1,600	
Zinc	23,500	2,300	76	NS		NS		*20*	J
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.033	U	0.041		NS	
Acenaphthylene	NA	NA	NA	0.033	U	0.033	U	NS	
Anthracene	22,000	2,200	NA	0.015	J	0.048		NS	
Benzo(a)anthracene	6.21	0.15	NA	0.072		0.26		NS	
Benzo(a)pyrene	0.621	0.015	NA	0.087		0.47		NS	
Benzo(b)fluoranthene	6.21	0.15	NA	0.11		0.51		NS	
Benzo(g,h,i)perylene	NA	NA	NA	0.068		0.44		NS	
Benzo(k)fluoranthene	62.1	1.5	NA	0.064		0.29		NS	
Chrysene	615	15	NA	0.092		0.34		NS	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.02	J	0.13		NS	
Fluoranthene	2,290	2,300	NA	0.19		0.49		NS	
Fluorene	2,660	2,600	NA	0.033	U	0.0076	J	NS	
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.057	J	0.36		NS	
Naphthalene	79.5	120	NA	0.033	U	0.033	U	NS	
Phenanthrene	1,830	NA	NA	0.099		0.22		NS	
Pyrene	2,290	2,300	NA	0.14		0.38		NS	

Table 5-30-2. TS775 Airfield Skeet Range Soil Analytical Results (Continued, Page 5 of 6)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier
			Site ID	TS775 Airfield Skeet Range	
			Sample Date	06-Mar-2008	
			Sample ID	TS775-011D	
			Sample Depth	0.00-0.50 ft.	
Metals (mg/kg)					
Antimony	31.3	31	3.9	1.8	UJ
Barium	15,600	16,000	200	52	
Copper	3,130	2,900	17	7.9	J
Iron	23,500	55,000	None	7,100	
Lead	400	400	39	13	J
Magnesium	NA	NA	None	1,700	
Zinc	23,500	2,300	76	20	J
Polycyclic Aromatic Hydrocarbons (mg/kg)					
Acenaphthene	3,730	3,700	NA	NS	
Acenaphthylene	NA	NA	NA	NS	
Anthracene	22,000	2,200	NA	NS	
Benzo(a)anthracene	6.21	0.15	NA	NS	
Benzo(a)pyrene	0.621	0.015	NA	NS	
Benzo(b)fluoranthene	6.21	0.15	NA	NS	
Benzo(g,h,i)perylene	NA	NA	NA	NS	
Benzo(k)fluoranthene	62.1	1.5	NA	NS	
Chrysene	615	15	NA	NS	
Dibenz(a,h)anthracene	0.621	0.15	NA	NS	
Fluoranthene	2,290	2,300	NA	NS	
Fluorene	2,660	2,600	NA	NS	
Indeno(1,2,3-c,d)pyrene	6.21	0.015	NA	NS	
Naphthalene	79.5	120	NA	NS	
Phenanthrene	1,830	NA	NA	NS	
Pyrene	2,290	2,300	NA	NS	

Table 5-30-2. TS775 Airfield Skeet Range Soil Analytical Results (Concluded, Page 6 of 6)

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

Table 5-31-2. TS776 Skeet Range Soil Analytical Results

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
Site ID				TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
Sample Date				27-Oct-2007		27-Oct-2007		27-Oct-2007	
Sample ID				TS776-001		TS776-002		TS776-003	
Sample Depth				0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	*5.4*		0.84	J	1.9	U
Barium	15,600	16,000	200	130		140		91	
Copper	3,130	2,900	17	8.9		9.4		9.5	
Iron	23,500	55,000	None	11,000		11,000		12,000	
Lead	400	400	39	***520***		*240*		*56*	
Magnesium	NA	NA	None	2,800		3,700		2,900	
Zinc	23,500	2,300	76	43		62		32	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	3.6		8.4		0.033	U
Acenaphthylene	NA	NA	NA	0.32	U	0.33	U	0.033	U
Anthracene	22,000	2,200	NA	13		8.6		0.035	U
Benzo(a)anthracene	6.21	0.15	NA	**75**		**95**		0.016	J
Benzo(a)pyrene	0.621	0.015	NA	**100**		**150**		0.024	J
Benzo(b)fluoranthene	6.21	0.15	NA	**110**		**130**		0.03	J
Benzo(g,h,i)perylene	NA	NA	NA	67		99		0.024	J
Benzo(k)fluoranthene	62.1	1.5	NA	**67**		**97**		0.016	J
Chrysene	615	15	NA	87		120		0.02	J
Dibenz(a,h)anthracene	0.621	0.15	NA	**12**		**14**		0.06	U
Fluoranthene	2,290	2,300	NA	140		140		0.035	J
Fluorene	2,660	2,600	NA	1.6		2.4		0.033	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	**62**		**83**		0.02	J
Naphthalene	79.5	120	NA	0.87		0.92		0.033	U
Phenanthrene	1,830	NA	NA	76		69		0.015	J
Pyrene	2,290	2,300	NA	130		150		0.03	J

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 2 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-004		TS776-005		TS776-006	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	2	U	***940***		***450***	
Barium	15,600	16,000	200	82		66		76	
Copper	3,130	2,900	17	8.1		*18*		8.1	
Iron	23,500	55,000	None	12,000		9,200		9,400	
Lead	400	400	39	30		***31,000***		***26,000***	
Magnesium	NA	NA	None	2,500		2,000		2,500	
Zinc	23,500	2,300	76	27		24		28	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.033	U	0.018	J	0.012	J
Acenaphthylene	NA	NA	NA	0.033	U	0.032	U	0.033	U
Anthracene	22,000	2,200	NA	0.012	J	0.034	U	0.035	U
Benzo(a)anthracene	6.21	0.15	NA	0.016	J	0.021	J	0.036	
Benzo(a)pyrene	0.621	0.015	NA	0.011	J	0.023	J	0.045	
Benzo(b)fluoranthene	6.21	0.15	NA	0.014	J	0.028	J	0.057	
Benzo(g,h,i)perylene	NA	NA	NA	0.0099	J	0.017	J	0.036	
Benzo(k)fluoranthene	62.1	1.5	NA	0.009	J	0.014	J	0.026	J
Chrysene	615	15	NA	0.017	J	0.025	J	0.05	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.06	U	0.058	U	0.06	U
Fluoranthene	2,290	2,300	NA	0.073		0.076		0.084	
Fluorene	2,660	2,600	NA	0.033	U	0.024	J	0.011	J
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.06	U	0.058	U	0.029	J
Naphthalene	79.5	120	NA	0.033	U	0.04		0.033	J
Phenanthrene	1,830	NA	NA	0.084		0.1		0.065	
Pyrene	2,290	2,300	NA	0.047		0.058		0.082	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 3 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Site ID: TS776 Skeet Range	Qualifier	TS776 Skeet Range	Qualifier	TS776 Skeet Range	Qualifier
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-007		TS776-008		TS776-009	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	*5.3*		NS		NS	
Barium	15,600	16,000	200	69		NS		NS	
Copper	3,130	2,900	17	6.7		NS		NS	
Iron	23,500	55,000	None	10,000		NS		NS	
Lead	400	400	39	*41*		NS		NS	
Magnesium	NA	NA	None	2,500		NS		NS	
Zinc	23,500	2,300	76	26		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.032	U	6.4		0.019	J
Acenaphthylene	NA	NA	NA	0.032	U	0.33	U	0.032	U
Anthracene	22,000	2,200	NA	0.034	U	12		0.053	
Benzo(a)anthracene	6.21	0.15	NA	0.018	J	**60**		0.4	
Benzo(a)pyrene	0.621	0.015	NA	0.019	J	**83**		0.58	
Benzo(b)fluoranthene	6.21	0.15	NA	0.027	J	**87**		0.83	
Benzo(g,h,i)perylene	NA	NA	NA	0.016	J	50		0.46	
Benzo(k)fluoranthene	62.1	1.5	NA	0.013	J	49		0.33	
Chrysene	615	15	NA	0.023	J	74		0.59	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.059	U	**9.7**		0.12	
Fluoranthene	2,290	2,300	NA	0.058		110		0.92	
Fluorene	2,660	2,600	NA	0.032	U	4.1		0.013	J
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.059	U	**42**		0.38	
Naphthalene	79.5	120	NA	0.032	U	0.72		0.022	J
Phenanthrene	1,830	NA	NA	0.046		79		0.35	
Pyrene	2,290	2,300	NA	0.044		110		0.73	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 4 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-010		TS776-010D		TS776-011	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.033	U	0.033	U	0.0082	J
Acenaphthylene	NA	NA	NA	0.033	U	0.033	U	0.033	U
Anthracene	22,000	2,200	NA	0.035	U	0.014	J	0.035	U
Benzo(a)anthracene	6.21	0.15	NA	0.038		0.037	J	0.058	
Benzo(a)pyrene	0.621	0.015	NA	0.031	J	0.031	J	0.086	
Benzo(b)fluoranthene	6.21	0.15	NA	0.043		0.047	J	0.12	
Benzo(g,h,i)perylene	NA	NA	NA	0.023	J	0.023	J	0.071	
Benzo(k)fluoranthene	62.1	1.5	NA	0.019	J	0.014	J	0.037	
Chrysene	615	15	NA	0.041		0.044	J	0.074	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.06	U	0.059	U	0.02	J
Fluoranthene	2,290	2,300	NA	0.13		0.15	J	0.12	
Fluorene	2,660	2,600	NA	0.033	U	0.033	U	0.033	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.019	J	0.02	J	0.059	J
Naphthalene	79.5	120	NA	0.033	U	0.033	U	0.011	J
Phenanthrene	1,830	NA	NA	0.038	J	0.056	J	0.066	
Pyrene	2,290	2,300	NA	0.082		0.11	J	0.1	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 5 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-012		TS776-013		TS776-014	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.033	UJ	0.032	U	0.017	J
Acenaphthylene	NA	NA	NA	0.011	J	0.032	U	0.033	U
Anthracene	22,000	2,200	NA	0.035	UJ	0.034	U	0.015	J
Benzo(a)anthracene	6.21	0.15	NA	0.012	J	0.027	J	0.1	
Benzo(a)pyrene	0.621	0.015	NA	0.015	J	0.034		0.18	
Benzo(b)fluoranthene	6.21	0.15	NA	0.019	J	0.048		0.23	
Benzo(g,h,i)perylene	NA	NA	NA	0.015	J	0.027	J	0.15	
Benzo(k)fluoranthene	62.1	1.5	NA	0.0095	J	0.016	J	0.086	
Chrysene	615	15	NA	0.015	J	0.033		0.15	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.061	UJ	0.058	U	0.039	J
Fluoranthene	2,290	2,300	NA	0.032	J	0.067		0.22	
Fluorene	2,660	2,600	NA	0.033	UJ	0.032	U	0.0094	J
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.061	UJ	0.022	J	0.12	
Naphthalene	79.5	120	NA	0.033	UJ	0.032	U	0.038	
Phenanthrene	1,830	NA	NA	0.022	J	0.04		0.1	
Pyrene	2,290	2,300	NA	0.026	J	0.053		0.18	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 6 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-015		TS776-016		TS776-017	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.038		0.033	U	0.033	U
Acenaphthylene	NA	NA	NA	0.033	U	0.033	U	0.033	U
Anthracene	22,000	2,200	NA	0.041		0.035	U	0.012	J
Benzo(a)anthracene	6.21	0.15	NA	0.44		0.034		0.039	
Benzo(a)pyrene	0.621	0.015	NA	**1**		0.064		0.036	
Benzo(b)fluoranthene	6.21	0.15	NA	1.2		0.085		0.05	
Benzo(g,h,i)perylene	NA	NA	NA	0.85		0.054		0.027	J
Benzo(k)fluoranthene	62.1	1.5	NA	0.49		0.032	J	0.019	J
Chrysene	615	15	NA	0.64		0.052		0.041	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.21		0.061	U	0.059	U
Fluoranthene	2,290	2,300	NA	0.78		0.079		0.14	
Fluorene	2,660	2,600	NA	0.033	U	0.033	U	0.0092	J
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.71		0.048	J	0.024	J
Naphthalene	79.5	120	NA	0.033	U	0.033	U	0.011	J
Phenanthrene	1,830	NA	NA	0.27		0.033	J	0.081	
Pyrene	2,290	2,300	NA	0.79		0.073		0.1	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 7 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-018		TS776-019		TS776-020	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.021	J	0.0097	J	0.032	U
Acenaphthylene	NA	NA	NA	0.033	U	0.033	U	0.032	U
Anthracene	22,000	2,200	NA	0.015	J	0.034	U	0.034	U
Benzo(a)anthracene	6.21	0.15	NA	0.064		0.016	J	0.037	
Benzo(a)pyrene	0.621	0.015	NA	0.09		0.019	J	0.044	
Benzo(b)fluoranthene	6.21	0.15	NA	0.12		0.026	J	0.048	
Benzo(g,h,i)perylene	NA	NA	NA	0.074		0.018	J	0.041	
Benzo(k)fluoranthene	62.1	1.5	NA	0.046		0.01	J	0.035	
Chrysene	615	15	NA	0.074		0.019	J	0.045	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.018	J	0.059	U	0.018	J
Fluoranthene	2,290	2,300	NA	0.14		0.071		0.063	
Fluorene	2,660	2,600	NA	0.02	J	0.012	J	0.032	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.061		0.059	U	0.033	J
Naphthalene	79.5	120	NA	0.026	J	0.0069	J	0.032	U
Phenanthrene	1,830	NA	NA	0.11		0.076		0.034	
Pyrene	2,290	2,300	NA	0.15		0.047		0.058	J

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 8 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-020D		TS776-021		TS776-022	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.031	U	0.01	J	0.013	J
Acenaphthylene	NA	NA	NA	0.031	U	0.032	U	0.033	U
Anthracene	22,000	2,200	NA	0.033	U	0.034	U	0.035	U
Benzo(a)anthracene	6.21	0.15	NA	0.02	J	0.028	J	0.012	J
Benzo(a)pyrene	0.621	0.015	NA	0.026	J	0.04		0.021	J
Benzo(b)fluoranthene	6.21	0.15	NA	0.03	J	0.054		0.023	J
Benzo(g,h,i)perylene	NA	NA	NA	0.021	J	0.031	J	0.019	J
Benzo(k)fluoranthene	62.1	1.5	NA	0.02	J	0.027	J	0.017	J
Chrysene	615	15	NA	0.026	J	0.033		0.015	J
Dibenz(a,h)anthracene	0.621	0.15	NA	0.057	U	0.058	U	0.06	U
Fluoranthene	2,290	2,300	NA	0.034	J	0.048		0.017	J
Fluorene	2,660	2,600	NA	0.031	U	0.013	J	0.018	J
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.017	J	0.028	J	0.06	U
Naphthalene	79.5	120	NA	0.031	U	0.032	U	0.033	U
Phenanthrene	1,830	NA	NA	0.039		0.044		0.033	J
Pyrene	2,290	2,300	NA	0.033	J	0.04		0.016	J

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 9 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-023		TS776-024		TS776-025	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.033	U	0.031	U	0.033	U
Acenaphthylene	NA	NA	NA	0.033	U	0.031	U	0.033	U
Anthracene	22,000	2,200	NA	0.035	U	0.033	U	0.035	U
Benzo(a)anthracene	6.21	0.15	NA	0.027	J	0.011	J	0.012	J
Benzo(a)pyrene	0.621	0.015	NA	0.039		0.023	J	0.017	J
Benzo(b)fluoranthene	6.21	0.15	NA	0.049		0.029	J	0.019	J
Benzo(g,h,i)perylene	NA	NA	NA	0.031	J	0.024	J	0.014	J
Benzo(k)fluoranthene	62.1	1.5	NA	0.02	J	0.013	J	0.014	J
Chrysene	615	15	NA	0.03	J	0.02	J	0.012	J
Dibenz(a,h)anthracene	0.621	0.15	NA	0.06	U	0.057	U	0.061	U
Fluoranthene	2,290	2,300	NA	0.044		0.022	J	0.016	J
Fluorene	2,660	2,600	NA	0.033	U	0.031	U	0.033	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.026	J	0.019	J	0.061	U
Naphthalene	79.5	120	NA	0.033	U	0.031	U	0.033	U
Phenanthrene	1,830	NA	NA	0.019	J	0.031	U	0.033	U
Pyrene	2,290	2,300	NA	0.04		0.023	J	0.016	J

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 10 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Result	Qualifier	Result	Qualifier	Result	Qualifier
			Site ID	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-026		TS776-027		TS776-028	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.033	U	0.032	U	0.033	U
Acenaphthylene	NA	NA	NA	0.033	U	0.032	U	0.033	U
Anthracene	22,000	2,200	NA	0.035	U	0.034	U	0.035	U
Benzo(a)anthracene	6.21	0.15	NA	0.017	J	0.021	J	0.01	J
Benzo(a)pyrene	0.621	0.015	NA	0.033	J	0.029	J	0.014	J
Benzo(b)fluoranthene	6.21	0.15	NA	0.049		0.04		0.018	J
Benzo(g,h,i)perylene	NA	NA	NA	0.029	J	0.024	J	0.015	J
Benzo(k)fluoranthene	62.1	1.5	NA	0.021	J	0.018	J	0.011	J
Chrysene	615	15	NA	0.031	J	0.031	J	0.017	J
Dibenz(a,h)anthracene	0.621	0.15	NA	0.06	U	0.059	U	0.06	U
Fluoranthene	2,290	2,300	NA	0.049		0.046		0.026	J
Fluorene	2,660	2,600	NA	0.033	U	0.032	U	0.033	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.024	J	0.018	J	0.06	U
Naphthalene	79.5	120	NA	0.033	U	0.032	U	0.033	U
Phenanthrene	1,830	NA	NA	0.022	J	0.018	J	0.013	J
Pyrene	2,290	2,300	NA	0.047		0.041		0.024	J

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 11 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	27-Oct-2007		27-Oct-2007		27-Oct-2007	
			Sample ID	TS776-029		TS776-030		TS776-030D	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	NS		NS		NS	
Barium	15,600	16,000	200	NS		NS		NS	
Copper	3,130	2,900	17	NS		NS		NS	
Iron	23,500	55,000	None	NS		NS		NS	
Lead	400	400	39	NS		NS		NS	
Magnesium	NA	NA	None	NS		NS		NS	
Zinc	23,500	2,300	76	NS		NS		NS	
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.033	U	0.034	U	0.034	U
Acenaphthylene	NA	NA	NA	0.033	U	0.034	U	0.034	U
Anthracene	22,000	2,200	NA	0.035	U	0.036	U	0.036	U
Benzo(a)anthracene	6.21	0.15	NA	0.017	J	0.027	J	0.025	J
Benzo(a)pyrene	0.621	0.015	NA	0.032	J	0.045		0.016	J
Benzo(b)fluoranthene	6.21	0.15	NA	0.037		0.048		0.024	J
Benzo(g,h,i)perylene	NA	NA	NA	0.029	J	0.037		0.013	J
Benzo(k)fluoranthene	62.1	1.5	NA	0.03	J	0.036		0.011	J
Chrysene	615	15	NA	0.033		0.044		0.03	J
Dibenz(a,h)anthracene	0.621	0.15	NA	0.06	U	0.062	U	0.061	U
Fluoranthene	2,290	2,300	NA	0.063		0.081		0.1	
Fluorene	2,660	2,600	NA	0.033	U	0.034	U	0.034	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.024	J	0.03	J	0.061	U
Naphthalene	79.5	120	NA	0.033	U	0.034	U	0.034	U
Phenanthrene	1,830	NA	NA	0.041		0.046	J	0.073	J
Pyrene	2,290	2,300	NA	0.06		0.077		0.073	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 12 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	Site ID		TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
				Sample Date		14-Nov-2007		14-Nov-2007		14-Nov-2007	
				Sample ID		TS776-031		TS776-032		TS776-032D	
				Sample Depth		0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
						Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)											
Antimony	31.3	31	3.9			*7.2*	J	1.2	J	0.55	J
Barium	15,600	16,000	200			74		120		110	
Copper	3,130	2,900	17			7.4		12		12	
Iron	23,500	55,000	None			12,000		13,000		15,000	
Lead	400	400	39			*42*		*74*		*66*	
Magnesium	NA	NA	None			2,600	J	3,700	J	3,600	J
Zinc	23,500	2,300	76			30	J	42	J	48	J
Polycyclic Aromatic Hydrocarbons (mg/kg)											
Acenaphthene	3,730	3,700	NA			0.033	U	0.033	U	0.033	U
Acenaphthylene	NA	NA	NA			0.033	U	0.033	U	0.033	U
Anthracene	22,000	2,200	NA			0.035	U	0.035	U	0.035	U
Benzo(a)anthracene	6.21	0.15	NA			0.013	J	0.073		0.065	
Benzo(a)pyrene	0.621	0.015	NA			0.021	J	0.11		0.1	
Benzo(b)fluoranthene	6.21	0.15	NA			0.029	J	0.13		0.11	
Benzo(g,h,i)perylene	NA	NA	NA			0.018	J	0.094		0.084	
Benzo(k)fluoranthene	62.1	1.5	NA			0.01	J	0.081		0.077	
Chrysene	615	15	NA			0.019	J	0.099		0.092	
Dibenz(a,h)anthracene	0.621	0.15	NA			0.06	U	0.025	J	0.023	J
Fluoranthene	2,290	2,300	NA			0.032	J	0.16		0.16	
Fluorene	2,660	2,600	NA			0.033	U	0.033	U	0.033	U
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA			0.06	U	0.078		0.07	
Naphthalene	79.5	120	NA			0.033	U	0.033	U	0.033	U
Phenanthrene	1,830	NA	NA			0.013	J	0.055		0.057	
Pyrene	2,290	2,300	NA			0.025	J	0.12		0.11	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results (Continued, Page 13 of 14)

Analyte	NMED Soil Screening Levels[a]	EPA Region 6 Screening Levels[b]	KAFB Background Levels[c]	TS776 Skeet Range		TS776 Skeet Range		TS776 Skeet Range	
			Sample Date	14-Nov-2007		06-Mar-2008		06-Mar-2008	
			Sample ID	TS776-033		TS776-034		TS776-035	
			Sample Depth	0.00-0.50 ft.		0.00-0.50 ft.		0.00-0.50 ft.	
				Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals (mg/kg)									
Antimony	31.3	31	3.9	1.8	UJ	2	UJ	0.92	J
Barium	15,600	16,000	200	83		75		82	
Copper	3,130	2,900	17	8.2		8.7	J	9	J
Iron	23,500	55,000	None	12,000		11,000		11,000	
Lead	400	400	39	*40*		20	J	*130*	J
Magnesium	NA	NA	None	3,900	J	2,700		3,000	
Zinc	23,500	2,300	76	29	J	31	J	31	J
Polycyclic Aromatic Hydrocarbons (mg/kg)									
Acenaphthene	3,730	3,700	NA	0.032	U	NS		NS	
Acenaphthylene	NA	NA	NA	0.032	U	NS		NS	
Anthracene	22,000	2,200	NA	0.034	U	NS		NS	
Benzo(a)anthracene	6.21	0.15	NA	0.011	J	NS		NS	
Benzo(a)pyrene	0.621	0.015	NA	0.018	J	NS		NS	
Benzo(b)fluoranthene	6.21	0.15	NA	0.02	J	NS		NS	
Benzo(g,h,i)perylene	NA	NA	NA	0.015	J	NS		NS	
Benzo(k)fluoranthene	62.1	1.5	NA	0.013	J	NS		NS	
Chrysene	615	15	NA	0.018	J	NS		NS	
Dibenz(a,h)anthracene	0.621	0.15	NA	0.059	U	NS		NS	
Fluoranthene	2,290	2,300	NA	0.027	J	NS		NS	
Fluorene	2,660	2,600	NA	0.032	U	NS		NS	
Indeno(1,2,3-c,d)pyrene	6.21	0.15	NA	0.059	U	NS		NS	
Naphthalene	79.5	120	NA	0.032	U	NS		NS	
Phenanthrene	1,830	NA	NA	0.011	J	NS		NS	
Pyrene	2,290	2,300	NA	0.022	J	NS		NS	

Table 5-31-2. TS776 Skeet Range Soil Analytical Results
(Concluded, Page 14 of 14)

[a]NMED Soil Screening Levels – Soil Screening Levels for Residential Soil, June 2006.
[b]EPA Region 6 Screening Levels – Human Health Medium-Specific Screening Levels for Residential Soil, 3/7/08.
[c]Kirtland AFB Background Soil Screening levels – Statistical and Geochemical Evaluation of Metals in Soil, July 2005.
NA – Not Available
NS – Not Sampled
J – Result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
U – Indicates the analyte was analyzed for but not detected.
UJ – Analyte was analyzed for but not detected and the reported quantitation limit is an approximate value.

150	Result exceeded background level
150	Result exceeded EPA Region 6 Screening level
150	Result exceeded NMED screening level

APPENDIX I

Data Validation Reports

Metals
SW-836 Method 6010B ICP, Method 7471A (Mercury)
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-11524-1
Laboratory: TAL Chicago	Date: 6/3/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (6.3.08)	Project: O1015.06.03

Client Sample ID*	Laboratory Sample ID	Matrix
ML125A5-01-1	500-11524-1	Soil
ML125A5-01-2	500-11524-2	Soil
ML125A5-01-3	500-11524-3	Soil
ML125A5-01-4	500-11524-4	Soil
ML125A5-02-1	500-11524-5	Soil
ML125A5-02-1D	500-11524-6	Soil
ML125A5-02-2	500-11524-7	Soil
ML125A5-02-3	500-11524-8	Soil
ML125A5-02-4	500-11524-9	Soil
ML125A5-03-1	500-11524-10	Soil
ML125A5-03-1D	500-11524-11	Soil
ML125A5-03-2	500-11524-12	Soil
ML125A5-03-3	500-11524-13	Soil
ML125A5-03-4	500-11524-14	Soil
ML125A6-01-1	500-11524-15	Soil
ML125A6-01-2	500-11524-16	Soil
ML125A6-01-3	500-11524-17	Soil
ML125A6-01-4	500-11524-18	Soil

* Samples analyzed for antimony, copper, lead, zinc, cadmium, and mercury only.

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for preserved water samples.

Qualification: None required.

Calibration – The ICVs and CCVs met the <10 % D criterion for method 6010B and <20 % for method 7471A.

Qualification: None required.

Low Level MQL Check –The laboratory reported CRQL standards spiked at 2x the RL; these CRQL standards met the laboratory's 50-150% recovery limits. The laboratory also performed a low-level calibration check at the RL; this check is not a method requirement. The low level calibration check had all target metals %D <20%, with the exception of copper (69%R). The copper recovery in the CRQL, LCS, and MS/MSD results were within specification and in the opinion of the reviewer copper results in the samples do not need to be qualified.

Qualification: None required.

Method and Calibration Blanks – The ICP and ICP/MS ICB and CCBs were free from contamination. The method blank was contaminated with 0.30 mg/kg antimony, 0.12 mg/kg lead, 0.34 mg/kg zinc, and 10 ug/kg mercury. Action levels were calculated for antimony (1.5 mg/kg), lead (0.60 mg/kg), zinc (1.70 mg/kg), and mercury (50 ug/kg). The laboratory has applied B qualifiers to the related antimony, lead, zinc, and mercury results due to blank contamination. These B qualifiers should be removed from detected results above the calculated action levels, and retained for those detections below the calculated action level; however due to MS results antimony and detected mercury are qualified J.

***Qualification:* All detected antimony results are qualified U except the result in sample ML125A5-01-4. All detected mercury results are qualified U except the result in sample ML125A5-03-4. All B qualifiers are removed from reported results. Note that the final qualifier applied to all antimony results qualified U as artifacts is UJ due to low MS/MSD recoveries. The final qualifier applied to all mercury results above the RL that are qualified U as artifacts is UJ due to high MS/MSD recoveries.**

Interference Check Sample – The ICSA and ICSAB spiked analytes met the <20% D criteria. All unspiked analytes in the ICSAs had concentrations with absolute value less than 2x the RL. The data report did not include a summary for ICSA 500-39276/71. The laboratory was contacted and provided supplemental data that indicated that ICSA was in control.

Qualification: None required.

ICP Serial Dilution – A serial dilution and a post-digestion spike were performed for Method 6010B using site samples ML125A5-02-4 and ML125A5-03-3. The laboratory evaluated all results greater than 50x the SQL and indicated that lead (26/18%D), cadmium (17/13%D) and zinc (24/20% D) did not meet the acceptance criteria. The laboratory has applied "V" flags to the lead and zinc results, these flags should be removed.

***Qualification:* The "V" flags applied the lead, cadmium, and zinc results in sample ML125A5-02-4 and ML125A5-03-3 are removed; all results for lead, cadmium, and zinc are qualified J.**

Laboratory Control Sample – The %R results for the LCS met control limits.

Qualification: None required.

MS/MSD/PDS – Two sets of matrix spike/matrix spike duplicate analyses were performed, one on sample ML125A5-02-4, and the other on sample ML125A5-03-3. It was noted that recovery of antimony (31/31%R) and lead (78%R MSD) in ML125A5-02-4 was low. It was noted that recovery of antimony (26/26%R), lead (70%R MS), and cadmium (70%R MSD) in ML125A5-03-3 was low. The cadmium level in the sample was more than 4 times the spike amount and the associated results do not require qualification. Recovery of mercury in the MSD analysis of sample ML125A5-03-3 was high (133%R). Both MS/MSDs are associated with all results in this SDG. The PDS results were in control for all analytes and the non-detected antimony results do not require rejection for extreme low bias. All antimony and lead results are qualified J (detections) or UJ (non-detections and detections considered to be artifacts). All mercury results are qualified J

(detections) or UJ (detections considered to be artifacts). There is no effect on mercury results reported as non-detections.

Qualification: **Detected results for antimony and lead are qualified J; the final qualifier on antimony results qualified U as artifacts is UJ. Undetected results for antimony are qualified UJ. Detected mercury results are qualified J; the final qualifier on mercury results above the RL that have been qualified U as artifacts is UJ.**

Laboratory Duplicate Sample – Laboratory duplicates were prepared from sample ML125A5-02-4 and ML125A5-03-3 from this SDG. No discrepancies were noted.

Qualification: None required.

Field Duplicate – Sample ML125A5-02-1D is a field duplicate of sample ML125A5-02-1. The RPD for both lead (38.3%) and cadmium (28.6%) were outside of acceptance limits. The lead and cadmium results in these samples should be qualified J. Sample ML125A5-03-1D is a field duplicate of sample ML125A5-03-1. The RPD for lead (22%) was outside of acceptance limits. The lead results in these samples should be qualified J.

Qualification: **Lead and cadmium results in samples ML125A5-02-1D and ML125A5-02-1D are qualified J, lead results in sample ML125A5-03-1D and ML125A5-03-1D are qualified J.**

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (concentrations in mg/kg, mercury ug/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML125A5-01-1	Antimony	1.4	J B	2.0	UJ
	Lead	18	B	18	J
	Cadmium	0.73	--	0.73	J
	Zinc	39	B	39	J
	Mercury	14	J B	17	U
ML125A5-01-2	Antimony	0.39	J B	2.0	UJ
	Lead	26	B	26	J
	Cadmium	1.6	--	1.6	J
	Zinc	110	B	110	J
ML125A5-01-3	Antimony	1.3	J B	2.0	UJ
	Lead	140	B	140	J
	Cadmium	43	--	43	J
	Zinc	1200	B	1200	J
	Mercury	45	B	45	UJ
ML125A5-01-4	Antimony	3.5	B	3.5	J
	Lead	160	B	160	J
	Cadmium	30	--	30	J
	Zinc	260	B	260	J
	Mercury	34	B	34	UJ

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML125A5-02-1	Antimony	0.40	J B	1.8	UJ
	Lead	19	B	19	J
	Cadmium	4.4	--	4.4	J
	Zinc	46	B	46	J
ML125A5-02-1D	Antimony	0.47	J B	1.8	UJ
	Lead	28	B	28	J
	Cadmium	3.3	--	3.3	J
	Zinc	50	B	50	J
	Mercury	11	J B	17	U
ML125A5-02-2	Antimony	1.7	U	1.7	UJ
	Lead	16	B	16	J
	Cadmium	1.8	--	1.8	J
	Zinc	54	B	54	J
	Mercury	17	J B	17	U
ML125A5-02-3	Antimony	0.34	J B	1.8	UJ
	Lead	23	B	23	J
	Cadmium	10	--	10	J
	Zinc	110	B	110	J
	Mercury	8.0	J B	17	U
ML125A5-02-4	Antimony	0.41	J B	1.9	UJ
	Lead	15	B V	15	J
	Cadmium	1.7	V	1.7	J
	Zinc	37	B V	37	J
	Mercury	7.3	J B	17	U
ML125A5-03-1	Antimony	1.8	U	1.8	UJ
	Lead	21	B	21	J
	Cadmium	0.54	--	0.54	J
	Zinc	43	B	43	J
	Mercury	32	B	32	UJ
ML125A5-03-1D	Antimony	1.9	U	1.9	UJ
	Lead	21	B	21	J
	Cadmium	0.47	--	0.47	J
	Zinc	41	B	41	J
	Mercury	39	B	39	UJ
ML125A5-03-2	Antimony	0.46	J B	1.8	UJ
	Lead	29	B	29	J
	Cadmium	16	--	16	J
	Zinc	230	B	230	J
	Mercury	32	B	32	UJ
ML125A5-03-3	Antimony	1.8	U	1.8	UJ
	Lead	23	B V	23	J
	Cadmium	18	V	18	J
	Zinc	93	B V	93	J
	Mercury	30	B	30	UJ
ML125A5-03-4	Antimony	0.62	J B	1.9	UJ
	Lead	56	B	56	J
	Cadmium	66	--	66	J
	Zinc	450	B	450	J
	Mercury	51	B	51	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML125A6-01-1	Antimony	2.0	U	2.0	UJ
	Lead	130	B	130	J
	Cadmium	0.19	--	0.19	J
	Zinc	57	B	57	J
	Mercury	34	B	34	UJ
ML125A6-01-2	Antimony	1.7	U	1.7	UJ
	Lead	130	B	130	J
	Zinc	44	B	44	J
	Mercury	27	B	27	UJ
ML125A6-01-3	Antimony	2.0	U	2.0	UJ
	Lead	120	B	120	J
	Zinc	46	B	46	J
	Mercury	14	J B	17	U
ML125A6-01-4	Antimony	1.9	U	1.9	UJ
	Lead	120	B	120	J
	Zinc	39	B	39	J
	Mercury	29	B	29	UJ

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Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-11524-1
Laboratory: TAL Chicago	Date: 6/3/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (6.3.08)	Project: O1015.06.03

Client Sample ID	Laboratory Sample ID	Matrix
ML125A5-01-1	500-11524-1	Soil
ML125A5-01-2	500-11524-2	Soil
ML125A5-01-3	500-11524-3	Soil
ML125A5-01-4	500-11524-4	Soil
ML125A5-02-1	500-11524-5	Soil
ML125A5-02-1D	500-11524-6	Soil
ML125A5-02-2	500-11524-7	Soil
ML125A5-02-3	500-11524-8	Soil
ML125A5-02-4	500-11524-9	Soil
ML125A5-03-1	500-11524-10	Soil
ML125A5-03-1D	500-11524-11	Soil
ML125A5-03-2	500-11524-12	Soil
ML125A5-03-3	500-11524-13	Soil
ML125A5-03-4	500-11524-14	Soil
ML125A6-01-1	500-11524-15	Soil
ML125A6-01-2	500-11524-16	Soil
ML125A6-01-3	500-11524-17	Soil
ML125A6-01-4	500-11524-18	Soil

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The cooler receipt form was reviewed. No problems were noted. The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on samples ML125A5-02-4 and ML125A5-03-3. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blank was free from contamination.

Qualification: None required.

Field Duplicate – Sample ML125A5-02-1D is a field duplicate of sample ML125A5-02-1; ML125A5-03-1D is a field duplicate of sample ML125A5-03-1. Both samples and their duplicates were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – The laboratory's reporting limits met the sensitivity requirements. Analyte detections were confirmed on a secondary column. Detected results between the MDL and RL were reported with qualification of J. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
ML125A5-01-1	No qualifications necessary				
ML125A5-01-2	No qualifications necessary				
ML125A5-01-3	No qualifications necessary				
ML125A5-01-4	No qualifications necessary				
ML125A5-02-1	No qualifications necessary				
ML125A5-02-1D	No qualifications necessary				
ML125A5-02-2	No qualifications necessary				
ML125A5-02-3	No qualifications necessary				
ML125A5-02-4	No qualifications necessary				

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
ML125A5-03-1	No qualifications necessary				
ML125A5-03-1D	No qualifications necessary				
ML125A5-03-2	No qualifications necessary				
ML125A5-03-3	No qualifications necessary				
ML125A5-03-4	No qualifications necessary				
ML125A6-01-1	No qualifications necessary				
ML125A6-01-2	No qualifications necessary				
ML125A6-01-3	No qualifications necessary				
ML125A6-01-4	No qualifications necessary				

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Metals
SW-836 Method 6010B ICP
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-7478-1
Laboratory: TAL-Chicago	Date: 12/13/07
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (1.10.08)	Project: OMA010-015-06-03

Client Sample ID	Laboratory Sample ID	Matrix
SR764-001	500-7478-1	Soil
SR764-002	500-7478-2	Soil
SR764-003	500-7478-3	Soil
SR764-004	500-7478-4	Soil
SR764-005	500-7478-5	Soil
SR764-006	500-7478-6	Soil
SR764-007	500-7478-7	Soil
SR764-008	500-7478-8	Soil
SR764-009	500-7478-9	Soil
SR764-010	500-7478-10	Soil
SR764-010D	500-7478-11	Soil
SR764-011	500-7478-12	Soil
SR764-012	500-7478-13	Soil
SR764-013	500-7478-14	Soil
SR764-014	500-7478-15	Soil
SR767-001	500-7478-16	Soil
SR767-002	500-7478-17	Soil
SR767-003	500-7478-18	Soil
SR767-004	500-7478-19	Soil
SR767-005	500-7478-20	Soil
SR767-006	500-7478-21	Soil
SR767-006D	500-7478-22	Soil

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition, at proper temperature and were properly preserved. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for soil samples.

Qualification: None required.

Calibration – The ICVs and CCVs met the <10 % D criterion.

Qualification: None required.

Low Level MQL Check – The low level calibration checks had all target metals %D <30% (method requirement). The laboratory also reported CRQL standards spiked at 2x the RL; these CRQL standards met the laboratory's 50-150% recovery limits (and also were within 70-130%). All copper and lead results reported between the RL and 2x the RL should be qualified J; in the judgment of the reviewer, the CRQL standards verify quantitation at 2x the RL and results above 2x the RL are not affected. All copper and lead results are greater than 2x the RL and no qualification is necessary.

Qualification: None required.

Method and Calibration Blanks – The ICP method blanks contained zinc at 0.79 mg/kg (batch 25444) and 0.40 mg/kg (batch 25445), leading to action levels of 3.95 mg/kg and 2.0 mg/kg. No samples had zinc results below the action levels. The laboratory has applied B qualifiers to the zinc results as a blank contamination flag. These B qualifiers should be removed. All ICBs and CCBs were free from contamination.

Qualification: All B qualifiers applied to zinc results by the laboratory are removed.

Interference Check Sample – All non-spiked analytes in the ICSAs had concentrations less than the RL. The ICSA and ICSAB spiked analytes met the <20% D criteria.

Qualification: None required.

ICP Serial Dilutions – A serial dilution and a post-digestion spike were performed for Method 6010B using site samples SR764-001 (batch 25444) and SR764-010D (batch 25445). The laboratory evaluated all results greater than 50x the SQL. The serial dilution performed on SR764-001 did not meet criteria for copper and zinc, and the serial dilution performed on SR764-010D did not meet criteria for copper, lead, and zinc. The laboratory applied "V" flags to the affected results in the parent samples; these flags should be removed. All copper and zinc results reported from batch 25444 (lab sample IDs -001 through -010) and all copper, lead, and zinc results reported from batch 25445 (lab sample IDs -011 through -022) should be qualified J.

***Qualification:* The "V" flags applied to lead, copper, and zinc results in this SDG are removed. All copper and zinc results reported from batch 25444 (lab sample IDs -001 through -010) and all copper, lead, and zinc results reported from batch 25445 (lab sample IDs -011 through -022) are qualified J.**

Laboratory Control Sample – The %R results for the LCS met control limits.

Qualification: None required.

MS/MSD/PDS – Matrix spike/matrix spike duplicate analyses were performed using samples SR764-001 (batch 25444) and SR764-010D (batch 25445). The MS and MSD for both samples showed low %Rs for antimony and high %Rs for magnesium; the SR764-001 MS/MSD pair also showed a high lead %R in the MSD (165%) and the lead RPD was high (29%). Percent recoveries for iron were high in both MS/MSD pairs as well, but as the parent sample concentrations were more than 4x the spiked concentration, no qualification is required. All PDS results were within acceptance limits. All results for antimonyshould be qualified J (detections) or UJ (non-detections). All magnesium results are detections above the RL and should be qualified J. All lead results reported from batch 25444 (laboratory sample IDs -001 through -010) are detections above the RL and should be qualified J.

Qualification: **Detected results for antimony are qualified J, undetected results for antimony are qualified UJ. All magnesium results are qualified J. All lead results reported from batch 25444 (lab sample IDs -001 through -010) are qualified J.**

Laboratory Duplicate Sample – A laboratory duplicate was not prepared from this SDG; precision was assessed using the MS/MSD.

Qualification: None required.

Field Duplicate – Sample SR764-010D is a field duplicate of sample SR764-010 and sample SR767-006D is a field duplicate of sample SR767-006. No discrepancies were noted.

Qualification: None required.

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in mg/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
SR764-001	Copper	8.7	V	8.7	J
	Lead	13	--	13	J
	Magnesium	3100	--	3100	J
	Zinc	38	V B	38	J
SR764-002	Copper	8.0	--	8.0	J
	Lead	26	--	26	J
	Magnesium	2400	--	2400	J
	Zinc	41	B	41	J
SR764-003	Antimony	1.8	U	1.8	UJ
	Copper	17	--	17	J
	Lead	30	--	30	J
	Magnesium	2700	--	2700	J
	Zinc	50	B	50	J
SR764-004	Antimony	2.0	U	2.0	UJ
	Copper	8.0	--	8.0	J
	Lead	14	--	14	J
	Magnesium	2500	--	2500	J
	Zinc	32	B	32	J
SR764-005	Antimony	1.8	U	1.8	UJ
	Copper	5.5	--	5.5	J
	Lead	5.9	--	5.9	J
	Magnesium	3300	--	3300	J
	Zinc	17	B	17	J
SR764-006	Copper	8.5	--	8.5	J
	Lead	15	--	15	J
	Magnesium	3400	--	3400	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
	Zinc	31	B	31	J
SR764-007	Copper	8.6	--	8.6	J
	Lead	19	--	19	J
	Magnesium	2900	--	2900	J
	Zinc	32	B	32	J
SR764-008	Copper	6.9	--	6.9	J
	Lead	11	--	11	J
	Magnesium	2300	--	2300	J
	Zinc	24	B	24	J
SR764-009	Antimony	2.0	U	2.0	UJ
	Copper	6.9	--	6.9	J
	Lead	14	--	14	J
	Magnesium	2400	--	2400	J
	Zinc	25	B	25	J
SR764-010	Antimony	2.0	U	2.0	UJ
	Copper	8.4	--	8.4	J
	Lead	13	--	13	J
	Magnesium	2700	--	2700	J
	Zinc	26	B	26	J
SR764-010D	Copper	7.4	V	7.4	J
	Lead	11	V	11	J
	Magnesium	2500	--	2500	J
	Zinc	24	V B	24	J
SR764-011	Copper	10	--	10	J
	Lead	25	--	25	J
	Magnesium	3000	--	3000	J
	Zinc	27	B	27	J
SR764-012	Antimony	1.9	U	1.9	UJ
	Copper	8.4	--	8.4	J
	Lead	15	--	15	J
	Magnesium	3000	--	3000	J
	Zinc	28	B	28	J
SR764-013	Antimony	1.7	U	1.7	UJ
	Copper	11	--	11	J
	Lead	23	--	23	J
	Magnesium	3300	--	3300	J
	Zinc	38	B	38	J
SR764-014	Copper	10	--	10	J
	Lead	17	--	17	J
	Magnesium	3700	--	3700	J
	Zinc	34	B	34	J
SR767-001	Antimony	2.0	U	2.0	UJ
	Copper	12	--	12	J
	Lead	24	--	24	J
	Magnesium	3300	--	3300	J
	Zinc	0.24	B	0.24	J
SR767-002	Copper	6.5	--	6.5	J
	Lead	7.5	--	7.5	J
	Magnesium	3400	--	3400	J
	Zinc	21	B	21	J
SR767-003	Copper	9.5	--	9.5	J
	Lead	20	--	20	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
	Magnesium	2900	--	2900	J
	Zinc	32	B	32	J
SR767-004	Antimony	1.9	U	1.9	UJ
	Copper	11	--	11	J
	Lead	24	--	24	J
	Magnesium	3200	--	3200	J
	Zinc	37	B	37	J
SR767-005	Antimony	2.0	U	2.0	UJ
	Copper	7.2	--	7.2	J
	Lead	15	--	15	J
	Magnesium	2300	--	2300	J
	Zinc	22	B	22	J
SR767-006	Copper	13	--	13	J
	Lead	36	--	36	J
	Magnesium	3700	--	3700	J
	Zinc	42	B	42	J
SR767-006D	Antimony	1.8	U	1.8	UJ
	Copper	13	--	13	J
	Lead	36	--	36	J
	Magnesium	3700	--	3700	J
	Zinc	41	B	41	J

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Metals
SW-836 Method 6010B ICP
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-7501-1
Laboratory: TAL-Chicago	Date: 12/14/07
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (1.11.08)	Project: OMA010-015-06-03

Client Sample ID	Laboratory Sample ID	Matrix
TS776-001	500-7501-1	Soil
TS776-002	500-7501-2	Soil
TS776-003	500-7501-3	Soil
TS776-004	500-7501-4	Soil
TS776-005	500-7501-5	Soil
TS776-006	500-7501-6	Soil
TS776-007	500-7501-7	Soil

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition, at proper temperature and were properly preserved. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for preserved water samples.

Qualification: None required.

Calibration – The ICVs and CCVs met the <10 % D criterion.

Qualification: None required.

ICP/MS Tuning – The ICP/MS tune was not performed.

Qualification: None required.

Low Level MQL Check – The low level calibration check had all target metals %D <30% (method requirement). The laboratory also reported CRQL standards spiked at 2x the MQL; these CRQL standards met the laboratory's 50-150% recovery limits.

Qualification: None required.

Method and Calibration Blanks – The ICP and ICP/MS method blank contained zinc (0.68 mg/kg), leading to an action level of 3.4 mg/kg. No samples had zinc results below the action level. The laboratory has applied

B qualifiers to the zinc results as a blank contamination. These B qualifiers should be removed. The continuing calibration blank 500-26042/28 was contaminated with 0.0031 mg/L lead, which leads to action level of 1.55 mg/kg. Although the CLP validation guidelines only require the evaluation of blanks bracketing the sample analyses, the laboratory only reports detected results greater than ½ the RL. As this reporting protocol does not accurately reflect the true potential for laboratory contamination to affect sample results, all results reported in the analytical sequence were associated with all sample results reported from that sequence. All samples results for lead were well above the action level and no action is required.

Qualification: All B qualifiers applied to zinc results by the laboratory are removed.

Interference Check Sample – All non-spiked analytes in the ICSAs had concentrations less than the RL. The ICSA and ICSAB spiked analytes met the <20% D criteria.

Qualification: None required.

ICP Serial Dilutions – A serial dilution and a post-digestion spike were not performed on this.

Qualification: None required.

Laboratory Control Sample – The %R results for the LCS met control limits.

Qualification: None required.

MS/MSD/PDS – MS/MSD and PDS analysis were not performed on this SDG.

Qualification: None required.

Laboratory Duplicate Sample – A laboratory duplicate was not prepared from this SDG.

Qualification: None required.

Field Duplicate – No field duplicates were prepared for this SDG.

Qualification: None required.

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – The concentration of lead in samples TS776-005 and TS776-006 exceeded the calibration range, and these samples were analyzed for lead at 100x dilution. The laboratory adjusted the RL and MDL to reflect this dilution. Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in mg/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
TS776-001	Zinc	43	B	43	--
TS776-002	Zinc	62	B	62	--
TS776-003	Zinc	32	B	32	--

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
TS776-004	Zinc	27	B	27	--
TS776-005	Zinc	24	B	24	--
TS776-006	Zinc	28	B	28	--
TS776-007	Zinc	26	B	26	--

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SVOCs
SW-846 Method 8270C
Level III Review

Site: Kirtland AFB	SDG #: 500-7501-1
Laboratory: TAL Chicago	Date: 12-31-07
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Senior Reviewer: Ken Rapuano (1.11.08)	Project: OMA010-015-06-03

Client Sample ID	Laboratory Sample ID	Matrix
TS776-001	500-7501-1	Soil
TS776-001 DL	500-7501-1 DL	Soil
TS776-002	500-7501-2	Soil
TS776-002 DL	500-7501-2 DL	Soil
TS776-003	500-7501-3	Soil
TS776-004	500-7501-4	Soil
TS776-005	500-7501-5	Soil
TS776-006	500-7501-6	Soil
TS776-007	500-7501-7	Soil
TS776-008	500-7501-8	Soil
TS776-008 DL	500-7501-8 DL	Soil
TS776-009	500-7501-9	Soil
TS776-010	500-7501-10	Soil
TS776-010D	500-7501-11	Soil
TS776-010D RE	500-7501-11 RE	Soil
TS776-011	500-7501-12	Soil
TS776-012	500-7501-13	Soil
TS776-012 RE	500-7501-13 RE	Soil
TS776-013	500-7501-14	Soil
TS776-014	500-7501-15	Soil
TS776-015	500-7501-16	Soil
TS776-016	500-7501-17	Soil
TS776-017	500-7501-18	Soil
TS776-018	500-7501-19	Soil
TS776-019	500-7501-20	Soil
TS776-020	500-7501-21	Soil
TS776-020D	500-7501-22	Soil

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were extracted and analyzed within the required holding time. It was noted that samples TS776-10D and TS776-12 were re-extracted due to surrogate recovery outside of control limits. This re-extraction was performed outside of holding times; the results for these re-analyses should be qualified X and not reported.

***Qualification:* All results in samples TS776-010D RE and TS776-012 RE are qualified X**.

Initial Calibration – The initial calibration performed had acceptable mean RRFs for all SPCCs and %RSDs for all CCCs. The ICal reported for instrument MS20 (cal performed on 11.20.07) had CCC benzo[a]pyrene calibrated to a weighted linear relationship and no %RSD was reported. The laboratory was contacted and verified that the %RSD was 17.46%, which is less than the 30% maximum. All target analytes calibrated to mean RRF had %RSDs below 15%; those target analytes calibrated to curves had r^2>0.990. The second source standards were within acceptance limits for all target analytes.

Qualification: None required.

Continuing Calibration –The CCV standards had acceptable CCRFs for all SPCCs and %Ds for all CCCs. All target compound %Ds were found to be in specification.

Qualification: None required.

GC/MS Tuning – The samples analytical sequences were all performed within 12 hours of an acceptable GC/MS tune.

Qualification: None required.

Surrogates – Recovery of surrogate compounds were within acceptance limits, with the exception of sample TS776-010D which had high recovery (128%) of terphenyl-d14, and sample TS776-012 which had low recovery (34%) of 2-fluorobiphenyl. Samples TS776-010D and TS776-012 were re-extracted outside of holding times. Qualification is not required unless more than one surrogate is out of control or if one surrogate is below 10%. The diluted analyses for samples TS776-001, TS776-002, and TS776-008 reported all surrogates diluted out. The surrogates were in control in the original analyses and no matrix effect is suspected.

Qualification: None required.

Laboratory Control Sample/Duplicate - All %R and RPD results for the LCS/LCSD were within control limits.

Qualification: None required.

MS/MSD – Samples TS776-003 and TS776-020D were used for matrix spike/duplicate analyses. All %R and RPD results for the MS/MSD were within control limits, with the exception of a high RPD value for naphthalene (31%) in sample TS776-003. The associated LCS and surrogate data were in control; no qualification is required for MS/MSD discrepancies alone.

Qualification: None required.

Internal Standards – It was noted that upper and lower limits for acceptance were not calculated, however the criteria were listed. All internal standards met area and retention time criteria for the environmental samples.

Qualification: None required.

Method Blank – Three method blanks were associated with this SDG; they were analyzed 11/20/07, 11/19/07, and 11/26/07. All method blanks were free from contamination.

Qualification: None required.

Field Duplicate – Sample TS776-010D is a field duplicate of sample TS776-010 and sample TS776-020D is a field duplicate of sample TS776-020. The phenanthrene results in the TS770-010/TS770-010D pair and the pyrene results in the TS776-020/TS776-020D pair had RPDs greater than 30%. All other detected results had RPD<30% or were low-level results with absolute difference less than the RL.

***Qualification:* The phenanthrene results in samples TS776-010 and TS776-010D are qualified J. The pyrene results in samples TS776-020 and TS776-020D are qualified J.**

Equipment Blank – An equipment blank was not provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier. Samples TS776-001, TS776-002, and TS776-008 required initial analysis at 5x dilution and secondary analysis at 50x dilution to quantify elevated target analyte concentrations. These samples also could not be concentrated to the final required method volume. The laboratory adjusted MDLs and RLs appropriately.

Qualification: None required.

Qualification Summary Table (all concentrations in ug/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
TS776-001	None Required				
TS776-001 DL	None Required				
TS776-002	None Required				
TS776-002 DL	None Required				
TS776-003	None Required				
TS776-004	None Required				
TS776-005	None Required				
TS776-006	None Required				
TS776-007	None Required				
TS776-008	None Required				
TS776-008 DL	None Required				
TS776-009	None Required				
TS776-010	Phenanthrene	38	--	38	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
TS776-010D	Benzo[a]anthracene	37	--	37	J
	Benzo[b]fluoranthene	47	--	47	J
	Chrysene	44	--	44	J
	Fluoranthene	150	--	150	J
	Phenanthrene	56	--	56	J
	Pyrene	110	--	110	J
TS776-010D RE	All analytes	Varies	Varies	Varies	X
TS776-011	None Required				
TS776-012	Acenaphthene	33	U	33	UJ
	Anthracene	35	U	35	UJ
	Dibenz(a,h)anthracene	61	U	61	UJ
	Fluorene	33	U	33	UJ
	Indeno[1,2,3-cd]pyrene	61	U	61	UJ
	Naphthalene	33	U	33	UJ
TS776-012 RE	All Analytes	Varies	Varies	Varies	X
TS776-013	None Required				
TS776-014	None Required				
TS776-015	None Required				
TS776-016	None Required				
TS776-017	None Required				
TS776-018	None Required				
TS776-019	None Required				
TS776-020	Pyrene	58	--	58	J
TS776-020D	Pyrene	33	--	33	J

Metals
SW-836 Method 6010B ICP
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-7537-1
Laboratory: TAL-Chicago	Date: 12/14/07
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (1.11.08)	Project: OMA010-015-06-03

Client Sample ID	Laboratory Sample ID	Matrix
SR764-001	500-7537-12	Soil
SR764-002	500-7537-13	Soil
SR764-003	500-7537-14	Soil
SR764-004	500-7537-15	Soil
SR764-005	500-7537-16	Soil
SR764-006	500-7537-17	Soil
SR764-007	500-7537-18	Soil

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition, at proper temperature and were properly preserved. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for preserved water samples.

Qualification: None required.

Calibration – The ICVs and CCVs met the <10 % D criterion.

Qualification: None required.

ICP/MS Tuning – The ICP/MS tune was not performed.

Qualification: None required.

Low Level MQL Check – The low level calibration check had all target metals %D <30%. The laboratory also reported CRQL standards spiked at 2x the MQL; these CRQL standards met the laboratory's 50-150% recovery limits.

Qualification: None required.

Method and Calibration Blanks – The ICP and ICP/MS method blank contained copper (0.25 mg/Kg) and zinc (0.72 mg/Kg), leading to an action level of 1.25 mg/Kg for copper and 3.0 mg/Kg for zinc. No samples had

copper or zinc results below the action level. The laboratory has applied B qualifiers to both copper and zinc results due to blank contamination. These B qualifiers should be removed.

Qualification: All B qualifiers applied to copper and zinc results by the laboratory are removed.

Interference Check Sample – All non-spiked analytes in the ICSAs had concentrations less than the RL. The ICSA and ICSAB spiked analytes met the <20% D criteria.

Qualification: None required

ICP Serial Dilutions/Post Digestion Spike Samples – A serial dilution and a post-digestion spike were performed for Method 6010B using site sample SR764-007. The laboratory evaluated all results greater than 50x the SQL and indicated that zinc (11% difference) did not meet the acceptance criteria. The laboratory has applied a "V" flag to the zinc result, this flag should be removed. All PDS results were within acceptance limits with the exception of lead (63%R). The matrix spike and serial dilution results for lead were within control limits and no qualification of lead results is necessary.

***Qualification:* The "V" flag applied the zinc result in sample SR764-007 is removed. All zinc results are qualified J**

Laboratory Control Sample – The %R results for the LCS met control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed for Method 6010B using samples SR764-007. It was noted that in the MS/MSD results, antimony was biased low (41%R) and magnesium was biased high (140%R). Percent recoveries for iron and lead were high as well, but as the parent concentration was more than 4x the spiked concentration, no qualification is required. Results for antimony are to be qualified J for detections and UJ for non-detections. Due to the parent concentration of magnesium in the samples being 2 to 3 times the spiking concentration, in the opinion of this reviewer the magnesium results do not require qualification.

***Qualification:* Detected results for antimony are to be qualified J, undetected results for antimony are to be qualified UJ.**

Laboratory Duplicate Sample – A laboratory duplicate was prepared from sample SR764-007 from this SDG. No discrepancies were noted.

Qualification: None required.

Field Duplicate – No field duplicates were prepared for this SDG.

Qualification: None required.

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – The concentration of lead in samples TS776-005 and TS776-006 exceeded the calibration range, and these samples were analyzed for lead at 100x dilution. The laboratory adjusted the RL and MDL to reflect this dilution. Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in mg/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
SR764-001	Antimony	1.9	U	1.9	UJ
	Copper	15	B	15	--
	Zinc	28	B	28	J
SR764-002	Antimony	1.9	U	1.9	UJ
	Copper	7.2	B	7.2	--
	Zinc	30	B	30	J
SR764-003	Antimony	1.9	U	1.9	UJ
	Copper	13	B	13	--
	Zinc	58	B	58	J
SR764-004	Antimony	1.9	U	1.9	UJ
	Copper	13	B	13	--
	Zinc	39	B	39	J
SR764-005	Copper	15	B	15	--
	Zinc	25	B	25	J
SR764-006	Copper	13	B	13	--
	Zinc	19	B	19	J
SR764-007	Antimony	1.9	U	1.9	UJ
	Copper	12	B	12	--
	Zinc	29	V B	29	J

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SVOCs
SW-846 Method 8270C
Level III Review

Site: Kirtland AFB	SDG #: 500-7537-1
Laboratory: TAL Chicago	Date: 12-17-07
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Senior Reviewer: Ken Rapuano (1.11.08)	Project: OMA010-015-06-03

Client Sample ID	Laboratory Sample ID	Matrix
TS776-021	500-7537-1	Soil
TS776-022	500-7537-2	Soil
TS776-023	500-7537-3	Soil
TS776-024	500-7537-4	Soil
TS776-025	500-7537-5	Soil
TS776-026	500-7537-6	Soil
TS776-027	500-7537-7	Soil
TS776-028	500-7537-8	Soil
TS776-029	500-7537-9	Soil
TS776-030	500-7537-10	Soil
TS776-030D	500-7537-11	Soil

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were extracted and analyzed within the required holding time.

Qualification: None required.

Initial Calibration – The initial calibration performed had acceptable mean RRFs for all SPCCs and %RSDs for all CCCs. The ICal reported for instrument MS20 (cal performed on 11.20.07) had CCC benzo[a]pyrene calibrated to a weighted linear relationship and no %RSD was reported. The laboratory was contacted and verified that the %RSD was 17.46%, which is less than the 30% maximum. All target analytes calibrated to mean RRF had %RSDs below 15%; those target analytes calibrated to curves had r^2>0.990. The second source standards were within acceptance limits for all target analytes.

Qualification: None required.

Continuing Calibration –The CCV standards had acceptable CCRFs for all SPCCs and %Ds for all CCCs. All target compounds were found to be in specification.

Qualification: None required.

GC/MS Tuning – The samples analytical sequences were all performed within 12 hours of an acceptable GC/MS tune.

Qualification: None required.

Surrogates – Recovery of surrogate compounds were within acceptance limits.

Qualification: None required.

Laboratory Control Sample - All %R results for the LCS were within control limits.

Qualification: None required.

MS/MSD – No MS/MSD was provided with this SDG.

Qualification: None required.

Internal Standards – It was noted that upper and lower limits for acceptance were not calculated, however the criteria were listed. All internal standards met area and retention time criteria for the environmental samples.

Qualification: None required.

Method Blank – The method blank analyzed 11/19/07 was free from contamination.

Qualification: None required.

Field Duplicate – Sample TS776-30D is a field duplicate of sample TS776-30. The phenanthrene results in the duplicate pair had an RPD greater than 30%. All other detected results had RPD<30% or were low-level results with absolute difference less than the RL. Phenanthrene results should be qualified J in samples TS776-30 and TS776-30D.

***Qualification:* The phenanthrene results in samples TS776-30 and TS776-30 are qualified J.**

Equipment Blank – An equipment blank was not provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in ug/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
TS776-021	No qualification required				
TS776-022	No qualification required				
TS776-023	No qualification required				
TS776-024	No qualification required				
TS776-025	No qualification required				
TS776-026	No qualification required				
TS776-027	No qualification required				
TS776-028	No qualification required				
TS776-029	No qualification required				
TS776-030	Phenanthrene	46	--	46	J
TS776-030D	Phenanthrene	73	--	73	J

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Metals
SW-836 Method 6010B ICP
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-7845-1
Laboratory: TAL Chicago	Date: 01/17/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (1.18.08)	Project: OMA010-015-06-03

Client Sample ID	Laboratory Sample ID	Matrix
SR765-001	500-7845-1	Soil
SR765-002	500-7845-2	Soil
SR765-003	500-7845-3	Soil
SR765-004	500-7845-4	Soil
50CAL-001	500-7845-5	Soil
50CAL-001D	500-7845-6	Soil
50CAL-002	500-7845-7	Soil
50CAL-003	500-7845-8	Soil
50CAL-004	500-7845-9	Soil
SR766-001	500-7845-10	Soil
SR766-002	500-7845-11	Soil
SR766-003	500-7845-12	Soil
TS775-001	500-7845-13	Soil
TS775-002	500-7845-14	Soil
TS775-003	500-7845-15	Soil
TS775-031	500-7845-24	Soil
TS775-032	500-7845-25	Soil
TS775-032D	500-7845-26	Soil
TS775-033	500-7845-27	Soil

Samples analyzed for antimony, barium, copper, iron, lead, magnesium, and zinc only.

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition, at proper temperature and were properly preserved. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for preserved water samples.

Qualification: None required.

Calibration – The ICVs and CCVs met the <10 % D criterion.

Qualification: None required.

Low Level MQL Check –The laboratory reported CRQL standards spiked at 2x the MQL; these CRQL standards met the laboratory's 50-150% recovery limits. The laboratory also reported a low level calibration check, which had all target metals %D <20%.

Qualification: None required.

Method and Calibration Blanks – The ICP ICBs and CCBs were free from contamination. The method blank was contaminated with 3.8 mg/kg iron and 0.70 mg/kg zinc, leading to action levels of 19 mg/kg and 3.5 mg/kg, respectively. Detected results for both iron and zinc were above the calculated action level in all samples. The laboratory has applied B qualifiers to the iron and zinc results due to blank contamination. These B qualifiers should be removed.

Qualification: B qualifiers are removed from iron and zinc results.

Interference Check Sample – The ICSA and ICSAB spiked analytes met the <20% D criteria. All unspiked analytes in the ICSAs had concentrations with absolute value less than the RL.

Qualification: None required

ICP Serial Dilutions – A serial dilution was performed for Method 6010B using site sample 50CAL-004. The laboratory evaluated all results greater than 50x the SQL and indicated that zinc (14% difference) did not meet the acceptance criteria. The laboratory has applied a "V" flag to the zinc result, this flag should be removed. All zinc results are detections and should be qualified J.

***Qualification:* The "V" flag applied the zinc result in sample 50CAL-004 is removed. All zinc results are qualified J.**

Laboratory Control Sample – The %R results for the LCS met control limits.

Qualification: None required.

MS/MSD/Post Digestion Spike Samples – Matrix spike/matrix spike duplicate and post-digestion spike analyses were performed for Method 6010B using sample 50CAL-004. It was noted that in the MS/MSD results, antimony was biased low (45%R) and magnesium was biased high (123%R). Percent recoveries for iron were high as well, but as the parent concentration was more than 4x the spiked concentration, no qualification is required. Results for antimony are to be qualified J for detections and UJ for non-detections. All results for magnesium are detections and should be qualified J. All PDS results were within acceptance limits.

***Qualification:* Detected results for antimony are qualified J, undetected results for antimony are qualified UJ. All magnesium results are qualified J.**

Laboratory Duplicate Sample – A laboratory duplicate was prepared from sample 50CAL-004 from this SDG. No discrepancies were noted.

Qualification: None required.

Field Duplicate – Sample 50CAL-001D is a field duplicate of sample 50CAL-001, no discrepancies were noted. Sample TS775-032D is a field duplicate of sample TS775-032, no discrepancies were noted.

Qualification: None required.

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – The concentration of lead in sample TS775-003 exceeded the calibration range, and was analyzed for lead at 100x dilution. The laboratory has adjusted the RL and MDL to reflect this dilution. Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in mg/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
SR765-001	Antimony	1.9	U	1.9	UJ
	Iron	13000	B	13000	--
	Magnesium	3500	--	3500	J
	Zinc	43	B	43	J
SR765-002	Antimony	2.0	U	2.0	UJ
	Iron	9100	B	9100	--
	Magnesium	3000	--	3000	J
	Zinc	38	B	38	J
SR765-003	Antimony	2.0	U	2.0	UJ
	Iron	14000	B	14000	--
	Magnesium	5000	--	5000	J
	Zinc	79	B	79	J
SR765-004	Antimony	2.0	U	2.0	UJ
	Iron	15000	B	15000	--
	Magnesium	5000	--	5000	J
	Zinc	78	B	78	J
50CAL-001	Antimony	1.9	U	1.9	UJ
	Iron	11000	B	11000	--
	Magnesium	2600	--	2600	J
	Zinc	25	B	25	J
50CAL-001D	Antimony	1.7	U	1.7	UJ
	Iron	12000	B	12000	--
	Magnesium	2900	--	2900	J
	Zinc	27	B	27	J
50CAL-002	Antimony	1.8	U	1.8	UJ
	Iron	9100	B	9100	--
	Magnesium	2400	--	2400	J
	Zinc	25	B	25	J
50CAL-003	Antimony	1.9	U	1.9	UJ
	Iron	8700	B	8700	--
	Magnesium	2200	--	2200	J
	Zinc	24	B	24	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
50CAL-004	Antimony	2.0	U	2.0	UJ
	Iron	7500	B	7500	--
	Magnesium	2000	--	2000	J
	Zinc	20	V B	20	J
SR766-001	Antimony	1.9	U	1.9	UJ
	Iron	10000	B	10000	--
	Magnesium	2300	--	2300	J
	Zinc	24	B	24	J
SR766-002	Antimony	2.0	U	2.0	UJ
	Iron	10000	B	10000	J
	Magnesium	2400	--	2400	J
	Zinc	29	B	29	--
SR766-003	Antimony	1.7	U	1.7	UJ
	Iron	8400	B	8400	--
	Magnesium	2100	--	2100	J
	Zinc	23	B	23	J
TS775-001	Antimony	1.8	U	1.8	UJ
	Iron	7300	B	7300	--
	Magnesium	1700	--	1700	J
	Zinc	30	B	30	J
TS775-002	Iron	9400	B	9400	--
	Magnesium	2100	--	2100	J
	Zinc	36	B	36	J
TS775-003	Antimony	760	--	760	J
	Iron	7800	B	7800	--
	Magnesium	2000	--	2000	J
	Zinc	45	B	45	J
TS775-031	Antimony	7.2	--	7.2	J
	Iron	12000	B	12000	--
	Magnesium	2600	--	2600	J
	Zinc	30	B	30	J
TS775-032	Iron	13000	B	13000	--
	Magnesium	3700	--	3700	J
	Zinc	42	B	42	J
TS775-032D	Iron	15000	B	15000	--
	Magnesium	3600	--	3600	J
	Zinc	48	B	48	J
TS775-033	Antimony	1.8	U	1.8	UJ
	Iron	12000	B	12000	--
	Magnesium	3900	--	3900	J
	Zinc	29	B	29	J

SVOCs
SW-846 Method 8270C
Level III Review

Site: Kirtland AFB	SDG #: 500-7845-1
Laboratory: TAL Chicago	Date: 01-16-07
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Senior Reviewer: Ken Rapuano (1.18.08)	Project: OMA010-015-06-03

Client Sample ID	Laboratory Sample ID	Matrix
TS775-001	500-7845-13	Soil
TS775-002	500-7845-14	Soil
TS775-003	500-7845-15	Soil
TS775-004	500-7845-16	Soil
TS775-005	500-7845-17	Soil
TS775-006	500-7845-18	Soil
TS775-006D	500-7845-19	Soil
TS775-007	500-7845-20	Soil
TS775-008	500-7845-21	Soil
TS775-009	500-7845-22	Soil
TS775-010	500-7845-23	Soil
TS775-031	500-7845-24	Soil
TS775-032	500-7845-25	Soil
TS775-032D	500-7845-26	Soil
TS775-033	500-7845-27	Soil

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were extracted and analyzed within the required holding time.

Qualification: None required.

Initial Calibration – The initial calibration performed had acceptable mean RRFs for all SPCCs and %RSDs for all CCCs. All target analytes calibrated to mean RRF had mean RRFs above 0.05 and %RSDs below 15%. The second source standard was within acceptance limits for all target analytes.

Qualification: None required.

Continuing Calibration – The CCal data provided in the data package only included results for target analytes. The laboratory was contacted and provided supplemental information that showed that both CCV standards had acceptable CCRFs for all SPCCs and %Ds for all CCCs. All target compounds were found to be in control.

Qualification: None required.

GC/MS Tuning – The samples analytical sequences were all performed within 12 hours of an acceptable GC/MS tune.

Qualification: None required.

Surrogates – Recovery of surrogate compounds were within acceptance limits, with the exception of a high recovery of 2-fluorobiphenyl in sample TS775-004 (111%R) and high recoveries of terphenyl-d14 in samples TS775-002 (137%R), TS775-004 (143%R), and TS775-005 (158%R). It was noted by the laboratory that upon dilution and reanalysis surrogate recoveries were acceptable, and that this is most likely due to a matrix effect. The undiluted results from sample TS775-004 should be qualified J for detected analytes; there is no effect of high surrogate recoveries on non-detected results. The validation protocols do not require qualification of SVOCs results when only one surrogate recovery in a fraction is above the QC limits.

***Qualification:* Detected results reported from the undiluted analysis of sample TS775-004 are qualified J.**

Laboratory Control Sample - All %R results for the LCS were within control limits.

Qualification: None required.

MS/MSD – MS/MSD analysis was performed on sample TS775-001. Results of the MS indicate a high bias existed for many of the target analytes, specifically: anthracene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, chrysene, fluoranthene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene. This high bias is not seen in the MSD analysis and in the opinion of this reviewer, the dilution of 5x that the MS and MSD were analyzed under negates any possible matrix effect. No qualification is required.

Qualification: None required.

Internal Standards – It was noted that upper and lower limits for acceptance were not calculated; however, the criteria were listed. All internal standards met area and retention time criteria for the environmental samples.

Qualification: None required.

Method Blank – The method blank analyzed 12/06/07 was free from contamination.

Qualification: None required.

Field Duplicate – Sample TS775-32D is a field duplicate of sample TS775-32, no discrepancies were noted. Sample TS775-006D is a field duplicate of sample TS775-006, all results detected above the RL exhibited RPD values >50%; the anthracene results in this pair are considered to be in control. All analytes detected above the RL in samples TS775-006 and TS775-006D, with the exception of the acenaphthene result in sample TD775-006D, should be qualified J.

***Qualification:* All analytes detected above the RL in samples TS775-006 and TS775-006D, with the exception of the acenaphthene result in sample TD775-006D, are qualified J.**

Equipment Blank – An equipment blank was not provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the MDL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Due to elevated concentrations of target analytes, samples TS-775-002, TS775-004, and TS775-005 were analyzed at secondary 25x dilutions after original 10x diluted analysis. All other samples were analyzed at an initial dilution of 5x. The laboratory adjusted the reported MDLs and RLs accordingly.

Qualification: None required.

Qualification Summary Table (all concentrations in ug/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
TS775-001	No qualification required				
TS775-002	No qualification required	1500	--	1500	J
TS775-003	No qualification required				
TS775-004	Acenaphthene	1600	--	1600	J
	Anthracene	3000	--	3000	J
	Benzo[g,h,i]perylene	21000	--	21000	J
	Dibenz[a,h]anthracene	7100	--	7100	J
	Fluorene	490	--	490	J
	Indeno[1,2,3-cd]pyrene	17000	--	17000	J
	Naphthalene	440	--	440	J
	Phenanthrene	12000	--	12000	J
TS775-005	No qualification required	1400	--	1400	J
TS775-006	All analytes detected >RL	Varies	--	Varies	J
TS775-006D	Acenaphthene	170	--	No qualification	
	All other analytes detected >RL	Varies	--	Varies	J
TS775-007	No qualification required				
TS775-008	No qualification required				
TS775-009	No qualification required				
TS775-010	No qualification required				
TS775-031	No qualification required				
TS775-032	No qualification required				
TS775-032D	No qualification required				
TS775-033	No qualification required				

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Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9780-1
Laboratory: TAL Chicago	Date: 3/27/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.1.08)	Project: O10015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
ML125A4-11-1	500-9780-1	Soil
ML125A4-11-2	500-9780-2	Soil
ML125A4-11-3	500-9780-3	Soil
ML125A4-11-4	500-9780-4	Soil
ML125A4-12-1	500-9780-5	Soil
ML125A4-12-2	500-9780-6	Soil
ML125A4-12-3	500-9780-7	Soil
ML125A4-12-4	500-9780-8	Soil
ML125A4-13-1	500-9780-9	Soil
ML125A4-13-2	500-9780-10	Soil
ML125A4-13-3	500-9780-11	Soil
ML125A4-13-4	500-9780-12	Soil
ML125A4-14-1	500-9780-13	Soil
ML125A4-14-2	500-9780-14	Soil
ML125A4-14-3	500-9780-15	Soil
ML125A4-14-4	500-9780-16	Soil
ML125A4-15-1	500-9780-17	Soil
ML125A4-15-2	500-9780-18	Soil
ML125A4-15-3	500-9780-19	Soil
ML125A4-15-4	500-9780-20	Soil
ML125A4-15-4D	500-9780-21	Soil
ML125A4-16-1	500-9780-22	Soil
ML125A4-16-2	500-9780-23	Soil
ML125A4-16-3	500-9780-24	Soil
ML125A4-16-4	500-9780-25	Soil

Samples were analyzed for 2,4,6-TNT, HMX, and RDX.

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The cooler receipt form was reviewed. No problems were noted. The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding times.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on samples ML125A4-13-1 and ML125A4-14-1. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blanks were free from contamination.

Qualification: None required.

Field Duplicate – Sample ML125A4-15-4D is a field duplicate of sample ML125A4-15-4. Both samples were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – The laboratory's reporting limits met the sensitivity requirements. None of the target analytes were detected in any of the samples and analysis on a second column was not necessary. Non-detected results were reported as "RL U". These U qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
ML125A4-11-1	No qualifications necessary				
ML125A4-11-2	No qualifications necessary				
ML125A4-11-3	No qualifications necessary				
ML125A4-11-4	No qualifications necessary				
ML125A4-12-1	No qualifications necessary				
ML125A4-12-2	No qualifications necessary				
ML125A4-12-3	No qualifications necessary				
ML125A4-12-4	No qualifications necessary				
ML125A4-13-1	No qualifications necessary				
ML125A4-13-2	No qualifications necessary				
ML125A4-13-3	No qualifications necessary				
ML125A4-13-4	No qualifications necessary				
ML125A4-14-1	No qualifications necessary				
ML125A4-14-2	No qualifications necessary				
ML125A4-14-3	No qualifications necessary				
ML125A4-14-4	No qualifications necessary				
ML125A4-15-1	No qualifications necessary				
ML125A4-15-2	No qualifications necessary				
ML125A4-15-3	No qualifications necessary				
ML125A4-15-4	No qualifications necessary				
ML125A4-15-4D	No qualifications necessary				
ML125A4-16-1	No qualifications necessary				
ML125A4-16-2	No qualifications necessary				
ML125A4-16-3	No qualifications necessary				
ML125A4-16-4	No qualifications necessary				

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Metals
SW-836 Method 6010B ICP, Method 7471A (Mercury)
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9780-1
Laboratory: TAL Chicago	Date: 3/27/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.2.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
ML125A4-11-1	500-9780-1	Soil
ML125A4-11-2	500-9780-2	Soil
ML125A4-11-3	500-9780-3	Soil
ML125A4-11-4	500-9780-4	Soil
ML125A4-12-1	500-9780-5	Soil
ML125A4-12-2	500-9780-6	Soil
ML125A4-12-3	500-9780-7	Soil
ML125A4-12-4	500-9780-8	Soil
ML125A4-13-1	500-9780-9	Soil
ML125A4-13-2	500-9780-10	Soil
ML125A4-13-3	500-9780-11	Soil
ML125A4-13-4	500-9780-12	Soil
ML125A4-14-1	500-9780-13	Soil
ML125A4-14-2	500-9780-14	Soil
ML125A4-14-3	500-9780-15	Soil
ML125A4-14-4	500-9780-16	Soil
ML125A4-15-1	500-9780-17	Soil
ML125A4-15-2	500-9780-18	Soil
ML125A4-15-3	500-9780-19	Soil
ML125A4-15-4	500-9780-20	Soil
ML125A4-15-4D	500-9780-21	Soil
ML125A4-16-1	500-9780-22	Soil
ML125A4-16-2	500-9780-23	Soil
ML125A4-16-3	500-9780-24	Soil
ML125A4-16-4	500-9780-25	Soil

Samples analyzed for antimony, copper, lead, zinc, cadmium, and mercury only.

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for soil samples.

Qualification: None required.

Calibration – The ICVs met the <10 % D criterion; the CCVs met the <10 % D criterion for method 6010B and <20 % for method 7471A.

Qualification: None required.

Low Level MQL Check – The laboratory reported CRQL standards spiked at 2x the MQL; these CRQL standards met the laboratory's 50-150% recovery limits. The laboratory also reported low level calibration check standards with all target metals %D <20%.

Qualification: None required.

Method and Calibration Blanks – The ICP and CVAA ICBs and CCBs were free from contamination. The method blank from instrument ICP4 was contaminated with 0.32 mg/kg copper, and the method blank from instrument IPC5 was contaminated with 0.42 mg/kg copper and 0.44 mg/kg zinc. Detected results for copper and zinc were above the calculated action levels. The laboratory has applied B qualifiers to the associated copper and zinc results due to blank contamination. These B qualifiers should be removed.

***Qualification*: All B qualifiers are removed from copper and zinc results.**

Interference Check Sample – The ICSA and ICSAB spiked analytes met the <20% D criteria. All unspiked analytes in the ICSAs had concentrations with absolute value less than 2x the RL.

Qualification: None required.

ICP Serial Dilutions/Post Digestion Spike Samples – A serial dilution and a post-digestion spike were performed for Method 6010B using site sample ML125A4-13-1. The laboratory evaluated all results greater than 50x the SQL and indicated that lead (20%D) and zinc (20% D) did not meet the acceptance criteria. The laboratory has applied "V" flags to the lead and zinc results, these flags should be removed. All PDS results were within acceptance limits. All detected results for lead and zinc should be qualified J (detections) or UJ (non-detections). Results already qualified J due to being detections below the RL do not require additional qualification.

***Qualification:* The "V" flag applied the lead and zinc results in sample ML125A4-13-1 are removed; all detected results for lead and zinc should be qualified J (detections) or UJ (non-detections).**

Laboratory Control Sample – The %R results for the LCS met control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed for Method 6010B. It was noted that in the MS/MSD results there was a low bias for antimony (30/31%R), lead (67/72%R), and zinc (73/69%R). Results for antimony, lead, and zinc were all detections and should be qualified J (detections) or UJ (non-detections). Results already qualified J due to being detections below the RL do not require additional qualification.

***Qualification:* All results for antimony, lead, and zinc are qualified J (detections) or UJ (non-detections).**

Laboratory Duplicate Sample – A laboratory duplicate was prepared from sample ML125A4-13-1from this SDG. No discrepancies were noted.

Qualification: None required.

Field Duplicate – Sample ML125A4-15-4D is a field duplicate of sample ML125A4-15-4. The RPD for zinc was outside of acceptance limits. The zinc results in these samples should be qualified J. Although the mercury results did not meet the RPD limits, the results were less than 5x the RL and had an absolute difference <RL. It was noted that the ICP analyses for the duplicate pair was performed on different instruments.

***Qualification:* Zinc results in samples ML125A4-15-4D and ML125A4-15-4 are qualified J.**

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. MDLs were provided on the data reporting pages. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in mg/kg, except mercury which is ug/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML125A4-11-1	Antimony	2.0	U	2.0	UJ
	Copper	7.4	B	7.4	--
	Lead	13	--	13	J
	Zinc	22	--	22	J
ML125A4-11-2	Copper	8.6	B	8.6	--
	Lead	14	--	14	J
	Zinc	24	--	24	J
ML125A4-11-3	Antimony	1.9	U	1.9	UJ
	Copper	8.5	B	8.5	--
	Lead	12	--	12	J
	Zinc	21	--	21	J
ML125A4-11-4	Antimony	2.1	U	2.1	UJ
	Copper	10	B	10	--
	Lead	14	--	14	J
	Zinc	26	--	26	J
ML125A4-12-1	Antimony	2.0	U	2.0	UJ
	Copper	10	B	10	--
	Lead	13	--	13	J
	Zinc	26	--	26	J
ML125A4-12-2	Antimony	2.0	U	2.0	UJ
	Copper	11	B	11	--
	Lead	15	--	15	J
	Zinc	28	--	28	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML125A4-12-3	Antimony	2.2	U	2.2	UJ
	Copper	10	B	10	--
	Lead	18	--	18	J
	Zinc	38	--	38	J
ML125A4-12-4	Copper	11	B	11	--
	Lead	15	--	15	J
	Zinc	26	--	26	J
ML125A4-13-1	Antimony	1.9	U	1.9	UJ
	Copper	9.9	B	9.9	--
	Lead	15	V	15	J
	Zinc	26	V	26	J
ML125A4-13-2	Antimony	2.1	U	2.1	UJ
	Copper	11	B	11	--
	Lead	13	--	13	J
	Zinc	26	--	26	J
ML125A4-13-3	Antimony	2.0	U	2.0	UJ
	Copper	9.8	B	9.8	--
	Lead	17	--	17	J
	Zinc	27	--	27	J
ML125A4-13-4	Antimony	2.0	U	2.0	UJ
	Copper	9.1	B	9.1	--
	Lead	13	--	13	J
	Zinc	24	--	24	J
ML125A4-14-1	Antimony	1.9	U	1.9	UJ
	Copper	11	B	11	--
	Lead	14	--	14	J
	Zinc	29	--	29	J
ML125A4-14-2	Antimony	2.2	U	2.2	UJ
	Copper	13	B	13	--
	Lead	16	--	16	J
	Zinc	30	--	30	J
ML125A4-14-3	Antimony	2.1	U	2.1	UJ
	Copper	9.8	B	9.8	--
	Lead	18	--	18	J
	Zinc	24	--	24	J
ML125A4-14-4	Antimony	2.3	U	2.3	UJ
	Copper	11	B	11	--
	Lead	16	--	16	J
	Zinc	31	--	31	J
ML125A4-15-1	Antimony	1.8	U	1.8	UJ
	Copper	9.2	B	9.2	--
	Lead	10	--	10	J
	Zinc	27	--	27	J
ML125A4-15-2	Antimony	2.2	U	2.2	UJ
	Copper	11	B	11	--
	Lead	13	--	13	J
	Zinc	35	--	35	J
ML125A4-15-3	Antimony	1.9	U	1.9	UJ
	Copper	13	B	13	--
	Lead	16	--	16	J
	Zinc	38	--	38	J
ML125A4-15-4	Antimony	2.0	U	2.0	UJ

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
	Copper	11	B	11	--
	Lead	13	--	13	J
	Zinc	33	--	33	J
ML125A4-15-4D	Antimony	2.1	U	2.1	UJ
	Copper	12	B	12	--
	Lead	14	--	14	J
	Zinc	42	B	42	J
ML125A4-16-1	Antimony	2.1	U	2.1	UJ
	Copper	14	B	14	--
	Lead	27	--	27	J
	Zinc	30	B	30	J
ML125A4-16-2	Antimony	1.8	U	1.8	UJ
	Copper	14	B	14	--
	Lead	23	--	23	J
	Zinc	30	B	30	J
ML125A4-16-3	Antimony	2.2	U	2.2	UJ
	Copper	15	B	15	--
	Lead	23	--	23	J
	Zinc	34	B	34	J
ML125A4-16-4	Antimony	1.9	U	1.9	UJ
	Copper	18	B	18	--
	Lead	20	--	20	J
	Zinc	36	B	36	J

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Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9798-1
Laboratory: TAL Chicago	Date: 3/27/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.2.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
AL120A1-1	500-9798-1	Soil
AL120A1-2	500-9798-2	Soil
AL120A1-3	500-9798-3	Soil
AL120A1-4	500-9798-4	Soil
ML125A3-08-1	500-9798-5	Soil
ML125A3-08-2	500-9798-6	Soil
ML125A3-08-2D	500-9798-7	Soil
ML125A3-08-3	500-9798-8	Soil
ML125A3-08-4	500-9798-9	Soil
ML125A3-09-1	500-9798-10	Soil
ML125A3-09-2	500-9798-11	Soil
ML125A3-09-3	500-9798-12	Soil
ML125A3-09-4	500-9798-13	Soil
ML125A3-10-1	500-9798-14	Soil
ML125A3-10-2	500-9798-15	Soil
ML125A3-10-3	500-9798-16	Soil
ML125A3-10-4	500-9798-17	Soil
ML125A1-01-1	500-9798-18	Soil
ML125A1-01-2	500-9798-19	Soil
ML125A1-01-3	500-9798-20	Soil
ML125A1-01-4	500-9798-21	Soil
ML125A1-02-1	500-9798-22	Soil
ML125A1-02-2	500-9798-23	Soil
ML125A1-02-3	500-9798-24	Soil

Samples were analyzed for 2,4,6-TNT, HMX, and RDX.

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The cooler receipt form was reviewed. No problems were noted. The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on sample ML125A3-09-3 and ML125A1-01-4. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blanks were free from contamination.

Qualification: None required.

Field Duplicate – Sample ML125A3-08-2D is a field duplicate of sample ML125A3-08-2. Both samples were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier. The laboratory's reporting limits met the sensitivity requirements. Detected results were within retention time windows and were confirmed within 40% D.

Qualification: None required.

Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
AL120A1-1	No qualifications necessary				
AL120A1-2	No qualifications necessary				
AL120A1-3	No qualifications necessary				
AL120A1-4	No qualifications necessary				
ML125A3-08-1	No qualifications necessary				
ML125A3-08-2	No qualifications necessary				
ML125A3-08-2D	No qualifications necessary				
ML125A3-08-3	No qualifications necessary				
ML125A3-08-4	No qualifications necessary				
ML125A3-09-1	No qualifications necessary				
ML125A3-09-2	No qualifications necessary				
ML125A3-09-3	No qualifications necessary				
ML125A3-09-4	No qualifications necessary				
ML125A3-10-1	No qualifications necessary				
ML125A3-10-2	No qualifications necessary				
ML125A3-10-3	No qualifications necessary				
ML125A3-10-4	No qualifications necessary				
ML125A1-01-1	No qualifications necessary				
ML125A1-01-2	No qualifications necessary				
ML125A1-01-3	No qualifications necessary				
ML125A1-01-4	No qualifications necessary				
ML125A1-02-1	No qualifications necessary				
ML125A1-02-2	No qualifications necessary				
ML125A1-02-3	No qualifications necessary				

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Metals
SW-836 Method 6010B ICP, Method 7471A (Mercury)
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9798-1
Laboratory: TAL Chicago	Date: 3/27/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.3.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
AL120A1-1	500-9798-1	Soil
AL120A1-2	500-9798-2	Soil
AL120A1-3	500-9798-3	Soil
AL120A1-4	500-9798-4	Soil
ML125A3-08-1	500-9798-5	Soil
ML125A3-08-2	500-9798-6	Soil
ML125A3-08-2D	500-9798-7	Soil
ML125A3-08-3	500-9798-8	Soil
ML125A3-08-4	500-9798-9	Soil
ML125A3-09-1	500-9798-10	Soil
ML125A3-09-2	500-9798-11	Soil
ML125A3-09-3	500-9798-12	Soil
ML125A3-09-4	500-9798-13	Soil
ML125A3-10-1	500-9798-14	Soil
ML125A3-10-2	500-9798-15	Soil
ML125A3-10-3	500-9798-16	Soil
ML125A3-10-4	500-9798-17	Soil
ML125A1-01-1	500-9798-18	Soil
ML125A1-01-2	500-9798-19	Soil
ML125A1-01-3	500-9798-20	Soil
ML125A1-01-4	500-9798-21	Soil
ML125A1-02-1	500-9798-22	Soil
ML125A1-02-2	500-9798-23	Soil
ML125A1-02-3	500-9798-24	Soil

Samples analyzed for antimony, copper, lead, zinc, cadmium and mercury only.

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for soil samples.

Qualification: None required.

Calibration – The ICVs met the <10 % D criterion and the CCVs met the 10% D criterion for method 6010B and <20 % D for method 7471A.

Qualification: None required.

Low Level MQL Check – The low level calibration check had all target metals %D <20%. The laboratory also reported CRQL standards spiked at 2x the MQL; these CRQL standards met the laboratory's 50-150% recovery limits.

Qualification: None required.

Method and Calibration Blanks – The ICP and ICP/MS ICB and CCVs were free from contamination. The method blank from batch run 33305 was contaminated with 0.42 mg/kg copper and 0.44 mg/kg zinc, and batch run 33575 was contaminated with 0.39 mg/kg copper. Detected results for copper and zinc were above the calculated action levels. The laboratory has applied B qualifiers to the associated copper and zinc results due to blank contamination. These B qualifiers should be removed.

Qualification: All B qualifiers are removed from copper and zinc results.

Interference Check Sample – The ICSA and ICSAB spiked analytes met the <20% D criteria. All unspiked analytes in the ICSAs had concentrations with absolute value less than 2x the RL.

Qualification: None required.

ICP Serial Dilutions/Post Digestion Spike Samples – A serial dilution and a post-digestion spike were performed for Method 6010B using site sample ML125A3-09-3. The laboratory evaluated all results greater than 50x the SQL and indicated that copper (15%D), lead (22%D), and zinc (25% D) did not meet the acceptance criteria. The laboratory has applied "V" flags to the copper, lead, and zinc results in the parent sample; these flags should be removed and the copper, lead, and zinc results in all associated samples (lab sample IDs -1 through -15) should be qualified J. Additionally, a serial dilution and a post-digestion spike were performed for Method 6010B using site sample ML125A1-01-3. The laboratory evaluated all results greater than 50x the SQL and indicated that zinc (13% D) did not meet the acceptance criteria. The laboratory has applied "V" flags to the zinc result in the parent sample; this flag should be removed and the zinc results in all associated samples (lab sample IDs -16 through 2-24) should be qualified J All PDS results were within acceptance limits. Note that detected results already qualified J due to being below the RL do not require additional qualification.

***Qualification:* All "V" flags are removed; all zinc samples are qualified J. The copper and lead results in the 15 samples associated with ML125A3-09-3 (lab sample IDs -1 through -15) are qualified J.**

Laboratory Control Sample – The %R results for all LCS met control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed for Method 6010B using samples ML125A3-09-3 and ML125A1-01-3. It was noted that in the MS/MSD results many metals were outside of acceptance limits, as is shown in the following table. Bold entries are outside of acceptance limits.

Analyte	MS Sample	MS Recovery	MSD Recovery	%RPD
Antimony	ML125A3-09-3	**36**	**39**	19
	ML125A1-01-3	**29**	**33**	19
Copper	ML125A3-09-3	**272**	**74**	**40**
	ML125A1-01-3	**167**	**123**	8
Cadmium	ML125A3-09-3	80	**74**	2
	ML125A1-01-3	84	90	8
Zinc	ML125A3-09-3	80	**74**	1
	ML125A1-01-3	88	100	8
Mercury	ML125A3-09-3	**67**	88	13
	ML125A1-01-3	**78**	81	3

All antimony results except one are non-detections and should be qualified UJ; the antimony results in sample ML125A3-08-3 is a detection already qualified J due to being below the RL and no additional qualification is necessary. All copper results are detections above the RL and should be qualified J. All cadmium and zinc results associated with the MS performed on sample ML125A3-09-3 (lab sample IDs -1 through -15) are detections and should be qualified J. The mercury result in sample ML125A3-10-1 is a non-detection and should be qualified UJ. All other mercury results are detections and should be qualified J. Note that detected results already qualified J due to being below the RL do not require additional qualification.

> ***Qualification:*** **All undetected results for antimony and mercury are qualified UJ. The detected results for copper and mercury are qualified J in all samples. The results for cadmium and zinc are qualified J in the 15 samples associated with MS sample ML125A3-09-3 (lab sample IDs -1 through -15).**

Laboratory Duplicate Sample – A laboratory duplicate for method 7471A was prepared from samples ML125A3-09-3 and ML125A1-01-3 from this SDG. All mercury results met precision criteria.

> *Qualification:* None required.

Field Duplicate – Sample ML125A3-08-2D is a field duplicate of sample ML125A3-08-2. It was noted that the RPD for mercury (31%RPD) was outside of acceptance limits and the concentrations were outside the absolute difference <RL criterion for results <5x RL. The mercury results in these samples should be qualified J.

> ***Qualification:*** **The mercury results in samples ML125A3-08-2 and ML125A3-08-2D are qualified J.**

Equipment Blank – No equipment blank was associated with this SDG.

> Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory; the QAPP requires non-detected results to be U flagged at the MDL. MDLs were provided on the data reporting pages. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

> *Qualification:* None required.

Qualification Summary Table (all concentrations in mg/kg, except mercury which is ug/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
AL120A1-1	Antimony	2.0	U	2.0	UJ
	Copper	8.2	B	8.2	J
	Lead	12	--	12	J
	Zinc	32	B	32	J
AL120A1-2	Antimony	2.0	U	2.0	UJ
	Copper	8.9	B	8.9	J
	Lead	12	--	12	J
	Zinc	31	B	31	J
AL120A1-3	Antimony	2.0	U	2.0	UJ
	Copper	9.4	B	9.4	J
	Lead	13	--	13	J
	Zinc	32	B	32	J
	Mercury	25	--	25	J
AL120A1-4	Antimony	1.9	U	1.9	UJ
	Copper	7.7	B	7.7	J
	Lead	12	--	12	J
	Zinc	32	B	32	J
ML125A3-08-1	Antimony	1.9	U	1.9	UJ
	Copper	97	B	97	J
	Lead	19	--	19	J
	Cadmium	0.40	--	0.40	J
	Zinc	42	B	42	J
ML125A3-08-2	Antimony	1.9	U	1.9	UJ
	Copper	12	B	12	J
	Lead	18	--	18	J
	Cadmium	0.29	--	0.29	J
	Zinc	42	B	42	J
	Mercury	64	--	64	J
ML125A3-08-2D	Antimony	1.9	U	1.9	UJ
	Copper	14	B	14	J
	Lead	16	--	16	J
	Cadmium	0.31	--	0.31	J
	Zinc	41	B	41	J
	Mercury	88	--	88	J
ML125A3-08-3	Copper	13	B	13	J
	Lead	37	--	37	J
	Cadmium	0.74	--	0.74	J
	Zinc	62	B	62	J
	Mercury	21	--	21	J
ML125A3-08-4	Antimony	2.0	U	2.0	UJ
	Copper	22	B	22	J
	Lead	18	--	18	J
	Cadmium	0.55	--	0.55	J
	Zinc	39	B	39	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML125A3-09-1	Antimony	2.0	U	2.0	UJ
	Copper	33	B	33	J
	Lead	20	--	20	J
	Cadmium	1.6	--	1.6	J
	Zinc	53	B	53	J
	Mercury	52	--	52	J
ML125A3-09-2	Antimony	1.9	U	1.9	UJ
	Copper	61	B	61	J
	Lead	28	--	28	J
	Cadmium	2.6	--	2.6	J
	Zinc	53	B	53	J
	Mercury	150	--	150	J
ML125A3-09-3	Antimony	2.0	U	2.0	UJ
	Copper	71	B V	71	J
	Lead	22	V	22	J
	Cadmium	2.4	--	2.4	J
	Zinc	47	B V	47	J
	Mercury	79	--	79	J
ML125A3-09-4	Antimony	2.2	U	2.2	UJ
	Copper	21	B	21	J
	Lead	15	--	15	J
	Cadmium	0.74	--	0.74	J
	Zinc	52	B	52	J
	Mercury	68	--	68	J
ML125A3-10-1	Antimony	1.9	U	1.9	UJ
	Copper	9.3	B	9.3	J
	Lead	15	--	15	J
	Cadmium	0.32	--	0.32	J
	Zinc	41	B	41	J
	Mercury	19	U	19	UJ
ML125A3-10-2	Antimony	2.1	U	2.1	UJ
	Copper	10	B	10	J
	Lead	12	--	12	J
	Zinc	32	B	32	J
ML125A3-10-3	Antimony	1.9	U	1.9	UJ
	Copper	9.4	B	9.4	J
	Zinc	32	--	32	J
	Mercury	45	--	45	J
ML125A3-10-4	Antimony	2.0	U	2.0	UJ
	Copper	7.8	B	7.8	J
	Zinc	30	--	30	J
ML125A1-01-1	Antimony	2.2	U	2.2	UJ
	Copper	26	B	26	J
	Zinc	50	--	50	J
	Mercury	20	--	20	J
ML125A1-01-2	Antimony	2.3	U	2.3	UJ
	Copper	18	B	18	J
	Zinc	49	--	49	J
ML125A1-01-3	Antimony	2.1	U	2.1	UJ
	Copper	77	B	77	J
	Zinc	68	V	68	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML125A1-01-4	Antimony	2.2	U	2.2	UJ
	Copper	16	B	16	J
	Zinc	48	--	48	J
ML125A1-02-1	Antimony	2.4	U	2.4	UJ
	Copper	15	B	15	J
	Zinc	48	--	48	J
	Mercury	26	--	26	J
ML125A1-02-2	Antimony	2.0	U	2.0	UJ
	Copper	10	B	10	J
	Zinc	40	--	40	J
ML125A1-02-3	Antimony	2.4	U	2.4	UJ
	Copper	15	B	15	J
	Zinc	52	--	52	J

Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9799-1
Laboratory: TAL Chicago	Date: 3/31/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.3.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
ML124A1-02-03D	500-9799-1	Soil
ML124A1-02-04	500-9799-2	Soil
ML124A1-03-01	500-9799-3	Soil
ML124A1-03-02	500-9799-4	Soil
ML124A1-03-03	500-9799-5	Soil
ML124A1-03-04	500-9799-6	Soil
ML124A1-04-01	500-9799-7	Soil
ML124A1-04-02	500-9799-8	Soil
ML124A1-04-03	500-9799-9	Soil
ML124A1-04-04	500-9799-10	Soil
ML124A1-05-01	500-9799-11	Soil
ML124A1-05-02	500-9799-12	Soil
ML124A1-05-03	500-9799-13	Soil
ML124A1-05-04	500-9799-14	Soil
ML124A1-05-04D	500-9799-15	Soil

Samples were analyzed for 2,4,6-TNT, HMX, and RDX.

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The chain of custody did not indicate the sample collection dates. The cooler receipt form was reviewed and indicated that the laboratory used the sample dates from the jars. No other problems were noted. The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding times.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on sample ML124A1-02-03D. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blank was free from contamination.

Qualification: None required.

Field Duplicate – Sample ML124A1-05-04D is a field duplicate of sample ML124A1-05-04. Both samples were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. The laboratory's reporting limits met the sensitivity requirements. None of the analytes were detected in any of the samples and analysis on a second column was not necessary.

Qualification: None required.

Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
ML124A1-02-03D	No qualifications necessary				
ML124A1-02-04	No qualifications necessary				
ML124A1-03-01	No qualifications necessary				
ML124A1-03-02	No qualifications necessary				
ML124A1-03-03	No qualifications necessary				
ML124A1-03-04	No qualifications necessary				
ML124A1-04-01	No qualifications necessary				
ML124A1-04-02	No qualifications necessary				

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
ML124A1-04-03	No qualifications necessary				
ML124A1-04-04	No qualifications necessary				
ML124A1-05-01	No qualifications necessary				
ML124A1-05-02	No qualifications necessary				
ML124A1-05-03	No qualifications necessary				
ML124A1-05-04	No qualifications necessary				
ML124A1-05-04D	No qualifications necessary				

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Metals
SW-836 Method 6010B ICP, Method 7471A (Mercury)
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9799-1
Laboratory: TAL Chicago	Date: 3/31/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.3.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
ML124A1-02-03D	500-9799-1	Soil
ML124A1-02-04	500-9799-2	Soil
ML124A1-03-01	500-9799-3	Soil
ML124A1-03-02	500-9799-4	Soil
ML124A1-03-03	500-9799-5	Soil
ML124A1-03-04	500-9799-6	Soil
ML124A1-04-01	500-9799-7	Soil
ML124A1-04-02	500-9799-8	Soil
ML124A1-04-03	500-9799-9	Soil
ML124A1-04-04	500-9799-10	Soil
ML124A1-05-01	500-9799-11	Soil
ML124A1-05-02	500-9799-12	Soil
ML124A1-05-03	500-9799-13	Soil
ML124A1-05-04	500-9799-14	Soil
ML124A1-05-04D	500-9799-15	Soil

Samples analyzed for antimony, copper, lead, zinc, cadmium and mercury only.

Narrative and Completeness Review – The case narrative and the data package were checked for completeness. No discrepancies were noted.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for soil samples.

Qualification: None required.

Calibration – The ICVs met the <10 % D criterion; the CCVs met the <10% D criterion for method 6010B and the <20 % D criterion for method 7471A.

Qualification: None required.

Low Level MQL Check – The laboratory reported CRQL standards spiked at 2x the MQL; these CRQL standards met the laboratory's 50-150% recovery limits. The laboratory also reported a low level calibration check; this check had all target metals %D <20% with the exception of lead (129%R) for MRL check 33813/17. This is not a required review element. All associated lead results were greater than 10x the RL and no qualification is necessary.

Qualification: None required.

Method and Calibration Blanks – The ICP and ICP/MS ICB and CCBs were free from contamination. The method blank from batch run 33575 was contaminated with 0.39 mg/kg copper, and batch run 33813 was contaminated with 0.25 mg/kg lead and 0.34 mg/kg zinc. Detected results for copper, lead, and zinc were above the calculated action levels. The laboratory has applied B qualifiers to the associated copper, lead, and zinc results due to blank contamination. These B qualifiers should be removed.

Qualification: All B qualifiers are removed from copper, lead, and zinc results.

Interference Check Sample – The ICSA and ICSAB spiked analytes met the <20% D criteria. All unspiked analytes in the ICSAs had concentrations with absolute value less than 2x the RL.

Qualification: None required.

ICP Serial Dilutions/Post Digestion Spike Samples – Serial dilution and post digestion spike analyses were not performed on a sample from this SDG.

Qualification: None required.

Laboratory Control Sample – The %R results for all LCS met control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed for Method 7471A using samples ML125A1-02-4; %R and RPD were within acceptance limits.

Qualification: None Required.

Laboratory Duplicate Sample – A laboratory duplicate for method 7471A was prepared from sample ML125A01-02-4; no discrepancies were noted.

Qualification: None required.

Field Duplicate – Sample ML124A1-05-04D is a field duplicate of sample ML124A1-05-04D; no discrepancies were noted.

Qualification: None required.

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory; the QAPP requires non-detected results to be U flagged at the MDL. MDLs were provided on the data reporting pages. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in mg/kg, except mercury which is ug/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
ML124A1-02-03D	Copper	15	B	15	--
ML124A1-02-04	Copper	10	B	10	--
ML124A1-03-01	Copper	11	B	11	--
ML124A1-03-02	Copper	9.8	B	9.8	--
ML124A1-03-03	Copper	11	B	11	--
ML124A1-03-04	Copper	12	B	12	--
ML124A1-04-01	Copper	12	B	12	--
ML124A1-04-02	Copper	11	B	11	--
ML124A1-04-03	Copper	8.6	B	8.6	--
ML124A1-04-04	Copper	11	B	11	--
ML124A1-05-01	Lead	19	B	19	--
	Zinc	41	B	41	--
ML124A1-05-02	Lead	17	B	17	--
	Zinc	40	B	40	--
ML124A1-05-03	Lead	18	B	18	--
	Zinc	51	B	51	--
ML124A1-05-04	Lead	20	B	20	--
	Zinc	46	B	46	--
ML124A1-05-04D	Lead	19	B	19	--
	Zinc	45	B	45	--

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Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9830-1
Laboratory: TAL Chicago	Date: 3/31/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.3.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
AL771-02-1	500-9830-1	Soil
AL771-02-2	500-9830-2	Soil
AL771-02-2D	500-9830-3	Soil
AL771-02-3	500-9830-4	Soil
AL771-02-4	500-9830-5	Soil
AL771-02-5	500-9830-6	Soil
AL771-02-6	500-9830-7	Soil
AL771-02-7	500-9830-8	Soil
AL771-02-8	500-9830-9	Soil
AL771-03-1	500-9830-10	Soil
AL771-03-1D	500-9830-11	Soil
AL771-03-2	500-9830-12	Soil
AL771-03-3	500-9830-13	Soil
AL771-03-4	500-9830-14	Soil
AL771-03-5	500-9830-15	Soil
AL771-03-6	500-9830-16	Soil
AL771-03-7	500-9830-17	Soil
AL771-03-8	500-9830-18	Soil
AL771-04-1	500-9830-19	Soil
AL771-04-2	500-9830-20	Soil
AL771-04-3	500-9830-21	Soil
AL771-04-4	500-9830-22	Soil
AL771-04-5	500-9830-23	Soil
AL771-04-6	500-9830-24	Soil

Samples were analyzed for 2,4,6-TNT, HMX, and RDX.

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The cooler receipt form was reviewed. No problems were noted. The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding times.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on samples AL771-02-5 and AL771-04-3. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blanks were free from contamination.

Qualification: None required.

Field Duplicate – Sample AL771-02-2D is a field duplicate of sample AL771-02-2, and sample AL771-03-1D is a field duplicate of sample AL771-03-1. Both samples and their duplicates were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. The laboratory's reporting limits met the sensitivity requirements. None of the analytes were detected in any of the samples and analysis on a second column was not necessary.

Qualification: None required.

Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
AL771-02-1	No qualifications necessary				
AL771-02-2	No qualifications necessary				
AL771-02-2D	No qualifications necessary				
AL771-02-3	No qualifications necessary				
AL771-02-4	No qualifications necessary				
AL771-02-5	No qualifications necessary				
AL771-02-6	No qualifications necessary				
AL771-02-7	No qualifications necessary				
AL771-02-8	No qualifications necessary				
AL771-03-1	No qualifications necessary				
AL771-03-1D	No qualifications necessary				
AL771-03-2	No qualifications necessary				
AL771-03-3	No qualifications necessary				
AL771-03-4	No qualifications necessary				
AL771-03-5	No qualifications necessary				
AL771-03-6	No qualifications necessary				
AL771-03-7	No qualifications necessary				
AL771-03-8	No qualifications necessary				
AL771-04-1	No qualifications necessary				
AL771-04-2	No qualifications necessary				
AL771-04-3	No qualifications necessary				
AL771-04-4	No qualifications necessary				
AL771-04-5	No qualifications necessary				
AL771-04-6	No qualifications necessary				

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Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9831-1
Laboratory: TAL Chicago	Date: 3/31/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.3.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
AL771-04-7	500-9831-1	Soil
AL771-04-7D	500-9831-2	Soil
AL771-04-8	500-9831-3	Soil
AL771-05-1	500-9831-4	Soil
AL771-05-2	500-9831-5	Soil
AL771-05-3	500-9831-6	Soil
AL771-05-4	500-9831-7	Soil
AL771-05-5	500-9831-8	Soil
AL771-05-6	500-9831-9	Soil
AL771-05-7	500-9831-10	Soil
AL771-05-8	500-9831-11	Soil
AL771-06-1	500-9831-12	Soil
AL771-06-2	500-9831-13	Soil
AL771-06-3	500-9831-14	Soil
AL771-06-4	500-9831-15	Soil
AL771-06-5	500-9831-16	Soil
AL771-06-6	500-9831-17	Soil
AL771-06-6D	500-9831-18	Soil
AL771-06-7	500-9831-19	Soil
AL771-06-8	500-9831-20	Soil
AL771-01-1	500-9831-21	Soil
ML125A2-06-1	500-9831-22	Soil
ML125A2-07-1	500-9831-23	Soil

Samples were analyzed for 2,4,6-TNT, HMX, and RDX.

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The cooler receipt form was reviewed. No problems were noted. The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding times.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on samples AL771-05-7 and AL771-06-7. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blanks were free from contamination.

Qualification: None required.

Field Duplicate – AL771-04-7D is a field duplicate of sample AL771-04-7, and sample AL771-06-6D is a field duplicate of sample AL771-06-6. Both samples and their duplicates were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. The laboratory's reporting limits met the sensitivity requirements. None of the analytes were detected in any of the samples and analysis on a second column was not necessary.

Qualification: None required.

Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
AL771-04-7	No qualifications necessary				
AL771-04-7D	No qualifications necessary				
AL771-04-8	No qualifications necessary				
AL771-05-1	No qualifications necessary				
AL771-05-2	No qualifications necessary				
AL771-05-3	No qualifications necessary				
AL771-05-4	No qualifications necessary				
AL771-05-5	No qualifications necessary				
AL771-05-6	No qualifications necessary				
AL771-05-7	No qualifications necessary				
AL771-05-8	No qualifications necessary				
AL771-06-1	No qualifications necessary				
AL771-06-2	No qualifications necessary				
AL771-06-3	No qualifications necessary				
AL771-06-4	No qualifications necessary				
AL771-06-5	No qualifications necessary				
AL771-06-6	No qualifications necessary				
AL771-06-6D	No qualifications necessary				
AL771-06-7	No qualifications necessary				
AL771-06-8	No qualifications necessary				
AL771-01-1	No qualifications necessary				
ML125A2-06-1	No qualifications necessary				
ML125A2-07-1	No qualifications necessary				

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Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9832-1
Laboratory: TAL Chicago	Date: 3/31/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.3.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
AL120ID-01-1	500-9832-1	Soil
AL120ID-01-2	500-9832-2	Soil
AL120ID-01-3	500-9832-3	Soil
AL120ID-01-4	500-9832-4	Soil
AL120ID-01-5	500-9832-5	Soil
AL120ID-01-6	500-9832-6	Soil
AL120ID-01-7	500-9832-7	Soil
AL120ID-01-8	500-9832-8	Soil
AL120ID-01-8D	500-9832-9	Soil
AL120ID-02-1	500-9832-10	Soil
AL120ID-02-2	500-9832-11	Soil
AL120ID-02-2D	500-9832-12	Soil
AL120ID-02-3	500-9832-13	Soil
AL120ID-02-4	500-9832-14	Soil
AL120ID-02-5	500-9832-15	Soil
AL120ID-02-6	500-9832-16	Soil
AL120ID-02-7	500-9832-17	Soil
AL120ID-02-8	500-9832-18	Soil
AL120ID-03-1	500-9832-19	Soil
AL120ID-03-1D	500-9832-20	Soil
AL120ID-03-3	500-9832-21	Soil
AL120ID-03-4	500-9832-22	Soil
AL120ID-03-5	500-9832-23	Soil
AL120ID-03-6	500-9832-24	Soil

Samples were analyzed for 2,4,6-TNT, HMX, and RDX.

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. No discrepancies noted.

Qualification: None required.

Sample Delivery and Condition – The cooler receipt form was reviewed. No problems were noted. The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding times.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on samples AL120ID-01-3 and AL120ID-02-6. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blanks were free from contamination.

Qualification: None required.

Field Duplicate – AL120ID-01-8D is a field duplicate of sample AL120ID-01-8, AL120ID-02-2D is a field duplicate of sample AL120ID-02-2 and sample AL120ID-03-1D is a field duplicate of sample AL120ID-03-1. All samples and their duplicates were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. The laboratory's reporting limits met the sensitivity requirements. None of the analytes were detected in any of the samples and analysis on a second column was not necessary.

Qualification: None required.

Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
AL120ID-01-1	No qualifications necessary				
AL120ID-01-2	No qualifications necessary				
AL120ID-01-3	No qualifications necessary				
AL120ID-01-4	No qualifications necessary				
AL120ID-01-5	No qualifications necessary				
AL120ID-01-6	No qualifications necessary				
AL120ID-01-7	No qualifications necessary				
AL120ID-01-8	No qualifications necessary				
AL120ID-01-8D	No qualifications necessary				
AL120ID-02-1	No qualifications necessary				
AL120ID-02-2	No qualifications necessary				
AL120ID-02-2D	No qualifications necessary				
AL120ID-02-3	No qualifications necessary				
AL120ID-02-4	No qualifications necessary				
AL120ID-02-5	No qualifications necessary				
AL120ID-02-6	No qualifications necessary				
AL120ID-02-7	No qualifications necessary				
AL120ID-02-8	No qualifications necessary				
AL120ID-03-1	No qualifications necessary				
AL120ID-03-1D	No qualifications necessary				
AL120ID-03-3	No qualifications necessary				
AL120ID-03-4	No qualifications necessary				
AL120ID-03-5	No qualifications necessary				
AL120ID-03-6	No qualifications necessary				

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Explosives
SW-846 Method 8330
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9833-1
Laboratory: TAL Chicago	Date: 3/31/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (4.3.08)	Project: O1015.05.04

Client Sample ID	Laboratory Sample ID	Matrix
AL120ID-03-7	500-9833-1	Soil
AL120ID-03-8	500-9833-2	Soil
AL120ID-04-1	500-9833-3	Soil
AL120ID-04-2	500-9833-4	Soil
AL120ID-04-3	500-9833-5	Soil
AL120ID-04-4	500-9833-6	Soil
AL120ID-04-5	500-9833-7	Soil
AL120ID-04-6	500-9833-8	Soil
AL120ID-04-7	500-9833-9	Soil
AL120ID-04-8	500-9833-10	Soil
AL120ID-05-1	500-9833-11	Soil
AL120ID-05-2	500-9833-12	Soil
AL120ID-05-3	500-9833-13	Soil
AL120ID-05-4	500-9833-14	Soil
AL120ID-05-3D*	500-9833-15	Soil
AL120ID-05-5	500-9833-16	Soil
AL120ID-05-6	500-9833-17	Soil
AL120ID-05-7	500-9833-18	Soil
AL120ID-05-8	500-9833-19	Soil
AL120ID-03-2*	500-9833-20	Soil

Samples were analyzed for 2,4,6-TNT, HMX, and RDX.
*See “Narrative and Completeness Review”.

Narrative and Completeness Review – The case narrative was reviewed and the package was checked for completeness. The narrative noted that the chain of custody indicated that there was a sample identified as AL120ID-05-4D on the chain of custody that was not received. The samples received included a sample identified as AL120ID-05-3D that was not indicated on the chain and this sample was logged in with lab sample ID 500-9833-15 instead of the sample ID AL120ID-05-4D indicated on the chain of custody. The laboratory also noted that a sample AL120ID-03-2 was received but was not included on the chain custody; this sample was logged in as laboratory sample ID 500-9833-20.

Qualification: None required.

Sample Delivery and Condition – The cooler receipt form was reviewed; two sample discrepancies were noted and discussed in the narrative (see above). The samples arrived at the laboratory in acceptable condition and temperature. Proper custody (internal and external) was documented.

Qualification: None required.

Holding Times – The samples were extracted and analyzed within the required holding times.

Qualification: None required.

Calibration – The laboratory case narrative reported that all initial and continuing calibrations were acceptable. Calibration reporting forms were reviewed and all initial calibration standards and continuing calibration standards exhibited acceptable %RSD and %D values.

Qualification: None required.

Surrogates – The samples were spiked with the surrogate 1,2-dinitrobenzene. Surrogate recoveries were within the laboratory control limits with the exception of high recovery in samples AL120ID-05-1 (133%R), AL120ID-05-3 (132%R), and AL120ID-05-3D (138%R). No analytes were detected in the samples and no qualification is necessary.

Qualification: None required.

Laboratory Control Samples – The LCS %Rs were within control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed on samples AL120ID-04-7 and AL120ID-05-6. The %R results and calculated RPDs met the control limits.

Qualification: None required.

Method Blank – The method blanks were free from contamination.

Qualification: None required.

Field Duplicate – AL120ID-05-3D is a field duplicate of sample AL120ID-05-3; both the sample and duplicate were non-detects for all analytes.

Qualification: None required.

Rinsates – No rinsate sample was provided with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. The laboratory's reporting limits met the sensitivity requirements. None of the analytes were detected in any of the samples and analysis on a second column was not necessary.

Qualification: None required.

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Qualification Summary Table: (All values reported in µg/kg)

Sample ID	Analyte	Lab Val	Lab Qual	HGL Val	HGL Qual
AL120ID-03-7	No qualifications necessary				
AL120ID-03-8	No qualifications necessary				
AL120ID-04-1	No qualifications necessary				
AL120ID-04-2	No qualifications necessary				
AL120ID-04-3	No qualifications necessary				
AL120ID-04-4	No qualifications necessary				
AL120ID-04-5	No qualifications necessary				
AL120ID-04-6	No qualifications necessary				
AL120ID-04-7	No qualifications necessary				
AL120ID-04-8	No qualifications necessary				
AL120ID-05-1	No qualifications necessary				
AL120ID-05-2	No qualifications necessary				
AL120ID-05-3	No qualifications necessary				
AL120ID-05-4	No qualifications necessary				
AL120ID-05-3D	No qualifications necessary				
AL120ID-05-5	No qualifications necessary				
AL120ID-05-6	No qualifications necessary				
AL120ID-05-7	No qualifications necessary				
AL120ID-05-8	No qualifications necessary				
AL120ID-03-2	No qualifications necessary				

Metals
SW-836 Method 6010B ICP
SW-846 Method 7471A
EPA Percent Moisture
Level III Review

Site: Kirtland Air Force Base	SDG #: 500-9913-1
Laboratory: TAL Chicago	Date: 3/26/08
HydroGeoLogic, Inc. Reviewer: Joseph Vilain Peer Reviewer: Ken Rapuano (3.27.08)	Project: O1015.06.03

Client Sample ID	Laboratory Sample ID	Matrix
SR765-005	500-9913-1	Soil
SR767-007	500-9913-2	Soil
50CAL-005	500-9913-3	Soil
SR763-008	500-9913-4	Soil
SR764-015	500-9913-5	Soil
TS775-011	500-9913-6	Soil
TS775-011D	500-9913-7	Soil
TS776-034	500-9913-8	Soil
TS776-035	500-9913-9	Soil

Narrative and Completeness Review – The case narrative and the data package were checked for completeness.

Qualification: None required.

Sample Delivery and Condition – The samples arrived at the laboratory in acceptable condition and at proper temperature. Proper custody was documented.

Qualification: None required.

Holding Times – All samples were analyzed within the required holding time for preserved water samples.

Qualification: None required.

Calibration – The ICVs and CCVs met the <10 % D criterion.

Qualification: None required.

ICP/MS Tuning – The ICP/MS tune was not performed.

Qualification: None required.

Low Level MQL Check – The laboratory reported CRQL standards spiked at 2x the MQL; these CRQL standards met the laboratory's 50-150% recovery limits. The laboratory also reported a low level calibration check, which had all target metals within the 80-120% limits, with the exception of lead (129%). This is not a required QC element. All associated lead results were greater than 10x the RL.

Qualification: None required.

Method and Calibration Blanks – The ICP and ICP/MS method blank was contaminated with many metals as summarized in the following table.

Metal	Contamination Point	Highest Contamination (mg/L)	Action Level (mg/L)
Barium	MB	0.86	4.3
Iron	MB	7.4	37
Lead	MB	0.25	1.25
Magnesium	MB, CCB	2.0	10
Zinc	MB	0.34	1.7

The laboratory has applied B qualifiers, due to blank contamination, to all metal results except antimony and copper. No samples had detected concentrations of contaminated metals below the associated action level. These B qualifiers should be removed.

Qualification: All B qualifiers applied by the laboratory are removed from the results reported for all samples.

Interference Check Sample – The ICSA and ICSAB spiked analytes met the <20% D criteria. All unspiked analytes in the ICSAs had concentrations with absolute value less than the RL.

Qualification: None required.

ICP Serial Dilutions/Post Digestion Spike Samples – A serial dilution and a post-digestion spike were performed for Method 6010B using site sample SR765-005. The laboratory evaluated all results greater than 50x the SQL and indicated that zinc (15% difference) did not meet the acceptance criteria. The laboratory has applied a "V" flag to the zinc result, this flag should be removed. All zinc results are detections and should be qualified J.

***Qualification:* The "V" flag applied the zinc result in sample SR765-005 is removed. All zinc results should be qualified J.**

Laboratory Control Sample – The %R results for the LCS met control limits.

Qualification: None required.

MS/MSD – Matrix spike/matrix spike duplicate analyses were performed for Method 6010B using samples SR764-007. It was noted that in the MS/MSD results, antimony was biased low (40/38%R) and magnesium was biased high (108/149%R), it was also noted that the MS recovery for Lead was below acceptance limits (72%R). Percent recoveries for iron were high as well, but as the parent concentration was more than 4x the spiked concentration, no qualification is required. Detected results for antimony were between the MDL and RL and are qualified J, non-detection results for antimony are to be qualified UJ. All lead results are detections above the RL and are qualified J. Due to the parent concentration of magnesium in the samples being 2 to 3 times the spiking concentration, in the opinion of this reviewer the magnesium results do not require qualification. All PDS results were within acceptance limits.

***Qualification:* Undetected results for antimony are to be qualified UJ. All results for lead are qualified J.**

Laboratory Duplicate Sample – A laboratory duplicate was prepared from sample SR765-005from this SDG. It was noted that the RPD for detected copper was outside of acceptance limits (21%RPD). The result for copper should be qualified J in the original sample.

Qualification: **All copper results are qualified J.**

Field Duplicate – Sample TS775-011D is a field duplicate of sample TS775-011, not discrepancies were noted.

Qualification: None required.

Equipment Blank – No equipment blank was associated with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the RL and were reported as U qualified results by the laboratory. These U qualifiers were retained unless superseded by a more severe qualifier. Analytes detected between the MDL and RL were reported as J qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

Qualification: None required.

Qualification Summary Table (all concentrations in mg/kg)

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
SR765-005	Antimony	2.0	U	2.0	UJ
	Barium	150	B	150	--
	Copper	11	--	11	J
	Iron	9900	B	9900	--
	Lead	13	B	13	J
	Magnesium	3100	B	3100	--
	Zinc	23	B V	23	J
SR767-007	Antimony	1.9	U	1.9	UJ
	Barium	130	B	130	--
	Copper	6.6	--	6.6	J
	Iron	7600	B	7600	--
	Lead	11	B	11	J
	Magnesium	3000	B	3000	--
	Zinc	23	B	23	J
50CAL-005	Antimony	1.9	U	1.9	UJ
	Barium	54	B	54	--
	Copper	6.5	--	6.5	J
	Iron	8600	B	8600	--
	Lead	6.8	B	6.8	J
	Magnesium	2100	B	2100	--
	Zinc	21	B	21	J
SR763-008	Antimony	2.0	U	2.0	UJ
	Barium	82	B	82	--
	Copper	7.8	--	7.8	J
	Iron	8800	B	8800	--
	Lead	8.0	B	8.0	J
	Magnesium	2600	B	2600	--
	Zinc	22	B	22	J

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier
SR764-015	Antimony	2.0	U	2.0	UJ
	Barium	110	B	110	--
	Copper	12	--	12	J
	Iron	12000	B	12000	--
	Lead	22	B	22	J
	Magnesium	3800	B	3800	--
	Zinc	38	B	38	J
TS775-011	Antimony	1.8	U	1.8	UJ
	Barium	50	B	50	--
	Copper	8.3	--	8.3	J
	Iron	7000	B	7000	--
	Lead	13	B	13	J
	Magnesium	1600	B	1600	--
	Zinc	20	B	20	J
TS775-011D	Antimony	1.8	U	1.8	UJ
	Barium	52	B	52	--
	Copper	7.9	--	7.9	J
	Iron	7100	B	7100	--
	Lead	13	B	13	J
	Magnesium	1700	B	1700	--
	Zinc	20	B	20	J
TS776-034	Antimony	2.0	U	2.0	UJ
	Barium	75	B	75	--
	Copper	8.7	--	8.7	J
	Iron	11000	B	11000	--
	Lead	20	B	20	J
	Magnesium	2700	B	2700	--
	Zinc	31	B	31	J
TS776-035	Barium	82	B	82	--
	Copper	9.0	--	9.0	J
	Iron	11000	B	11000	--
	Lead	130	B	130	J
	Magnesium	3000	B	3000	--
	Zinc	31	B	31	J

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Proximity Fuze Range

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Proximity Fuze Range

Date Information Entered\Updated: 3/11/2010 6:39:47 PM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. MRS AL120 is 488.5 acres in size and is located in the southeast portion of Kirtland AFB. The eastern boundary is steep, mountainous terrain. Several gates and natural barriers restrict vehicular access to AL120; however, all-terrain vehicle riders, mountain bikes and hikers can access the site.

MRS AL120 was not surveyed with DGM because of the rugged terrain. Visual survey and groundtruthing of AL120 documented 5" projectiles from VT fuze tests. Cultural features observed were related to refuse discarded by persons who have illegally gained access to this remote portion of AL120.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The Air Force Cohort assignment is F - Large Caliber Range.

Description of Pathways for Human and Ecological Receptors:

No samples were collected at MRS AL120.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors.
The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 1

EHE Module: Munitions Type Data Element Worksheet

Classification	Description	Score
Sensitive	- All UXO that are considered likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. - All hand grenades containing energetic filler. - Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30

High explosive (used or damaged)	- All UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive."
	- All DMM containing a high-explosive filler that have:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		25

Pyrotechnic (used or damaged)	- All UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).
	- All DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		20

High explosive (unused)	- All DMM containing a high explosive filler that:
	  - Have not been damaged by burning or detonation
	  - Are not deteriorated to the point of instability.
		15

Propellant	- All UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).
	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:
	  - Damaged by burning or detonation
	  - Deteriorated to the point of instability.
		15

Bulk secondary high explosives, pyrotechnics, or propellant	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. - Bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10

Pyrotechnic (not used or damaged)	- All DMM containing a pyrotechnic fillers (i.e., red phosphorous), other than white phosphorous filler, that:
	  - Have not been damaged by burning or detonation
	  - Are not deteriorated to the point of instability.
		10

Practice	- All UXO that are practice munitions that are not associated with a sensitive fuze.
	- All DMM that are practice munitions that are not associated with a sensitive fuze and that have not:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		5

Riot control	- All UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	- All used munitions or DMM that are categorized as small arms ammunition [Physical evidence or historical evidence that no other types of munitions (e.g., grenades, subcaliber training rockets, demolition charges) were used or are present on the MRS is required for selection of this category.].	2
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 30).**	25

Site-specific data used in selection MUNITIONS TYPE classification:

AL120 is a large caliber range. 5" projectiles were observed on site.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 2

EHE Module: Source of Hazard Data Element Worksheet

Classification	Description	Score
Former Range	- The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include: impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	10
Former Munitions treatment (i.e., OB/OD unit)	- The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	- The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	- The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	- The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	- The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	- The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	- The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	- The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	- The MRS is a former military range where only small arms ammunition was used [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
Source of Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific data characteristics used to select the SOURCE OF HAZARD classification:

Historical information indicates extensive impact from past military munitions testing and training on AL120, including the Navy's BuOrd development and production testing of the VT fuze from January 1942 through October 1952; Sandia Base defense training; and weapons research, development, and testing. Nine historical firing points are associated with the NMPG/NMER development of the VT fuze.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 3

EHE Module: Information on the Location of Munitions Data Element Worksheet

Classification	Description	Score
Confirmed surface	- Physical evidence indicates that there are UXO or DMM on the surface of the MRS - Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	- There is physical evidence (e.g., munitions debris, such fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	- There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	- There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms range (regardless of location	- The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
Location of Munitions	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 25).**	10

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

Limited munitions debris was found and included 5" projectiles.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 4

EHE Module: Ease of Access Data Element Worksheet

Classification	Description	Score
No barrier	- There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	- There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	- There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	- There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
Ease of Access	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific characteristics used to select the EASE OF ACCESS classification:

AL120 is located in severely rugged terrain but there are no access restrictions after entering the Installation. - Section 5.1.4
AL120 is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 persons/sq. mile in Bernalillo County. - Section 5.1.7.1
There are 16-25 inhabited structures up to 2 miles from the boundary. - Section 5.1.7.2
Residential and industrial areas are located up to 2 miles from the boundary. - Section 5.1.7.1
There are no ecological or cultural resources within or in close proximity to AL120. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 5

EHE Module: Status of Property Data Element Worksheet

Classification	Description	Score
Non-DoD control	- The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies.	5
Scheduled for transfer from DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the rule is applied.	3
DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
Status of Property	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	0

Site-specific characteristics used to select the EASE OF ACCESS classification:

AL120 is located in severely rugged terrain but there are no access restrictions after entering the Installation. - Section 5.1.4
AL120 is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 persons/sq. mile in Bernalillo County. - Section 5.1.7.1
There are 16-25 inhabited structures up to 2 miles from the boundary. - Section 5.1.7.2
Residential and industrial areas are located up to 2 miles from the boundary. - Section 5.1.7.1
There are no ecological or cultural resources within or in close proximity to AL120. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 6

EHE Module: Population Density Data Element Worksheet

Classification	Description	Score
> 500 persons per square mile	- There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	5
100- 500 persons per square mile	- There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	3
< 100 persons per square mile	- There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	1
Population Density	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific characteristics that helped select the POPULATION DENSITY classification

AL120 is located in severely rugged terrain but there are no access restrictions after entering the Installation. - Section 5.1.4
AL120 is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 persons/sq. mile in Bernalillo County. - Section 5.1.7.1
There are 16-25 inhabited structures up to 2 miles from the boundary. - Section 5.1.7.2
Residential and industrial areas are located up to 2 miles from the boundary. - Section 5.1.7.1
There are no ecological or cultural resources within or in close proximity to AL120. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 7

EHE Module: Population Near Hazard Data Element Worksheet

Classification	Description	Score
26 or more inhabited structures	- There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	- There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	- There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	- There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	- There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	- There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
Population Near Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	4

Site-specific data characteristics used to select the POPULATION NEAR HAZARD classification:

AL120 is located in severely rugged terrain but there are no access restrictions after entering the Installation. - Section 5.1.4
AL120 is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 persons/sq. mile in Bernalillo County. - Section 5.1.7.1
There are 16-25 inhabited structures up to 2 miles from the boundary. - Section 5.1.7.2
Residential and industrial areas are located up to 2 miles from the boundary. - Section 5.1.7.1
There are no ecological or cultural resources within or in close proximity to AL120. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 8

EHE Module: Types of Activities/Structures Data Element Worksheet

Classification	Description	Score
Residential. educational, or subsitence	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	- There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
Types of Activites/Structures	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

AL120 is located in severely rugged terrain but there are no access restrictions after entering the Installation. - Section 5.1.4
AL120 is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 persons/sq. mile in Bernalillo County. - Section 5.1.7.1
There are 16-25 inhabited structures up to 2 miles from the boundary. - Section 5.1.7.2
Residential and industrial areas are located up to 2 miles from the boundary. - Section 5.1.7.1
There are no ecological or cultural resources within or in close proximity to AL120. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120

FFID: NM657182442300

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Worksheet

Classification	Description	Score
Ecological and cultural resources present	- There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	- There are ecological resources present on the MRS.	3
Cultural resources present	- There are cultural resources present on the MRS.	3
No ecological or cultural resources present	- There are no ecological resources or cultural resources present on the MRS.	0
Ecological and/or Cultural Resources	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	0

Site-specific characteristics used to select the ECOLOGICAL AND/OR CULTURAL RESOURCES classification:

AL120 is located in severely rugged terrain but there are no access restrictions after entering the Installation. - Section 5.1.4
AL120 is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 persons/sq. mile in Bernalillo County. - Section 5.1.7.1
There are 16-25 inhabited structures up to 2 miles from the boundary. - Section 5.1.7.2
Residential and industrial areas are located up to 2 miles from the boundary. - Section 5.1.7.1
There are no ecological or cultural resources within or in close proximity to AL120. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	25
Source of Hazard	**Table 2**	10
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	10
Ease of Access	**Table 4**	10
Status of Property	**Table 5**	0
Receptors Factor Data Elements		
Population Density	**Table 6**	5
Population Near Hazard	**Table 7**	4
Types of Activities/Structures	**Table 8**	5
Ecological and/or Cultural Resources	**Table 9**	0
	Sum	69

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No groundwater samples were collected. Depth to groundwater is approximately 90-100 feet in AL120. Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No soil samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required No Known or Suspected MC Hazard Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	5	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Proximity Fuze Range

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Proximity Fuze Range

Date Information Entered\Updated: 3/11/2010 6:42:54 PM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☑ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120a, Propellant Dispersal Site, is located within the southcentral portion of AL120 and is 7.5 acres in size. The terrain is mostly flat grassland and undeveloped open space. Once access onto Kirtland AFB is obtained, AL120a is not restricted. Large numbers of scattered propellant are visible on the surface. This was a firing point for projectiles fired into NMPG.

The presence of surface and subsurface MEC is a risk to authorized personnel and trespassers. Soil samples were collected in AL120a to characterize potential HE-related contamination. MC-related compounds TNT. HMX, and RDX were non-detect in all samples. The analytical results fo the CSE Phase II soil samples were compared to NMED Residential and EPA Region 6 SSLs. The Air Force cohort assignment is F - Large Caliber Range.

Description of Pathways for Human and Ecological Receptors:

Soil sample results were below detection limits so pose no significant threat to receptors of soil pathway. No surface water/sediment or groundwater samples were collected at AL120a.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors.
The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 1

EHE Module: Munitions Type Data Element Worksheet

Classification	Description	Score
Sensitive	- All UXO that are considered likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. - All hand grenades containing energetic filler. - Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30

High explosive (used or damaged)	- All UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive."
	- All DMM containing a high-explosive filler that have:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		25

Pyrotechnic (used or damaged)	- All UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).
	- All DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		20

High explosive (unused)	- All DMM containing a high explosive filler that:
	  - Have not been damaged by burning or detonation
	  - Are not deteriorated to the point of instability.
		15

Propellant	- All UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).
	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:
	  - Damaged by burning or detonation
	  - Deteriorated to the point of instability.
		15

Bulk secondary high explosives, pyrotechnics, or propellant	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. - Bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10

Pyrotechnic (not used or damaged)	- All DMM containing a pyrotechnic fillers (i.e., red phosphorous), other than white phosphorous filler, that:
	  - Have not been damaged by burning or detonation
	  - Are not deteriorated to the point of instability.
		10

Practice	- All UXO that are practice munitions that are not associated with a sensitive fuze.
	- All DMM that are practice munitions that are not associated with a sensitive fuze and that have not:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		5

Riot control	- All UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	- All used munitions or DMM that are categorized as small arms ammunition [Physical evidence or historical evidence that no other types of munitions (e.g., grenades, subcaliber training rockets, demolition charges) were used or are present on the MRS is required for selection of this category.].	2
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 30).**	15

Site-specific data used in selection MUNITIONS TYPE classification:

AL120a was a firing point for projectiles into NMPG. Propellant was visible scattered across the 7.5 acres of the site.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 2

EHE Module: Source of Hazard Data Element Worksheet

Classification	Description	Score
Former Range	- The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include: impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	10
Former Munitions treatment (i.e., OB/OD unit)	- The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	- The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	- The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	- The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	- The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	- The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	- The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	- The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	- The MRS is a former military range where only small arms ammunition was used [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
Source of Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific data characteristics used to select the SOURCE OF HAZARD classification:

Available historical data indicated past military munitions testing and training including Navy Bu ordnance development and production testing and Sandia Base defense training, and weapons research, development, and testing.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 3

EHE Module: Information on the Location of Munitions Data Element Worksheet

Classification	Description	Score
Confirmed surface	- Physical evidence indicates that there are UXO or DMM on the surface of the MRS - Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	- There is physical evidence (e.g., munitions debris, such fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	- There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	- There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms range (regardless of location	- The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
Location of Munitions	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 25).**	25

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

Propellent was found on surface of AL120a, but no UXO or DMM

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 4

EHE Module: Ease of Access Data Element Worksheet

Classification	Description	Score
No barrier	- There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	- There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	- There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	- There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
Ease of Access	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific characteristics used to select the EASE OF ACCESS classification:

AL120a is flat grassland with no access restrictions after entering the Installation. - Reference - Section 5.1.4
AL120a is located on an active military installation. - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo County. - Reference - Section 5.1.7.1
Active Kirtland AFB structures are up to two miles from the boundary. - Reference - Section 5.1.7.2
There are industrial areas located up to 2 miles from the boundary. - Reference - Section 5.1.7.1
AL120a is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 5

EHE Module: Status of Property Data Element Worksheet

Classification	Description	Score
Non-DoD control	- The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies.	5
Scheduled for transfer from DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the rule is applied.	3
DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
Status of Property	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	0

Site-specific characteristics used to select the EASE OF ACCESS classification:

AL120a is flat grassland with no access restrictions after entering the Installation. - Reference - Section 5.1.4
AL120a is located on an active military installation. - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo County. - Reference - Section 5.1.7.1
Active Kirtland AFB structures are up to two miles from the boundary. - Reference - Section 5.1.7.2
There are industrial areas located up to 2 miles from the boundary. - Reference - Section 5.1.7.1
AL120a is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 6

EHE Module: Population Density Data Element Worksheet

Classification	Description	Score
> 500 persons per square mile	- There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	5
100- 500 persons per square mile	- There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	3
< 100 persons per square mile	- There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	1
Population Density	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific characteristics that helped select the POPULATION DENSITY classification

AL120a is flat grassland with no access restrictions after entering the Installation. - Reference - Section 5.1.4
AL120a is located on an active military installation. - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo County. - Reference - Section 5.1.7.1
Active Kirtland AFB structures are up to two miles from the boundary. - Reference - Section 5.1.7.2
There are industrial areas located up to 2 miles from the boundary. - Reference - Section 5.1.7.1
AL120a is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 7

EHE Module: Population Near Hazard Data Element Worksheet

Classification	Description	Score
26 or more inhabited structures	- There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	- There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	- There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	- There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	- There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	- There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
Population Near Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific data characteristics used to select the POPULATION NEAR HAZARD classification:

AL120a is flat grassland with no access restrictions after entering the Installation. - Reference - Section 5.1.4
AL120a is located on an active military installation. - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo County. - Reference - Section 5.1.7.1
Active Kirtland AFB structures are up to two miles from the boundary. - Reference - Section 5.1.7.2
There are industrial areas located up to 2 miles from the boundary. - Reference - Section 5.1.7.1
AL120a is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 8

EHE Module: Types of Activities/Structures Data Element Worksheet

Classification	Description	Score
Residential. educational, or subsitence	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	- There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
Types of Activites/Structures	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	2

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

AL120a is flat grassland with no access restrictions after entering the Installation. - Reference - Section 5.1.4
AL120a is located on an active military installation. - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo County. - Reference - Section 5.1.7.1
Active Kirtland AFB structures are up to two miles from the boundary. - Reference - Section 5.1.7.2
There are industrial areas located up to 2 miles from the boundary. - Reference - Section 5.1.7.1
AL120a is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Worksheet

Classification	Description	Score
Ecological and cultural resources present	- There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	- There are ecological resources present on the MRS.	3
Cultural resources present	- There are cultural resources present on the MRS.	3
No ecological or cultural resources present	- There are no ecological resources or cultural resources present on the MRS.	0
Ecological and/or Cultural Resources	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific characteristics used to select the ECOLOGICAL AND/OR CULTURAL RESOURCES classification:

AL120a is flat grassland with no access restrictions after entering the Installation. - Reference - Section 5.1.4
AL120a is located on an active military installation. - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo County. - Reference - Section 5.1.7.1
Active Kirtland AFB structures are up to two miles from the boundary. - Reference - Section 5.1.7.2
There are industrial areas located up to 2 miles from the boundary. - Reference - Section 5.1.7.1
AL120a is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	15
Source of Hazard	**Table 2**	10
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	25
Ease of Access	**Table 4**	10
Status of Property	**Table 5**	0
Receptors Factor Data Elements		
Population Density	**Table 6**	5
Population Near Hazard	**Table 7**	5
Types of Activities/Structures	**Table 8**	2
Ecological and/or Cultural Resources	**Table 9**	5
	Sum	77

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No groundwater samples were collected. Depth to groundwater is approximately 90-100 feet in AL120a. - Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A

FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Soil samples were analyzed for 2,4,6-TNT, RDX, and HDX. All results were below detection limits and so pose no significant threat to receptors or pathways

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required No Known or Suspected MC Hazard Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120A **MRS:** AL120A
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	4	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Proximity Fuze Range

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Proximity Fuze Range

Date Information Entered\Updated: 11/3/2009 2:38:13 PM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120b, McCormick UXO Site, is located within the southwest portion of AL120 and is one acre in size. The terrain is flat grassland and it is undeveloped open space. Once access onto Kirtland AFB is obtained, entry onto AL120b is not restricted.

One 57mm HE round was found. No samples were collected. The Air Force Cohort assignment is F - Medium Caliber Range.

Description of Pathways for Human and Ecological Receptors:

No samples were collected in AL120b.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors.
The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 1

EHE Module: Munitions Type Data Element Worksheet

Classification	Description	Score
Sensitive	- All UXO that are considered likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. - All hand grenades containing energetic filler. - Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	- All UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." - All DMM containing a high-explosive filler that have: - Been damaged by burning or detonation - Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	- All UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). - All DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: - Been damaged by burning or detonation - Deteriorated to the point of instability.	20
High explosive (unused)	- All DMM containing a high explosive filler that: - Have not been damaged by burning or detonation - Are not deteriorated to the point of instability.	15
Propellant	- All UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). - All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: - Damaged by burning or detonation - Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. - Bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	- All DMM containing a pyrotechnic fillers (i.e., red phosphorous), other than white phosphorous filler, that: - Have not been damaged by burning or detonation - Are not deteriorated to the point of instability.	10
Practice	- All UXO that are practice munitions that are not associated with a sensitive fuze. - All DMM that are practice munitions that are not associated with a sensitive fuze and that have not: - Been damaged by burning or detonation - Deteriorated to the point of instability.	5
Riot control	- All UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	- All used munitions or DMM that are categorized as small arms ammunition [Physical evidence or historical evidence that no other types of munitions (e.g., grenades, subcaliber training rockets, demolition charges) were used or are present on the MRS is required for selection of this category.].	2
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 30).**	25

Site-specific data used in selection MUNITIONS TYPE classification:

The following item was considered: 57mm HE round. Since this is a high explosive, it was scored using the high explosive classification.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 2

EHE Module: Source of Hazard Data Element Worksheet

Classification	Description	Score
Former Range	- The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include: impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	10
Former Munitions treatment (i.e., OB/OD unit)	- The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	- The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	- The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	- The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	- The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	- The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	- The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	- The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	- The MRS is a former military range where only small arms ammunition was used [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
Source of Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific data characteristics used to select the SOURCE OF HAZARD classification:

Historical information indicates extensive impact from past military munitions testing and training on AL120, including the Navy's BuOrd development and production testing of the VT fuze from January 1942 through October 1952; Sandia Base defense training; and weapons research, development, and testing. Nine historical firing points are associated with the NMPG/NMER development of the VT fuze, including AL120b

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 3

EHE Module: Information on the Location of Munitions Data Element Worksheet

Classification	Description	Score
Confirmed surface	- Physical evidence indicates that there are UXO or DMM on the surface of the MRS - Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	- There is physical evidence (e.g., munitions debris, such fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	- There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	- There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms range (regardless of location	- The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
Location of Munitions	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 25).**	25

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

57mm HE round was found on the surface of AL120b.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 4

EHE Module: Ease of Access Data Element Worksheet

Classification	Description	Score
No barrier	- There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	- There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	- There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	- There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
Ease of Access	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific characteristics used to select the EASE OF ACCESS classification:

Flat grassland, no access restriction after entering installation - Reference - Section 5.1.4
AL120b is located on an active military installation - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county - Reference - Section 5.1.7.1
Active Kirtland AFB structures located up to 2 miles from the boundary - Reference - Section 5.1.7.2
Residential areas are located up to 2 miles from the boundary - Reference - Section 5.1.7.1
Cultural resources are within or in close proximity of AL120b - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 5

EHE Module: Status of Property Data Element Worksheet

Classification	Description	Score
Non-DoD control	- The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies.	5
Scheduled for transfer from DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the rule is applied.	3
DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
Status of Property	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	0

Site-specific characteristics used to select the EASE OF ACCESS classification:

Flat grassland, no access restriction after entering installation - Reference - Section 5.1.4
AL120b is located on an active military installation - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county - Reference - Section 5.1.7.1
Active Kirtland AFB structures located up to 2 miles from the boundary - Reference - Section 5.1.7.2
Residential areas are located up to 2 miles from the boundary - Reference - Section 5.1.7.1
Cultural resources are within or in close proximity of AL120b - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 6

EHE Module: Population Density Data Element Worksheet

Classification	Description	Score
> 500 persons per square mile	- There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	5
100- 500 persons per square mile	- There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	3
< 100 persons per square mile	- There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	1
Population Density	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific characteristics that helped select the POPULATION DENSITY classification

Flat grassland, no access restriction after entering installation - Reference - Section 5.1.4
AL120b is located on an active military installation - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county - Reference - Section 5.1.7.1
Active Kirtland AFB structures located up to 2 miles from the boundary - Reference - Section 5.1.7.2
Residential areas are located up to 2 miles from the boundary - Reference - Section 5.1.7.1
Cultural resources are within or in close proximity of AL120b - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 7

EHE Module: Population Near Hazard Data Element Worksheet

Classification	Description	Score
26 or more inhabited structures	- There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	- There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	- There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	- There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	- There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	- There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
Population Near Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific data characteristics used to select the POPULATION NEAR HAZARD classification:

Flat grassland, no access restriction after entering installation - Reference - Section 5.1.4
AL120b is located on an active military installation - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county - Reference - Section 5.1.7.1
Active Kirtland AFB structures located up to 2 miles from the boundary - Reference - Section 5.1.7.2
Residential areas are located up to 2 miles from the boundary - Reference - Section 5.1.7.1
Cultural resources are within or in close proximity of AL120b - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 8

EHE Module: Types of Activities/Structures Data Element Worksheet

Classification	Description	Score
Residential. educational, or subsitence	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	- There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
Types of Activites/Structures	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

Flat grassland, no access restriction after entering installation - Reference - Section 5.1.4
AL120b is located on an active military installation - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county - Reference - Section 5.1.7.1
Active Kirtland AFB structures located up to 2 miles from the boundary - Reference - Section 5.1.7.2
Residential areas are located up to 2 miles from the boundary - Reference - Section 5.1.7.1
Cultural resources are within or in close proximity of AL120b - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B

FFID: NM657182442300

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Worksheet

Classification	Description	Score
Ecological and cultural resources present	- There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	- There are ecological resources present on the MRS.	3
Cultural resources present	- There are cultural resources present on the MRS.	3
No ecological or cultural resources present	- There are no ecological resources or cultural resources present on the MRS.	0
Ecological and/or Cultural Resources	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	3

Site-specific characteristics used to select the ECOLOGICAL AND/OR CULTURAL RESOURCES classification:

Flat grassland, no access restriction after entering installation - Reference - Section 5.1.4
AL120b is located on an active military installation - Reference - Section 5.1.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county - Reference - Section 5.1.7.1
Active Kirtland AFB structures located up to 2 miles from the boundary - Reference - Section 5.1.7.2
Residential areas are located up to 2 miles from the boundary - Reference - Section 5.1.7.1
Cultural resources are within or in close proximity of AL120b - Reference - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	25
Source of Hazard	**Table 2**	10
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	25
Ease of Access	**Table 4**	10
Status of Property	**Table 5**	0
Receptors Factor Data Elements		
Population Density	**Table 6**	5
Population Near Hazard	**Table 7**	5
Types of Activities/Structures	**Table 8**	5
Ecological and/or Cultural Resources	**Table 9**	3
	Sum	88

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No groundwater samples were collected. Depth to groundwater is approximately 350-450 feet. - Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No soil samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required **No Known or Suspected MC Hazard** Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120B
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	3	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Proximity Fuze Range

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Proximity Fuze Range

Date Information Entered\Updated: 11/3/2009 2:55:09 PM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120c is located in the northeast and southeast area of AL120 and is 1504.7 acres in size. Both areas are located on the eastern boundary of Kirtland AFB and the terrain is steep and mountainous. The eastern Installation boundary between Kirtland AFB and Cibola National Forest, in the northeastern portion, is not completely fenced. Several gates and natural barriers restrict vehicular access onto the Installation from the eastern boundary; however, all-terrain vehicle riders, mountain bikers, and hikers have illegally gained access to AL120c.

Geophysical surveys were not conducted because the terrain is so rugged. Visual surveys did not locate any munition items, only refuse presumably discarded by persons who have illegally accessed the Installation.

The Air Force cohort assignment is F - Large Caliber Range.

Description of Pathways for Human and Ecological Receptors:

No samples were collected in AL120c.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors.
The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	N/A
Source of Hazard	**Table 2**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	N/A
Ease of Access	**Table 4**	N/A
Status of Property	**Table 5**	N/A
Receptors Factor Data Elements		
Population Density	**Table 6**	N/A
Population Near Hazard	**Table 7**	N/A
Types of Activities/Structures	**Table 8**	N/A
Ecological and/or Cultural Resources	**Table 9**	N/A
	Sum	N/A

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Tables 1-9 were not generated because there is no known or suspected explosive hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No groundwater samples were collected. Depth to groundwater is approximately 390-450 feet. - Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No soil samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required **No Known or Suspected MC Hazard** Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120C
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	0	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Proximity Fuze Range (H-22)

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Proximity Fuze Range (H-22)

Date Information Entered\Updated: 12/15/2009 9:28:51 AM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL120 Proximity Fuze Range is a 4,440 acre large caliber range and is divided into five non-contiguous area within all but the northwest quadrant of Kirtland AFB. AL120 encompasses the firing points, firing fans, and main impact areas for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120d is located in the northcentral area of AL120 and is 376.9 acres in pinon-juniper studded foothills. AL120d is bordered by non-fenced operational areas of the Installation.

Kirtland AFB has determined the area is still an active range and no longer require prioritization.

Description of Pathways for Human and Ecological Receptors:

Description of Receptors (Human and Ecological):

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	N/A
Source of Hazard	**Table 2**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	N/A
Ease of Access	**Table 4**	N/A
Status of Property	**Table 5**	N/A
Receptors Factor Data Elements		
Population Density	**Table 6**	N/A
Population Near Hazard	**Table 7**	N/A
Types of Activities/Structures	**Table 8**	N/A
Ecological and/or Cultural Resources	**Table 9**	N/A
	Sum	N/A

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Tables 1-9 were not generated because an appropriate response has been conducted and prioritization is no longer required.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because an appropriate response has been conducted and prioritization is no longer required.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected MC Hazard
	Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120D
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	0	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Proximity Fuze Range (H-22)

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Proximity Fuze Range (H-22)

Date Information Entered\Updated: 3/11/2010 6:48:12 PM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL120 Proximity Fuze Range is a 4,440 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompasses the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much fo the firing activities; mostly from 1942 through 1952. AL120e is located in the southcentral and southwestern alrea of AL120 and is 2060.3 acres in size. The area is bordered on the south and west by the Installation chain link fence. Part of the north side fo the southwest portion is bordered by a chain link security fence. The terrain is mostly flat to gently rolling grassland.

Geophysical surveys showed low anomaly density across the southwest portion but several areas of high anomaly density in the southcentral portion of the MRS. Visual survey found a large metal pipe, Kirtland AFB auxiliaryairfield, possible water lines and fence posts in the southwestern portion. Metal stakes, parking lot and roads, power lines, buildings, fenced compounds and communication wire were observed in the southcentral portions.

The following munitions were observed in the southwestern area: broken open fuze from a 2.75" rocket and projectile frag. The southcentral area has a 5" projectile, an unfired rifle grenade and a 5" rocket. The Air Force Cohort designation is F - Large Caliber Range.

Description of Pathways for Human and Ecological Receptors:

No soil samples were collected in AL120e.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors. The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 1

EHE Module: Munitions Type Data Element Worksheet

Classification	Description	Score
Sensitive	- All UXO that are considered likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. - All hand grenades containing energetic filler. - Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30

High explosive (used or damaged)	- All UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive."
	- All DMM containing a high-explosive filler that have:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		25

Pyrotechnic (used or damaged)	- All UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).
	- All DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		20

High explosive (unused)	- All DMM containing a high explosive filler that:
	  - Have not been damaged by burning or detonation
	  - Are not deteriorated to the point of instability.
		15

Propellant	- All UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).
	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:
	  - Damaged by burning or detonation
	  - Deteriorated to the point of instability.
		15

Bulk secondary high explosives, pyrotechnics, or propellant	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. - Bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10

Pyrotechnic (not used or damaged)	- All DMM containing a pyrotechnic fillers (i.e., red phosphorous), other than white phosphorous filler, that:
	  - Have not been damaged by burning or detonation
	  - Are not deteriorated to the point of instability.
		10

Practice	- All UXO that are practice munitions that are not associated with a sensitive fuze.
	- All DMM that are practice munitions that are not associated with a sensitive fuze and that have not:
	  - Been damaged by burning or detonation
	  - Deteriorated to the point of instability.
		5

Riot control	- All UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	- All used munitions or DMM that are categorized as small arms ammunition [Physical evidence or historical evidence that no other types of munitions (e.g., grenades, subcaliber training rockets, demolition charges) were used or are present on the MRS is required for selection of this category.].	2
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 30).**	25

Site-specific data used in selection MUNITIONS TYPE classification:

The following munitions items were considered: 5" projectile, unfired rifle grenade, broken open fuze from a 2.75" rocket and projectile frag.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 2

EHE Module: Source of Hazard Data Element Worksheet

Classification	Description	Score
Former Range	- The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include: impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	10
Former Munitions treatment (i.e., OB/OD unit)	- The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	- The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	- The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	- The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	- The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	- The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	- The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	- The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	- The MRS is a former military range where only small arms ammunition was used [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
Source of Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific data characteristics used to select the SOURCE OF HAZARD classification:

Availabe historical data indicated past military munitions testing and training including Navy Bu ordnance development and production testing and Sandia Base defense training and weapons research, development and training.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 3

EHE Module: Information on the Location of Munitions Data Element Worksheet

Classification	Description	Score
Confirmed surface	- Physical evidence indicates that there are UXO or DMM on the surface of the MRS - Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	- There is physical evidence (e.g., munitions debris, such fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	- There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	- There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms range (regardless of location	- The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
Location of Munitions	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 25).**	25

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

Limited munitions debris was found on the surface of AL120e.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 4

EHE Module: Ease of Access Data Element Worksheet

Classification	Description	Score
No barrier	- There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	- There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	- There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	- There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
Ease of Access	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific characteristics used to select the EASE OF ACCESS classification:

AL120e is flat to gently rolling grassland with no access restrictions after entering the Installation. - Section 5.14
AL120e is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 person/sq. mile in Bernalillo County - Section 5.1.7.2
Active Kirtland AFB structures are located up to 2 miles from the boundary. - Section 5.1.7.1
AL120e is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 5

EHE Module: Status of Property Data Element Worksheet

Classification	Description	Score
Non-DoD control	- The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies.	5
Scheduled for transfer from DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the rule is applied.	3
DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
Status of Property	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	0

Site-specific characteristics used to select the EASE OF ACCESS classification:

AL120e is flat to gently rolling grassland with no access restrictions after entering the Installation. - Section 5.14
AL120e is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 person/sq. mile in Bernalillo County - Section 5.1.7.2
Active Kirtland AFB structures are located up to 2 miles from the boundary. - Section 5.1.7.1
AL120e is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 6

EHE Module: Population Density Data Element Worksheet

Classification	Description	Score
> 500 persons per square mile	- There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	5
100- 500 persons per square mile	- There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	3
< 100 persons per square mile	- There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	1
Population Density	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific characteristics that helped select the POPULATION DENSITY classification

AL120e is flat to gently rolling grassland with no access restrictions after entering the Installation. - Section 5.14
AL120e is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 person/sq. mile in Bernalillo County - Section 5.1.7.2
Active Kirtland AFB structures are located up to 2 miles from the boundary. - Section 5.1.7.1
AL120e is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 7

EHE Module: Population Near Hazard Data Element Worksheet

Classification	Description	Score
26 or more inhabited structures	- There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	- There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	- There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	- There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	- There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	- There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
Population Near Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific data characteristics used to select the POPULATION NEAR HAZARD classification:

AL120e is flat to gently rolling grassland with no access restrictions after entering the Installation. - Section 5.14
AL120e is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 person/sq. mile in Bernalillo County - Section 5.1.7.2
Active Kirtland AFB structures are located up to 2 miles from the boundary. - Section 5.1.7.1
AL120e is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 8

EHE Module: Types of Activities/Structures Data Element Worksheet

Classification	Description	Score
Residential. educational, or subsitence	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	- There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
Types of Activites/Structures	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

AL120e is flat to gently rolling grassland with no access restrictions after entering the Installation. - Section 5.14
AL120e is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 person/sq. mile in Bernalillo County - Section 5.1.7.2
Active Kirtland AFB structures are located up to 2 miles from the boundary. - Section 5.1.7.1
AL120e is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E

FFID: NM657182442300

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Worksheet

Classification	Description	Score
Ecological and cultural resources present	- There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	- There are ecological resources present on the MRS.	3
Cultural resources present	- There are cultural resources present on the MRS.	3
No ecological or cultural resources present	- There are no ecological resources or cultural resources present on the MRS.	0
Ecological and/or Cultural Resources	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific characteristics used to select the ECOLOGICAL AND/OR CULTURAL RESOURCES classification:

AL120e is flat to gently rolling grassland with no access restrictions after entering the Installation. - Section 5.14
AL120e is located on an active military installation. - Section 5.1.1
According to the US Census Bureau there are more than 500 person/sq. mile in Bernalillo County - Section 5.1.7.2
Active Kirtland AFB structures are located up to 2 miles from the boundary. - Section 5.1.7.1
AL120e is potential gray vireo habitat and contains or is in close proximity to cultural resources. - Section 5.1.8/5.1.9

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	25
Source of Hazard	**Table 2**	10
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	25
Ease of Access	**Table 4**	10
Status of Property	**Table 5**	0
Receptors Factor Data Elements		
Population Density	**Table 6**	5
Population Near Hazard	**Table 7**	5
Types of Activities/Structures	**Table 8**	5
Ecological and/or Cultural Resources	**Table 9**	5
	Sum	90

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No groundwater samples were collected. Depth to groundwater is approximately 90-450 feet in AL120e. - Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No soil samples were collected.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required No Known or Suspected MC Hazard Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL120 **MRS:** AL120E
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	3	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Ordnance Drop Zone

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Ordnance Drop Zone

Date Information Entered\Updated: 12/16/2009 9:21:08 AM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL769 Ordnance Drop Zone is a 174.4 acre air-to-ground range located in the northwest portion of Kirtland AFB. The history and use of AL769 is unknown. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of AL769 acreage documented only cultural surface features including a large metal fence post and metal drone cable. No munitions-related items were observed. The Air Force cohort designation is F - Air-to-Ground Range.

Description of Pathways for Human and Ecological Receptors:

No samples were collected at AL769.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors.
The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	N/A
Source of Hazard	**Table 2**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	N/A
Ease of Access	**Table 4**	N/A
Status of Property	**Table 5**	N/A
Receptors Factor Data Elements		
Population Density	**Table 6**	N/A
Population Near Hazard	**Table 7**	N/A
Types of Activities/Structures	**Table 8**	N/A
Ecological and/or Cultural Resources	**Table 9**	N/A
	Sum	N/A

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Tables 1-9 were not generated because there is no known or suspected explosive hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No groundwater samples were collected at AL769. Depth to groundwater is approximately 350-490 feet in AL769. - Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected at AL769.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected at AL769.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected at AL769.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected at AL769.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No soil samples were collected at AL769.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required **No Known or Suspected MC Hazard** Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL769 **MRS:** AL769
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	0	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Old Cable Site

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Old Cable Site

Date Information Entered\Updated: 12/16/2009 9:21:33 AM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☑ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The AL771 Old Cable Site is a 586.4 acre air-to-ground range located in the southcentral portion of Kirtland AFB. The site consists of rolling grassland hills bisected by arroyos transgressing into rocky, pinion-juniper studded foothills. The site was used as a test site and projectile impact area. Currently the northeastern portion of AL771 is being utilized by DOE and the remainder of the site is utilized as a training and maneuver site. Access controls are in place.

Geophysical survey results indicated three areas of high anomaly density. The visual survey confirmed the presence of bulk propellant Ballistite, 3.5" and 5" rockets, 5" projectiles and a bunker. Ground truthing confirmed the presence of 3.5" and 5" rockets, 5" frag, 3.5" rocket fuze, 5" projectiles, slap fare, small arms ammunitions casings, as well as numerous non-munitions items. In addition, one bunker and five MEC locations were selected for soil sampling and laboratory analysis of suspected MC related compounds. Explosives analysis included the compounds TNT, HMX, and RDX.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. MC-related compounds TNT, HMX and RDX were non detect in all samples. The analytical results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. The Air Force cohort assignment is F - Large Caliber Range.

Description of Pathways for Human and Ecological Receptors:

The potential for MC contamination is present in the surface and subsurface soil. Soil samples were collected but MC contaminants were not detected. No groundwater, sediment or surface water samples were collected.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors.
The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	N/A
Source of Hazard	**Table 2**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	N/A
Ease of Access	**Table 4**	N/A
Status of Property	**Table 5**	N/A
Receptors Factor Data Elements		
Population Density	**Table 6**	N/A
Population Near Hazard	**Table 7**	N/A
Types of Activities/Structures	**Table 8**	N/A
Ecological and/or Cultural Resources	**Table 9**	N/A
	Sum	N/A

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Tables 1-9 were not generated because an appropriate response has been conducted and prioritization is no longer required.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Groundwater samples were not collected at AL771. Depth to groundwater is 90-100 feet at AL771. - Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected at AL771.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected at AL771.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected at AL771.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected at AL771.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

Samples were collected and analyzed for explosives; however, no analytes were detected in any of the samples. Reference - Section 5.3.6.5

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required No Known or Suspected MC Hazard Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** AL771 **MRS:** AL771
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	0	

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table A

MRS Background Information

Munitions Response Site Name: Arroyo del Coyote Demolition Area

Component: Air Force

Installation/Property Name: KIRTLAND AIR FORCE BASE

Location (City, County, State): Albuquerque, Bernalillo, NM

Site Name/Project name (Project No.): Arroyo del Coyote Demolition Area

Date Information Entered\Updated: 11/11/2009 12:21:59 PM

Point of Contact Name: Wayne Bitner **Point of Contact Phone:** (505) 853-3484

Project Phase (check only one):

☐ PA	☑ SI	☐ RI	☐ FS	☐ RD
☐ RA	☐ RIP	☐ RC		

Media Evaluated (check all that apply):

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface soil	☐ Surface Water (ecological receptor)
☐ Sediment (ecological receptor)	☐ Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

The DA130 Arroyo Del Coyote Demolition Area is a 386.5 acre OB/OD range located in the northwest portion of Kirtland AFB. DA130 consists of 61 acres within the central portion of the MRA. Two Kirtland AFB ERP sites exist within the DA130 footprint. The first ERP site, OT-010, consists of four Radiation Training Sites (TS-5, TS-6, TS-7, and TS-8). These sites were used to train military personnel in alpha radiation monitoring and decontamination of simulated nuclear weapon accidents. The second ERP site, SS-069, consists of a 50-foot by 50-foot fenced area within TS-6, in a drainage area adjacent to Arroyo del Coyote. Site SS-069 was used to store thorium oxide-contaminated soil and sludge. Both of these ERP sites, OT-010 and SS-069, were approved for NFA by NMED. Arroyo del Coyote transects the northeastern portion of the site. The flood plain of Arroyo del Coyote and the high-walled banks on either side are grassland and undeveloped open space. Access controls are in place and access is restricted and portions of the MRA are monitored.

Geophysical surveys revealed three areas of high anomaly density across this MRA. Ground truthing of DA130 acreage documented cultural surface features, an empty 5″ projectile and fragmentation. The Air Force cohort assignment is C - OB/OD Site.

Description of Pathways for Human and Ecological Receptors:

No samples were collected at DA130.

Description of Receptors (Human and Ecological):

Human receptors at the site include authorized personnel and trespassers. Authorized personnel include military personnel and dependents, authorized civilian contractors, or other authorized civilians with site-related functions. Although future use for residential purposes is unlikely, the future resident is a potential receptor because of the potential for MC to migrate to residential receptors.
The risk evaluation procedure used for the CSE Phase II is not designed to evaluate risks to specific feeding guilds or defined receptor species. Therefore, individual ecological receptors were not defined during this initial screening process.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 1

EHE Module: Munitions Type Data Element Worksheet

Classification	Description	Score
Sensitive	- All UXO that are considered likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. - All hand grenades containing energetic filler. - Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	- All UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." - All DMM containing a high-explosive filler that have: - Been damaged by burning or detonation - Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	- All UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). - All DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: - Been damaged by burning or detonation - Deteriorated to the point of instability.	20
High explosive (unused)	- All DMM containing a high explosive filler that: - Have not been damaged by burning or detonation - Are not deteriorated to the point of instability.	15
Propellant	- All UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). - All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: - Damaged by burning or detonation - Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	- All DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. - Bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	- All DMM containing a pyrotechnic fillers (i.e., red phosphorous), other than white phosphorous filler, that: - Have not been damaged by burning or detonation - Are not deteriorated to the point of instability.	10
Practice	- All UXO that are practice munitions that are not associated with a sensitive fuze. - All DMM that are practice munitions that are not associated with a sensitive fuze and that have not: - Been damaged by burning or detonation - Deteriorated to the point of instability.	5
Riot control	- All UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	- All used munitions or DMM that are categorized as small arms ammunition [Physical evidence or historical evidence that no other types of munitions (e.g., grenades, subcaliber training rockets, demolition charges) were used or are present on the MRS is required for selection of this category.].	2
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 30).**	25

Site-specific data used in selection MUNITIONS TYPE classification:

DA130 is an OB/OD area that contains a suspected EOD area. The following items were considered: 5" empty shell and fragments.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 2

EHE Module: Source of Hazard Data Element Worksheet

Classification	Description	Score
Former Range	- The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include: impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	10
Former Munitions treatment (i.e., OB/OD unit)	- The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	- The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	- The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	- The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	- The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	- The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	- The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	- The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	- The MRS is a former military range where only small arms ammunition was used [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
Source of Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	8

Site-specific data characteristics used to select the SOURCE OF HAZARD classification:

DA130 is an OB/OD area and contains a suspected former demolition area.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 3

EHE Module: Information on the Location of Munitions Data Element Worksheet

Classification	Description	Score
Confirmed surface	- Physical evidence indicates that there are UXO or DMM on the surface of the MRS - Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	- Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. - Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	- There is physical evidence (e.g., munitions debris, such fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	- There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	- There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms range (regardless of location	- The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS into this category.].	1
Evidence of no munitions	- Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
Location of Munitions	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 25).**	25

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

A 5" empty shell and frag were observed at DA130.

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 4

EHE Module: Ease of Access Data Element Worksheet

Classification	Description	Score
No barrier	- There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	- There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	- There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	- There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
Ease of Access	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).**	10

Site-specific characteristics used to select the EASE OF ACCESS classification:

There are natural barriers but the majority of DA130 is accesible after entering the installation. - Reference - Section 5.4.4
DA130 is located on an active military installation. - Reference - Section 5.4.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county. - Reference - Section 5.4.7.1
26 or more structures are located up to 2 miles from the bounday of the MRS. - Reference - Section 5.4.7.2
A golf course is located up to 2 miles from the boundary of the MRS. - Reference - Section 5.4.7.1
DA130 contains or is in close proximity to cultural resources. It is also near Arroyo del Coyote, the primary surface water feature on Kirtland AFB. - Reference - Section 5.4.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 5

EHE Module: Status of Property Data Element Worksheet

Classification	Description	Score
Non-DoD control	- The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies.	5
Scheduled for transfer from DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the rule is applied.	3
DoD control	- The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
Status of Property	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	0

Site-specific characteristics used to select the EASE OF ACCESS classification:

There are natural barriers but the majority of DA130 is accesible after entering the installation. - Reference - Section 5.4.4
DA130 is located on an active military installation. - Reference - Section 5.4.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county. - Reference - Section 5.4.7.1
26 or more structures are located up to 2 miles from the bounday of the MRS. - Reference - Section 5.4.7.2
A golf course is located up to 2 miles from the boundary of the MRS. - Reference - Section 5.4.7.1
DA130 contains or is in close proximity to cultural resources. It is also near Arroyo del Coyote, the primary surface water feature on Kirtland AFB. - Reference - Section 5.4.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 6

EHE Module: Population Density Data Element Worksheet

Classification	Description	Score
> 500 persons per square mile	- There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	5
100- 500 persons per square mile	- There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	3
< 100 persons per square mile	- There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	1
Population Density	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific characteristics that helped select the POPULATION DENSITY classification

There are natural barriers but the majority of DA130 is accesible after entering the installation. - Reference - Section 5.4.4
DA130 is located on an active military installation. - Reference - Section 5.4.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county. - Reference - Section 5.4.7.1
26 or more structures are located up to 2 miles from the bounday of the MRS. - Reference - Section 5.4.7.2
A golf course is located up to 2 miles from the boundary of the MRS. - Reference - Section 5.4.7.1
DA130 contains or is in close proximity to cultural resources. It is also near Arroyo del Coyote, the primary surface water feature on Kirtland AFB. - Reference - Section 5.4.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 7

EHE Module: Population Near Hazard Data Element Worksheet

Classification	Description	Score
26 or more inhabited structures	- There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	- There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	- There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	- There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	- There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	- There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
Population Near Hazard	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	5

Site-specific data characteristics used to select the POPULATION NEAR HAZARD classification:

There are natural barriers but the majority of DA130 is accesible after entering the installation. - Reference - Section 5.4.4
DA130 is located on an active military installation. - Reference - Section 5.4.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county. - Reference - Section 5.4.7.1
26 or more structures are located up to 2 miles from the bounday of the MRS. - Reference - Section 5.4.7.2
A golf course is located up to 2 miles from the boundary of the MRS. - Reference - Section 5.4.7.1
DA130 contains or is in close proximity to cultural resources. It is also near Arroyo del Coyote, the primary surface water feature on Kirtland AFB. - Reference - Section 5.4.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 8

EHE Module: Types of Activities/Structures Data Element Worksheet

Classification	Description	Score
Residential. educational, or subsitence	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	- Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	- There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
Types of Activites/Structures	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	4

Site-specific data characteristics used to select the LOCATION OF MUNITIONS classification:

There are natural barriers but the majority of DA130 is accesible after entering the installation. - Reference - Section 5.4.4
DA130 is located on an active military installation. - Reference - Section 5.4.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county. - Reference - Section 5.4.7.1
26 or more structures are located up to 2 miles from the bounday of the MRS. - Reference - Section 5.4.7.2
A golf course is located up to 2 miles from the boundary of the MRS. - Reference - Section 5.4.7.1
DA130 contains or is in close proximity to cultural resources. It is also near Arroyo del Coyote, the primary surface water feature on Kirtland AFB. - Reference - Section 5.4.9

Installation: KIRTLAND AIR FORCE BASE

MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130

FFID: NM657182442300

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Worksheet

Classification	Description	Score
Ecological and cultural resources present	- There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	- There are ecological resources present on the MRS.	3
Cultural resources present	- There are cultural resources present on the MRS.	3
No ecological or cultural resources present	- There are no ecological resources or cultural resources present on the MRS.	0
Ecological and/or Cultural Resources	**DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).**	3

Site-specific characteristics used to select the ECOLOGICAL AND/OR CULTURAL RESOURCES classification:

There are natural barriers but the majority of DA130 is accesible after entering the installation. - Reference - Section 5.4.4
DA130 is located on an active military installation. - Reference - Section 5.4.1
According to the US Census Bureau there are more than 500 persons per square mile in Bernalillo county. - Reference - Section 5.4.7.1
26 or more structures are located up to 2 miles from the bounday of the MRS. - Reference - Section 5.4.7.2
A golf course is located up to 2 miles from the boundary of the MRS. - Reference - Section 5.4.7.1
DA130 contains or is in close proximity to cultural resources. It is also near Arroyo del Coyote, the primary surface water feature on Kirtland AFB. - Reference - Section 5.4.9

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 10

Determining the EHE Module Rating

	Source	Score
Explosive Hazard Factor Data Elements		
Munitions Type	**Table 1**	25
Source of Hazard	**Table 2**	8
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 3**	25
Ease of Access	**Table 4**	10
Status of Property	**Table 5**	0
Receptors Factor Data Elements		
Population Density	**Table 6**	5
Population Near Hazard	**Table 7**	5
Types of Activities/Structures	**Table 8**	4
Ecological and/or Cultural Resources	**Table 9**	3
	Sum	85

EHE Module Value	EHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected Explosive Hazard
	Evaluation Pending

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 20

Determining the CHE Module Rating

	Source	Score
CWM Hazard Factor Data Elements		
CWM Configuration	**Table 11**	N/A
Source of CWM	**Table 12**	N/A
Accessibility Factor Data Elements		
Information on Location of Munitions	**Table 13**	N/A
Ease of Access	**Table 14**	N/A
Status of Property	**Table 15**	N/A
Receptors Factor Data Elements		
Population Density	**Table 16**	N/A
Population Near Hazard	**Table 17**	N/A
Types of Activities/Structures	**Table 18**	N/A
Ecological and/or Cultural Resources	**Table 19**	N/A
	Sum	N/A

CHE Module Value	CHE Module Rating
92 to 100	**A**
82 to 91	**B**
71 to 81	**C**
60 to 70	**D**
48 to 59	**E**
38 to 47	**F**
less than 38	**G**
Alternative Module Ratings	**Prioritization No Longer Required**
	No Known or Suspected CWM Hazard
	Evaluation Pending

Tables 11-19 were not generated because there is no known or suspected CWM hazard at the MRS.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 21

HHE Module: Groundwater Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No groundwater samples were collected at DA130. Depth to groundwater is 350-385 feet at DA130. - Reference - Section 3.5.2

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 22

HHE Module: Surface Water - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors to have access to surface water to whick contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to whick contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to whick contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected at DA130.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 23

HHE Module: Sediment - Human Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No sediment was found and no samples were collected at DA130.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 24

HHE Module: Surface Water - Ecological Data Element Worksheet

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA
Receptor Factor		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No surface water was found and no samples were collected at DA130.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 25

HHE Module: Sediment - Ecological Endpoint Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	**CHF Value**	**Contamination Hazard Factor (CHF)**	**No Data**
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CHF Value		**CHF VALUE**	**NA**

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to sediment to which contamination has moved or can move.	H
Potential	potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF

Sample comments:

No sediment was found and no samples were collected at DA130.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 26

HHE Module: Soil - Data Element Worksheet

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	No Data
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value		CHF VALUE	NA

Migratory Pathway Factor		
Evident	Analytical data or observable evidence indicates that contamination in the soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the soil to a potential point of exposure (possibly due to geological structures or physical controls).	L
Migratory Pathway Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Receptor Factor		
Identified	Identified receptors to have access to soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to soil to which contamination has moved or can move.	L
Receptor Factor	The single highest value from above in the box to the right (maximum value = H).	NA

Alternative Module Ratings	Prioritization No Longer Required
	No Known or Suspected Hazard

Rationale for Selection of MPF:

Rationale for Selection of RF:

Sample comments:

No soil samples were collected at DA130.

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 27

Determining the HHE Module Rating

Media Source	Contaminant Hazard Factor	Migratory Pathway Factor Value	Receptor Factor Value	3-Letter Ratings (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	NA	NA	NA	NA	NA
Surface Water/Human Endpoint (Table 22)	NA	NA	NA	NA	NA
Sediment/Human Endpoint (Table 23)	NA	NA	NA	NA	NA
Surface Water/Ecological Endpoint (Table 24)	NA	NA	NA	NA	NA
Sediment/Ecological Endpoint (Table 25)	NA	NA	NA	NA	NA
Soil (Table 26)	NA	NA	NA	NA	NA

HHE Ratings (for reference only)	
Combination	Rating
HHH	A
HHM	B
HHL HMM	C
HML MMM	D
HLL MML	E
MLL	F
LLL	G
Alternative Module Ratings	Prioritization No Longer Required No Known or Suspected MC Hazard Evaluation Pending
HHE Module Ratings	N/A

Installation: KIRTLAND AIR FORCE BASE
MAJCOM: AFMC **MRAID:** DA130 **MRS:** DA130
FFID: NM657182442300

Table 28

MRS Priority

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Prioritization No Longer Required		Prioritization No Longer Required		Prioritization No Longer Required	
No Known or Suspected Hazard		No Known or Suspected Hazard		No Known or Suspected Hazard	
Evaluation Pending		Evaluation Pending		Evaluation Pending	
			MRS Priority	3	

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

SITE DIMENSIONS:

Acreage: 488 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☑ Ordnance (not residual)
- ☑ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☐ Other*

*Description of other:

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.1.6.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☑ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.1.2

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☑ Ground Rockets, Rifle Grenades, Live
- ☑ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☑ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☐ Other*

*Description of other:

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.1.6.3, 5.1.6.4

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
CONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Mountainous

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120

IMPACTED MEDIA:

- ☑ Surface soil
- ☐ Surface water
- ☐ Subsurface
- ☐ Sediments
- ☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #: 5.1.4

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120A

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

SITE DIMENSIONS:

Acreage: 7 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☑ Ordnance (not residual)
- ☑ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☐ Other*

*Description of other:

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.1.6.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☑ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.1.2

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120A

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: Soild Propellant

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.3.1

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
CONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.2, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120A

IMPACTED MEDIA:

- ☑ Surface soil
- ☐ Surface water
- ☐ Subsurface
- ☐ Sediments
- ☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #: 14.3.1

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120B

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

SITE DIMENSIONS:

Acreage: 1 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☑ Ordnance (not residual)
- ☑ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☐ Other*

*Description of other:

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.1.6.4

Page:

RANGE TYPES:

- ☐ Air to Air
- ☑ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.1.2

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120B

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☑ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☐ Other*

*Description of other:

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.3.1

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
CONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Mountainous

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.1, 3.2, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120B

IMPACTED MEDIA:

- ☑ Surface soil
- ☐ Surface water
- ☐ Subsurface
- ☐ Sediments
- ☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #: 14.3.1

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120C

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

SITE DIMENSIONS:

Acreage: 1504 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.1.6.4

Page:

RANGE TYPES:

- ☐ Air to Air
- ☑ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.1.2

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120C

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: None Found

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.3.1

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
CONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Mountainous

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: AL120C

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: 120 MRS: AL120E

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range (H-22)

SITE DIMENSIONS:

Acreage: 2060 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #:

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.1.6.4

Page:

RANGE TYPES:

- ☐ Air to Air
- ☑ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.1.2

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: 120 MRS: AL120E

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☑ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☐ Other*

*Description of other:

ORDNANCE TYPES REFERENCES:

Section, Page #: 14-5

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
CONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: 120 MRS: AL120E

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA130

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Arroyo del Coyote Demolition Area

SITE DIMENSIONS:

Acreage: 61 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☑ Ordnance (not residual)
- ☑ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☐ Other*

*Description of other:

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.4.6.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☑ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☑ Other*

*Description of other: Demolition - 5" Rocket found with other heavy case frag

RANGE TYPES REFERENCES:

Section:

5.4.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA130

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☑ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☑ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☐ Other*

*Description of other: 5" Rocket, small light case metal fragment

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.4.6.3, 5.4.6.4

ANOMALY DENSITY: MEDIUM

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.4.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA130

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

The Kirtland AFB restoration site OT-010, within DA130, consists of four Radiation Training Sites (TS-5, TS-6, TS-7, and TS-8), which were used to train military personnel in alpha radiation monitoring and decontamination of simulated nuclear weapon accidents. A second Kirtland AFB restoration site, SS-069, within DA130, consists of a 50-ft x 50-ft fenced area within TS-6, in a drainage area adjacent to Arroyo del Coyote. The area was used to store thorium oxide-contaminated soil and sludge. A suspected EOD area DP-101 was identified within OT-010. A 2001 investigation of DP-101 indicated no buried munitions at the site. In 2003, during restoration operations at site OT-10 (TS-5, TS-6, TS-7, and TS-8), several munitions debris items were recovered. These items included a 3.5-inch rocket warhead (site TS-5), unknown munitions-related items (HE fragments), residue from smoke grenades, grenade spoons, and miscellaneous expended small arms (MWH Americas, 2003). All of these sites have been approved for NFA by NMED.

ADDITIONAL INFORMATION REFERENCES:

Section, Page #: 5.4.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA130A

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Arroyo del Coyote Demolition Area

SITE DIMENSIONS:

Acreage: 325 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

14.3.4

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☑ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.4.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA130A

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: None

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.3.4

ANOMALY DENSITY:

ANOMALY DENSITY REFERENCES:

Section, Page #:

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.1, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA130A

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA782

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Explosive Disposal Area

SITE DIMENSIONS:

Acreage: 5 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.5.6.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☑ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.5.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA782

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: None found

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.5.6.3, 5.5.6.4

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.5.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4,3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: DA782

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML125

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Field Firing Range

SITE DIMENSIONS:

Acreage: 2231 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☑ Ordnance (not residual)
- ☑ Ordnance (residual)
- ☐ Pesticides
- ☑ Metals
- ☐ Low Level Radioactive
- ☐ Other*

*Description of other:

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.7.6.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☑ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.7.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML125

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☑ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☑ Large Caliber (37mm and larger)
- ☑ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☑ Pyrotechnics
- ☑ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: 5" rocket motor venturi section debris/ 3.5" HEAT rocket warhead, no fuzing

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.7.6.3, 5.7.6.4

ANOMALY DENSITY: HIGH

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.7.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
CONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Mountainous

VEGETATION TYPE:
Heavy shrubs with trees

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML125

IMPACTED MEDIA:

- ☑ Surface soil
- ☐ Surface water
- ☐ Subsurface
- ☐ Sediments
- ☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #: 5.7.6.4

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: 792 MRS: ML201

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Sandia Base Howitzer Range Buffer

SITE DIMENSIONS:

Acreage: 710 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.9.6.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☑ Other*

*Description of other: Land to Land

RANGE TYPES REFERENCES:

Section:

5.9.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: 792 MRS: ML201

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: None found

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.9.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: 792 MRS: ML201

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML762

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: McCormick Ranch Buffer

SITE DIMENSIONS:

Acreage: 52 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

14.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☑ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.11.2

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML762

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: None found

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.11.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.1, 3.2, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML762

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML781

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Firing In-Abutment

SITE DIMENSIONS:

Acreage: 1 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

14.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☑ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☐ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.13.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML781

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☐ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☑ Other*

*Description of other: None found

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.13.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: ML781

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: PT123

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Tijeras Small Arms Range

SITE DIMENSIONS:

Acreage: 434 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☑ Ordnance (not residual)
- ☑ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☐ Other*

*Description of other:

CONTAMINANTS OF CONCERN REFERENCES:

Section:

14.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☑ OB/OD
- ☐ Mortar
- ☑ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☑ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.16.1, 5.16.2

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: PT123

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☑ Pyrotechnics
- ☑ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☐ Other*

*Description of other:

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.16.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Mountainous

VEGETATION TYPE:
Heavy shrubs with trees

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: PT123

IMPACTED MEDIA:

☐ Surface soil ☐ Surface water

☐ Subsurface ☐ Sediments

☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: PT761

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Tijeras Small Arms and Training Range

SITE DIMENSIONS:

Acreage: 575 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☐ Metals
- ☐ Low Level Radioactive
- ☑ Other*

*Description of other: None

CONTAMINANTS OF CONCERN REFERENCES:

Section:

14.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☑ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☑ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.17.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: PT761

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☑ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☐ Other*

*Description of other:

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.17.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Mountainous

VEGETATION TYPE:
Heavy shrubs with trees

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: PT761

IMPACTED MEDIA:

- ☐ Surface soil
- ☐ Surface water
- ☐ Subsurface
- ☐ Sediments
- ☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #:

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: SR763

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Rifle Range

SITE DIMENSIONS:

Acreage: 18 Length (Feet): Width (Feet): Perimeter (Feet):

SITE DIMENSIONS REFERENCES:

Section, Page #: 14.4

CONTAMINANTS OF CONCERN:

- ☐ Acids/caustics
- ☐ Asbestos
- ☐ Fuels
- ☐ SVOCs
- ☐ VOCs
- ☐ PCBs
- ☐ Ordnance (not residual)
- ☐ Ordnance (residual)
- ☐ Pesticides
- ☑ Metals
- ☐ Low Level Radioactive
- ☐ Other*

*Description of other:

CONTAMINANTS OF CONCERN REFERENCES:

Section:

5.20.6.5

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to Ground
- ☐ Artillery
- ☐ Bombing
- ☐ Burial Pits
- ☐ Guided Missiles
- ☐ Hand Grenade
- ☐ OB/OD
- ☐ Mortar
- ☐ Multiple/combined Use
- ☐ Rifle Grenade, Anti-tank Rocket
- ☑ Small Arm
- ☐ Other*

*Description of other:

RANGE TYPES REFERENCES:

Section:

5.20.1

Page:

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: SR763

ORDNANCE TYPES:

- ☐ Bombs, high explosive
- ☐ Bombs (WP, Incendiary, Photoflash)
- ☐ Bombs, Practice
- ☐ Hand Grenades, Live
- ☐ Hand Grenades, Practice
- ☐ Ground Rockets, Rifle Grenades, Live
- ☐ Ground Rockets, Rifle Grenades, Practice
- ☐ Medium Caliber (20mm, 25mm, 30mm)
- ☐ Large Caliber (37mm and larger)
- ☐ Mortars
- ☐ Aerial Rockets (Live)
- ☐ Aerial Rockets, Practice
- ☐ Guided missil
- ☐ Pyrotechnics
- ☑ Small Arms
- ☐ Landmines
- ☐ Demolition Materials
- ☐ Other*

*Description of other:

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY: LOW

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.20.6.2

AREA OF CONTAMINATION:

Depth to base of contamination (feet):

Depth to groundwater contamination (feet):

Depth to water table (feet):

AREA OF CONTAMINATION REFERENCES:

Section, Page #:

TYPE OF AQUIFER:
UNCONFINED

SOIL TYPE:
Sand/Gravelly-Sand Mixture

TOPOGRAPHY:
Flat

VEGETATION TYPE:
Low grass or few shrubs

AQUIFER, SOIL, TOPOGRAPHY, VEGETATION INFORMATION REFERENCES:

Section, Page #: 3.2, 3.4, 3.5.2

COMPREHENSIVE SITE EVALUATION: RACER DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MRS: SR763

IMPACTED MEDIA:

- ☑ Surface soil
- ☐ Surface water
- ☐ Subsurface
- ☐ Sediments
- ☐ Groundwater

IMPACTED MEDIA REFERENCES:

Section, Page #: 5.20.6.5

TYPICAL SAFETY LEVEL USED AT THE SITE: D

SAFETY LEVEL REFERENCES:

Section, Page #:

ADDITIONAL INFORMATION THAT MAY INFLUENCE COST:

ADDITIONAL INFORMATION REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

Site Description:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. MRS AL120 is 488.5 acres in size and is located in the southeast portion of Kirtland AFB. The eastern boundary is steep, mountainous terrain. Several gates and natural barriers restrict vehicular access to AL120; however, all-terrain vehicle riders, mountain bikes and hikers can access the site.

MRS AL120 was not surveyed with DGM because of the rugged terrain. Visual survey and groundtruthing of AL120 documented 5" projectiles from VT fuze tests. Cultural features observed were related to refuse discarded by persons who have illegally gained access to this remote portion of AL120.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The Air Force Cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.1.1/14.1.9

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.952656
Longitude: 106.387858

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 488

Acreage confirmed as containing UXO: 488
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [x] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.1.2

Page:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [x] Air to land
- [ ] Land to air
- [ ] Land to land
- [ ] Land to water
- [ ] Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.1.2

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☑	☐	LOW
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☑	☐	LOW
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.1.8, 5.1.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.1.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.1.3, 5.1.4, 5.1.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.1.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120A MRS: AL120A

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

Site Description:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120a, Propellant Dispersal Site, is located within the southcentral portion of AL120 and is 7.5 acres in size. The terrain is mostly flat grassland and undeveloped open space. Once access onto Kirtland AFB is obtained, AL120a is not restricted. Large numbers of scattered propellant are visible on the surface. This was a firing point for projectiles fired into NMPG.

The presence of surface and subsurface MEC is a risk to authorized personnel and trespassers. Soil samples were collected in AL120a to characterize potential HE-related contamination. MC-related compounds TNT. HMX, and RDX were non-detect in all samples. The analytical results fo the CSE Phase II soil samples were compared to NMED Residential and EPA Region 6 SSLs. The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.1.1/14.1.9

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.960219
Longitude: 106.493789

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 7

Acreage confirmed as containing UXO: 7
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.3.1

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120A MRS: AL120A

Installation: KIRTLAND AIR FORCE BASE

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

Section: 5.1.2

Page:

*Description of other:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [x] Air to land
- [ ] Land to air
- [ ] Land to land
- [ ] Land to water
- [ ] Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.1.2

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☑	☐	LOW
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120A MRS: AL120A

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.1.8, 5.1.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.1.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120A MRS: AL120A

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120A MRS: AL120A

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.1.3, 5.1.4, 5.1.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.1.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120B

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

Site Description:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120b, McCormick UXO Site, is located within the southwest portion of AL120 and is one acre in size. The terrain is flat grassland and it is undeveloped open space. Once access onto Kirtland AFB is obtained, entry onto AL120b is not restricted.

One 57mm HE round was found. No samples were collected. The Air Force Cohort assignment is F - Medium Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.1.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.952592
Longitude: 106.493789

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 1

Acreage confirmed as containing UXO: 1
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120B

Installation: KIRTLAND AIR FORCE BASE

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

Section: 5.1.2

Page:

*Description of other:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [x] Air to land
- [ ] Land to air
- [ ] Land to land
- [ ] Land to water
- [ ] Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.1.2

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	[x]	[ ]	LOW
Explosive grenades (hand or rifle)	[ ]	[ ]	
Explosive landmine	[ ]	[ ]	
Explosive rockets	[ ]	[ ]	
Guided Missiles	[ ]	[ ]	
Explosive detonators	[ ]	[ ]	
Blasting caps	[ ]	[ ]	
Practice grenades (with spotting charges)	[ ]	[ ]	
Practice landmines (with spotting charges)	[ ]	[ ]	
Small arms complete round (.22-.50 cal)	[ ]	[ ]	
Small arms, expended	[ ]	[ ]	
Practice ordnance (without spotting charges)	[ ]	[ ]	
White phosphorous	[ ]	[ ]	
Incendiary material	[ ]	[ ]	
Primary or initiating explosives	[ ]	[ ]	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	[ ]	[ ]	
Military dynamite	[ ]	[ ]	
Less sensitive explosives (Ammonium Nitrate, etc.)	[ ]	[ ]	
Solid or liquid propellants	[ ]	[ ]	
Toxic chem. agents (choking, nerve, blood, blister)	[ ]	[ ]	
War gas identification sets	[ ]	[ ]	
Radiological ordnance (e.g., depleted Uranium)	[ ]	[ ]	
Riot control agents (vomiting, tear)	[ ]	[ ]	
Bombs (explosive)	[ ]	[ ]	
Bombs (practice)	[ ]	[ ]	
Fuses, Boosters, Bursters	[ ]	[ ]	
Flares, signals, & simulators (other than white phos.)	[ ]	[ ]	
Torpedoes/Sea Mines	[ ]	[ ]	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	[ ]	[ ]	

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120B

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.1.8, 5.1.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.1.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120B

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120B

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.1.3, 5.1.4, 5.1.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.1.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120C

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range

Site Description:

The AL120 Proximity Fuze Range is a 4440.0 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompassed the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120c is located in the northeast and southeast area of AL120 and is 1504.7 acres in size. Both areas are located on the eastern boundary of Kirtland AFB and the terrain is steep and mountainous. The eastern Installation boundary between Kirtland AFB and Cibola National Forest, in the northeastern portion, is not completely fenced. Several gates and natural barriers restrict vehicular access onto the Installation from the eastern boundary; however, all-terrain vehicle riders, mountain bikers, and hikers have illegally gained access to AL120c.

Geophysical surveys were not conducted because the terrain is so rugged. Visual surveys did not locate any munition items, only refuse presumably discarded by persons who have illegally accessed the Installation.

The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.1.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.99
Longitude: 106.37

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 1504

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 3943

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120C

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☑ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: *5.1.2*

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☑ Air to land
- ☐ Land to air
- ☐ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.1.2*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120C

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.1.8, 5.1.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.1.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120C

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☑ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120C

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.1.3, 5.1.4, 5.1.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.1.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120D

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range (H-22)

Site Description:

The AL120 Proximity Fuze Range is a 4,440 acre large caliber range and is divided into five non-contiguous area within all but the northwest quadrant of Kirtland AFB. AL120 encompasses the firing points, firing fans, and main impact areas for the NMPG/NMER using the Manzanita Mountains as the backstop for much of the firing activities; mostly from 1942 through 1952. AL120d is located in the northcentral area of AL120 and is 376.9 acres in pinon-juniper studded foothills. AL120d is bordered by non-fenced operational areas of the Installation.

Kirtland AFB has determined the area is still an active range and no longer require prioritization.

GENERAL INFORMATION REFERENCES:

Section, Page #:

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35
Longitude: 106.46

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 376

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 376
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14-5

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120D

Installation: KIRTLAND AIR FORCE BASE

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

Section: *5.1.6.4*

Page:

*Description of other:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [x] Air to land
- [ ] Land to air
- [ ] Land to land
- [ ] Land to water
- [ ] Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.1.2*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	[x]	[ ]	LOW
Explosive grenades (hand or rifle)	[x]	[ ]	LOW
Explosive landmine	[ ]	[ ]	
Explosive rockets	[ ]	[ ]	
Guided Missiles	[ ]	[ ]	
Explosive detonators	[ ]	[ ]	
Blasting caps	[ ]	[ ]	
Practice grenades (with spotting charges)	[ ]	[ ]	
Practice landmines (with spotting charges)	[ ]	[ ]	
Small arms complete round (.22-.50 cal)	[ ]	[ ]	
Small arms, expended	[ ]	[ ]	
Practice ordnance (without spotting charges)	[ ]	[ ]	
White phosphorous	[ ]	[ ]	
Incendiary material	[ ]	[ ]	
Primary or initiating explosives	[ ]	[ ]	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	[ ]	[ ]	
Military dynamite	[ ]	[ ]	
Less sensitive explosives (Ammonium Nitrate, etc.)	[ ]	[ ]	
Solid or liquid propellants	[ ]	[ ]	
Toxic chem. agents (choking, nerve, blood, blister)	[ ]	[ ]	
War gas identification sets	[ ]	[ ]	
Radiological ordnance (e.g., depleted Uranium)	[ ]	[ ]	
Riot control agents (vomiting, tear)	[ ]	[ ]	
Bombs (explosive)	[ ]	[ ]	
Bombs (practice)	[ ]	[ ]	
Fuses, Boosters, Bursters	[ ]	[ ]	
Flares, signals, & simulators (other than white phos.)	[ ]	[ ]	
Torpedoes/Sea Mines	[ ]	[ ]	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	[ ]	[ ]	

ORDNANCE TYPES REFERENCES:

Section, Page #: *5.1.6.3/5.1.6.4*

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120D

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.1.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Heavily rolling

Predominant Vegetation: Shrubs and some trees

GENERAL MEDIA REFERENCES:

Section, Page #: 5.1.1

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.1.8/5.1.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.1.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120D

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120D

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.1.3/5.1.4/5.1.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.1.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120E

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Proximity Fuze Range (H-22)

Site Description:

The AL120 Proximity Fuze Range is a 4,440 acre large caliber range and is divided into five non-contiguous areas within all but the northwest quadrant of Kirtland AFB. AL120 encompasses the firing points, firing fans, and main impact area for the NMPG/NMER using the Manzanita Mountains as the backstop for much fo the firing activities; mostly from 1942 through 1952. AL120e is located in the southcentral and southwestern alrea of AL120 and is 2060.3 acres in size. The area is bordered on the south and west by the Installation chain link fence. Part of the north side fo the southwest portion is bordered by a chain link security fence. The terrain is mostly flat to gently rolling grassland.

Geophysical surveys showed low anomaly density across the southwest portion but several areas of high anomaly density in the southcentral portion of the MRS. Visual survey found a large metal pipe, Kirtland AFB auxiliaryairfield, possible water lines and fence posts in the southwestern portion. Metal stakes, parking lot and roads, power lines, buildings, fenced compounds and communication wire were observed in the southcentral portions.

The following munitions were observed in the southwestern area: broken open fuze from a 2.75" rocket and projectile frag. The southcentral area has a 5" projectile, an unfired rifle grenade and a 5" rocket. The Air Force Cohort designation is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.1.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.96
Longitude: 106.52

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 2060

Acreage confirmed as containing UXO: 1
Acreage suspected or potentially containing UXO:
Acreage confirmed as NOT containing UXO: 2059

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120E

Installation: KIRTLAND AIR FORCE BASE

AREA REFERENCES:

Section, Page #:

CLASSIFICATION:

- ☑ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: *5.1.2*

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☑ Air to land
- ☐ Land to air
- ☐ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.1.2*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120E

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☑	☐	LOW
Explosive landmine	☐	☐	
Explosive rockets	☑	☐	LOW
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: *14.5*

ANOMALY DENSITY REFERENCES:

Section, Page #: *5.1.6.2*

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: *3.2, 3.4*

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120E

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ◉ Yes ○ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.1.8, 5.1.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.1.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120E

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☑ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL120 MRS: AL120E

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.1.3, 5.1.4, 5.1.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.1.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL769 MRS: AL769

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Ordnance Drop Zone

Site Description:

The AL769 Ordnance Drop Zone is a 174.4 acre air-to-ground range located in the northwest portion of Kirtland AFB. The history and use of AL769 is unknown. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of AL769 acreage documented only cultural surface features including a large metal fence post and metal drone cable. No munitions-related items were observed. The Air Force cohort designation is F - Air-to-Ground Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.2.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.016797
Longitude: 106.576283

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 174

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 174

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL769 MRS: AL769

Installation: KIRTLAND AIR FORCE BASE

☐ Testing ☐ Small Arms Range *Section:* 5.2.2

☐ Training ☐ Skeet Range

☐ Treatment OBOD RCRA ☐ Waste Military Munitions

☐ Disposal RCRA ☑ Other* *Page:*

☐ Buffer Area

*Description of other: Safe Drop Zone

RANGE TYPES:

☐ Air to Air ☑ Air to land ☐ Land to land ☐ Other*

☐ Air to water ☐ Land to air ☐ Land to water

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.2.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL769 MRS: AL769

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat with gorges or gullies

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.2.8, 5.2.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.2.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL769 MRS: AL769

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL769 MRS: AL769

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: *5.2.3, 5.2.4, 5.2.5*

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☑ Other****
☐ Local government	

****Please specify: None

LAND USE INTEREST REFERENCES:

Section, Page #: *5.2.3*

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL771 MRS: AL771

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Old Cable Site

Site Description:

The AL771 Old Cable Site is a 586.4 acre air-to-ground range located in the southcentral portion of Kirtland AFB. The site consists of rolling grassland hills bisected by arroyos transgressing into rocky, pinion-juniper studded foothills. The site was used as a test site and projectile impact area. Currently the northeastern portion of AL771 is being utilized by DOE and the remainder of the site is utilized as a training and maneuver site. Access controls are in place.

Geophysical survey results indicated three areas of high anomaly density. The visual survey confirmed the presence of bulk propellant Ballistite, 3.5" and 5" rockets, 5" projectiles and a bunker. Ground truthing confirmed the presence of 3.5" and 5" rockets, 5" frag, 3.5" rocket fuze, 5" projectiles, slap fare, small arms ammunitions casings, as well as numerous non-munitions items. In addition, one bunker and five MEC locations were selected for soil sampling and laboratory analysis of suspected MC related compounds. Explosives analysis included the compounds TNT, HMX, and RDX.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. MC-related compounds TNT, HMX and RDX were non detect in all samples. The analytical results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.3.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AF
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.973119
Longitude: 106.446436

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 586

Acreage confirmed as containing UXO: 586
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL771 MRS: AL771

Installation: KIRTLAND AIR FORCE BASE

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [x] Other*

*Description of other: Evidence that site still in use

CLASSIFICATION REFERENCES:

Section: 5.3.1

Page:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [x] Air to land
- [ ] Land to air
- [x] Land to land
- [ ] Land to water
- [x] Other*

*Description of other: 5" and 3.5" rocket components, ground launched

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.3.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL771 MRS: AL771

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☑	☐	LOW
Explosive landmine	☐	☐	
Explosive rockets	☑	☐	LOW
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☑	☐	LOW
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☑	☑	LOW
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☑	☐	LOW
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: *14.5*

ANOMALY DENSITY REFERENCES:

Section, Page #: *5.3.6.2*

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Shrubs and some trees

GENERAL MEDIA REFERENCES:

Section, Page #: *3.2, 3.4*

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL771 MRS: AL771

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.3.8, 5.3.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.3.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL771 MRS: AL771

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☑ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: AL771 MRS: AL771

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.3.3, 5.3.4, 5.3.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.3.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Arroyo del Coyote Demolition Area

Site Description:

The DA130 Arroyo Del Coyote Demolition Area is a 386.5 acre OB/OD range located in the northwest portion of Kirtland AFB. DA130 consists of 61 acres within the central portion of the MRA. Two Kirtland AFB ERP sites exist within the DA130 footprint. The first ERP site, OT-010, consists of four Radiation Training Sites (TS-5, TS-6, TS-7, and TS-8). These sites were used to train military personnel in alpha radiation monitoring and decontamination of simulated nuclear weapon accidents. The second ERP site, SS-069, consists of a 50-foot by 50-foot fenced area within TS-6, in a drainage area adjacent to Arroyo del Coyote. Site SS-069 was used to store thorium oxide-contaminated soil and sludge. Both of these ERP sites, OT-010 and SS-069, were approved for NFA by NMED. Arroyo del Coyote transects the northeastern portion of the site. The flood plain of Arroyo del Coyote and the high-walled banks on either side are grassland and undeveloped open space. Access controls are in place and access is restricted and portions of the MRA are monitored.

Geophysical surveys revealed three areas of high anomaly density across this MRA. Ground truthing of DA130 acreage documented cultural surface features, an empty 5″ projectile and fragmentation. The Air Force cohort assignment is C - OB/OD Site.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.4.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.013803
Longitude: 106.539631

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 61

Acreage confirmed as containing UXO: 61
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☑ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.4.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☐ Land to land
- ☐ Land to water
- ☑ Other*

*Description of other: OB/OD

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.4.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☑	☐	LOW
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.5.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.5.8, 5.5.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.5.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.4.3, 5.4.4, 5.4.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.4.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130A

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Arroyo del Coyote Demolition Area

Site Description:

The DA130 Arroyo Del Coyote Demolition Area is a 386.5 acre OB/OD range located in the northwest portion of Kirtland AFB. DA130a is the 325.5 acres of MRA DA130 where no munitions items were found. A portion of one Kirtland AFB ERP site exists within the DA130a footprint. The ERP site, OT-010, consists of four Radiation Training Sites (TS-5, TS-6, TS-7, and TS-8). These sites were used to train military personnel in alpha radiation monitoring and decontamination of simulated nuclear weapon accidents. OT-010 was approved for NFA by NMED. The topography is characterized by the large Arroyo del Coyote that transects the site and flows generally northwest. The flood plain of Arroyo del Coyote and the high-walled banks on either side are grassland and undeveloped open space. Access controls are in place and access is restricted and portions of the MRA are monitored.

Ground truthing of DA130a acreage documented cultural surface features, but no munitions were found. The Air Force cohort designation is C - OB/OD Site.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.4.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd, SE, Building 2068
City: Albuquerque
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.015544
Longitude: 106.540869

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 325

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 325

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130A

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☐ Training
- ☑ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.4.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☐ Land to land
- ☐ Land to water
- ☑ Other*

*Description of other: OB/OD

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.4.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130A

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.4.8, 5.4.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.4.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130A

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA130 MRS: DA130A

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.4.3, 5.4.4, 5.4.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.4.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Explosive Disposal Area

Site Description:

The DA782 Explosive Disposal Area is a 5.5 acre OB/OD range located in the northwestern portion of Kirtland AFB. DA782 was suspected to be previously used as an EOD OB/OD range, but the dates of use are unknown and no evidence of craters, scarred ground, etc was located. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of DA782 acreage documented surface features including a barbed wire fence and a large piece of bomb frag. The Air Force cohort assignment is C - OB/OD Site.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.5.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.029081
Longitude: 106.593167

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 5

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 5

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782

Installation: KIRTLAND AIR FORCE BASE

☐ Testing ☐ Small Arms Range *Section:* *5.5.1*

☐ Training ☐ Skeet Range

☐ Treatment OBOD RCRA ☐ Waste Military Munitions

☐ Disposal RCRA ☑ Other* *Page:*

☐ Buffer Area

*Description of other: OB/OD

RANGE TYPES:

☐ Air to Air ☐ Air to land ☐ Land to land ☑ Other*

☐ Air to water ☐ Land to air ☐ Land to water

*Description of other: OB/OD

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.5.1*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.5.8, 5.5.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.5.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.5.3, 5.5.4, 5.5.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.5.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782A

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Explosive Disposal Area (H-7)

Site Description:

Originally a 25.8 acre rectangular-shaped parcel, DA782a is the 20.3 acre explosive safety arc of the operation DOE explosives storage area. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted but not monitored.

Because the area is considered active, no geophysical surveys, ground truthing or sampling activities were conducted.

DA782a is still an active range and no longer requires prioritization.

GENERAL INFORMATION REFERENCES:

Section, Page #:

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #:

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.029071
Longitude: 106.593113

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 20

Acreage confirmed as containing UXO:
Acreage suspected or potentially containing UXO:
Acreage confirmed as NOT containing UXO:

AREA REFERENCES:

Section, Page #:

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782A

Installation: KIRTLAND AIR FORCE BASE

☐ Testing ☐ Small Arms Range *Section:* *5.5.1*

☐ Training ☐ Skeet Range

☐ Treatment OBOD RCRA ☐ Waste Military Munitions

☐ Disposal RCRA ☑ Other* *Page:*

☐ Buffer Area

*Description of other: OB/OD

RANGE TYPES:

☐ Air to Air ☐ Air to land ☐ Land to land ☑ Other*

☐ Air to water ☐ Land to air ☐ Land to water

*Description of other: OB/OD

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.5.1*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)	Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger) ☐	☐	
Explosive grenades (hand or rifle) ☐	☐	
Explosive landmine ☐	☐	
Explosive rockets ☐	☐	
Guided Missiles ☐	☐	
Explosive detonators ☐	☐	
Blasting caps ☐	☐	
Practice grenades (with spotting charges) ☐	☐	
Practice landmines (with spotting charges) ☐	☐	
Small arms complete round (.22-.50 cal) ☐	☐	
Small arms, expended ☐	☐	
Practice ordnance (without spotting charges) ☐	☐	
White phosphorous ☐	☐	
Incendiary material ☐	☐	
Primary or initiating explosives ☐	☐	

Ordnance Types (check all that apply)	Contaminant is a Chemical residue of munitions?	Density
Demolition charges ☐	☐	
Military dynamite ☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.) ☐	☐	
Solid or liquid propellants ☐	☐	
Toxic chem. agents (choking, nerve, blood, blister) ☐	☐	
War gas identification sets ☐	☐	
Radiological ordnance (e.g., depleted Uranium) ☐	☐	
Riot control agents (vomiting, tear) ☐	☐	
Bombs (explosive) ☐	☐	
Bombs (practice) ☐	☐	
Fuses, Boosters, Bursters ☐	☐	
Flares, signals, & simulators (other than white phos.) ☐	☐	
Torpedoes/Sea Mines ☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.) ☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782A

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.5.8, 5.5.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.5.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782A

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: DA782 MRS: DA782A

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: *5.5.3*

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: *5.5.3*

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ED770 MRS: ED770

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Experimental Range

Site Description:

The ED770 Experimental Range is a 1479.7 acre area that surrounds Kirtland's active EOD range and is bordered on all sides by active ranges. The history and use of ED770 is unknown, but according to historical records from VT fuze testing, several munition items were placed in close proximity to aircraft and detonated to test effectiveness of fragments igniting aircraft fuel tanks. The terrain is relatively flat grassland. Currently portions of ED770 are developed and used by multiple organizations; the remainder is open space. Access controls are in place for developed areas and access is restricted but not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ED770 acreage documented large numbers of cultural surface features including power lines, pipelines, fences, compounds, buildings, signs, etc. Multiple munitions-related items were observed. Although some could be attributed to VT fuze testing, the majority seem to be as a result of current military field training occurring in this area. The Air Force cohort assignment is C - OB/OD Site.

ED770 is currently used by Kirtland AFB units for training and operational use and is recommended for removal from the Air Force MMRP.

The field verified acres for ED770 differs significantly from the acres initially reported when the site was originally identified. Based on the data from the CSE Phase II report, the actual size of ED770 is 1479.7 acres, not the 1847.9 acres initially entered the AFRIMS database.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.6.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.975647
Longitude: 106.490592

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 1479

Acreage confirmed as containing UXO: 1479

Acreage suspected or potentially containing UXO: 0

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ED770 MRS: ED770

Installation: KIRTLAND AIR FORCE BASE

Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- [x] Testing
- [x] Training
- [x] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.6.2

Page:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [ ] Air to land
- [ ] Land to air
- [ ] Land to land
- [ ] Land to water
- [x] Other*

*Description of other: Experimental range, demolition

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.6.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ED770 MRS: ED770

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☑	☐	LOW
Blasting caps	☑	☐	LOW
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☑	☐	MEDIUM
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☑	☐	LOW
Primary or initiating explosives	☑	☐	LOW

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☑	☐	LOW
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☑	☐	LOW
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: *14.5*

ANOMALY DENSITY REFERENCES:

Section, Page #: *5.6.6.2*

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand

Predominant Topography: Rolling with gorges or gullie

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: *3.2, 3.4*

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 100

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ED770 MRS: ED770

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.6.8, 5.6.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.6.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ED770 MRS: ED770

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ◉ Yes ○ No

If yes, what is the scope of the response activities?
- ☑ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☑ Data collection
- ☑ Investigation
- ☑ Response/remedial action
- ☑ Monitoring
- ☑ Close out
- ☑ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed? UNKNOWN

If yes, under what authority were/are response actions conducted? RCRA

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #: *7.1*

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ED770 MRS: ED770

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.6.3, 5.6.4, 5.6.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.6.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML125 MRS: ML125

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Field Firing Range

Site Description:

The ML125 Field Firing Range is a 2231.3 acre multi-use range located in the southern portion of Kirtland AFB. ML125 contains the impact area for the NMPG and was used for the development of the VT fuze program from 1942-1952. The terrain varies from rolling, grassy hills to steep, rocky foothills. Access controls are in place and access is not restricted and not monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of ML125 acreage documented several cultural surface features including a fenced compounds, target debris, steel cable, metal scrap, metal culvert, 55 gal drum, barbed wire and fence. Heavy concentrations of munitions, primarily projectiles with VT fuzing, are found in this MRA.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. MC-related compounds TNT, HMX and RDX were non detect or below screening levels in all samples. Metals were detected above background in multiple samples but below human health screening levels. The analytical results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Based on the soil results, a threat to human health from a contaminant release does not appear to exist. The data indicate the presence of cadmium, copper, lead, and zinc at concentrations greater than screening levels for ecological receptors. Additional investigation of this MRA is recommended to assess the potential for ecological risk. The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.7.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.957175
Longitude: 106.442386

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 2231

Acreage confirmed as containing UXO: 2231
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML125 MRS: ML125

Installation: KIRTLAND AIR FORCE BASE

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- [x] Testing
- [ ] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.7.1

Page:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [ ] Air to land
- [ ] Land to air
- [ ] Land to land
- [ ] Land to water
- [x] Other*

*Description of other: Multi-Use Range

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.7.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML125 MRS: ML125

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	HIGH
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☑	☐	LOW
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☑	☐	LOW
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☑	☐	LOW

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☑	☐	LOW
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: *14.5*

ANOMALY DENSITY REFERENCES:

Section, Page #: *5.7.6.2*

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Other

Predominant Vegetation: Heavy shrubs and trees

GENERAL MEDIA REFERENCES:

Section, Page #: *3.2, 3.4*

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML125 MRS: ML125

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.7.8, 5.7.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.7.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML125 MRS: ML125

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ◉ Yes ○ No

If yes, what is the scope of the response activities?
- ☑ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☑ Data collection
- ☑ Investigation
- ☑ Response/remedial action
- ☑ Monitoring
- ☑ Close out
- ☑ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed? UNKNOWN

If yes, under what authority were/are response actions conducted? RCRA

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #: *7.1*

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML125 MRS: ML125

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.7.3, 5.7.4, 5.7.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.7.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Sandia Base Howitzer Range

Site Description:

ML200 is a 960.2 acre medium/large caliber range and is located in the western portion of Kirtland AFB. ML200 was part of the Defense Training Areas used by Sandia Base for flat trajectory line of sight firing of 75mm projectiles as identified from the Sandia Base Range Regulations from the 1950s. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is not restricted but is monitored. MRS ML200 is 259.6 acres located in the northern portion of the MRA.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of ML200 acreage documented cultural surface features including barbed wire fences, tires and drums used as targets, and several piles of debris. Multiple 75mm projectiles were found on the surface in this MRS.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The Air Force Cohort Assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.8.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.026231
Longitude: 106.567069

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 259

Acreage confirmed as containing UXO: 259
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.8.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.8.2

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.8.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Heavy grass and many shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.8.8, 5.8.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.8.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ◉ Yes ○ No

If yes, what is the scope of the response activities?
- ☑ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☑ Data collection
- ☑ Investigation
- ☑ Response/remedial action
- ☑ Monitoring
- ☐ Close out
- ☑ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed? UNKNOWN

If yes, under what authority were/are response actions conducted? RCRA

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #: 7

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.8.3, 5.8.4, 5.8.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.8.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200A

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Sandia Base Howitzer Range

Site Description:

The ML200 Sandia Base Howitzer Range is a 960.2 acre medium/large caliber range and is located in the western portion of Kirtland AFB. ML200 was part of the Defense Training Areas used by Sandia Base for flat trajectory line of sight firing of 75mm projectiles as identified from the Sandia Base Range Regulations from the 1950s. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is not restricted but is monitored. MRS ML200a is 696.9 acres located in the southern portion of MRA.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of ML200a acreage documented cultural surface features including barbed wire fences, tires and drums used as targets, and several piles of debris. This is the portion of ML200 with no munitions present.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The Air Force Cohort Assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.8.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.016625
Longitude: 106.5602

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 696

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 696

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200A

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.8.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.8.2

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200A

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Heavy grass and many shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.8.8, 5.8.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.8.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200A

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200A

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.8.3, 5.8.4, 5.8.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.8.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200B

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Sandia Base Howitzer Range

Site Description:

The ML200 Sandia Base Howitzer Range is a 960.2 acre medium/large caliber range and is located in the western portion of Kirtland AFB. ML200 was part of the Defense Training Areas used by Sandia Base for flat trajectory line of sight firing of 75mm projectiles as identified from the Sandia Base Range Regulations from the 1950s. In addition, an apparent .50 Caliber Target was found as evidenced by several 55-gallon drums, used as targets, and numerous fired .50-caliber projectiles. ML200b is the 3.7 acres area where the .50 caliber target is located. It is located near the center of the MRA. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is not restricted but is monitored.

Geophysical surveys revealed a low anomaly density across this MRA. Visual survey and ground truthing of ML200b acreage documented cultural surface features including the drums used as targets.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of the laboratory sample results exceeded screening or background levels. The XRF results did not exceed human health NMED Residential and USEPA Region 6 SSLs. The Air Force cohort assignment is A - Small Arms Range

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.8.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87118-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.020881
Longitude: 106.559033

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 3

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 3

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200B

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: *14.3.8*

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☐ Land to land
- ☐ Land to water
- ☑ Other*

*Description of other: Small Arms Range

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.8.2*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☑	☐	LOW
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200B

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #: 15.4

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.8.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Heavy grass and many shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.8.8, 5.8.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.8.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200B

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☐ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML200 MRS: ML200B

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.8.3, 5.8.4, 5.8.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.8.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML201 MRS: ML201

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Sandia Base Howitzer Range Buffer

Site Description:

The ML201 Sandia Base Howitzer Range Buffer is a 710.0 acre medium/large caliber range and is located in the western portion of Kirtland AFB. ML201 was derived from the ML200 75mm Howitzer Range identified in Sandia Base Range Regulations from the 1950s. The terrain is relatively flat grassland and undeveloped open space. Base access controls are in place and access is not restricted but is monitored.

Geophysical surveys revealed three areas of medium anomaly density in this MRA. Visual survey and ground truthing of ML201 acreage documented cultural surface features including power lines, fenced areas, debris piles, metal pipe and a road. No munitions-related items were observed. The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.9.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.998528
Longitude: 106.530586

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 710

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 710

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML201 MRS: ML201

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.9.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.9.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.9.6

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML201 MRS: ML201

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.9.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.9.8, 5.9.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.9.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML201 MRS: ML201

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☐ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML201 MRS: ML201

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.9.3, 5.9.4, 5.9.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.9.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML760 MRS: ML760

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Gun Site Fan

Site Description:

The ML760 (OB-7) Gun Fan Site is an 8485.5 acre large caliber range located just outside the Kirtland AFB western boundary. The complete historical use of ML760 (OB-7) is unknown. Identification of MRA ML760 (OB-7) was based on the analysis of two maps and an interview with a former Kirtland AFB employee. The maps depict a possible firing point designated as "Gun Site" to the east of the MRA, and the former Kirtland AFB employee indicated that the MRA may have been part of the NMPG/NMER. USACE Albuquerque released a Final Preliminary Assessment Report, "Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639", which discusses the ML760 (OB-7) area. The report concluded OB-7 was never used. The terrain is relatively flat grassland and undeveloped open space. The ML760 (OB-7) Gun Fan Site is an off-site MRA and access to this area by road is via locked gate located in the extreme southwest corner of Kirtland AFB. There are no access controls to this area from the west.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ML760 (OB-7) acreage documented cultural surface features including chain link and barbed wire fences fenced and compounds, a windmill, power lines, houses, and a concrete pad. The Air Force cohort assignment is F - Large Caliber Range.

Based on the FUDS status of this site it is being recommended for removal from the Air Force MMRP.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.10.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.989425
Longitude: 106.577967

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 8485

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 8485

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML760 MRS: ML760

Installation: KIRTLAND AIR FORCE BASE

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.10.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.10.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML760 MRS: ML760

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML760 MRS: ML760

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.10.8, 5.10.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.10.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML760 MRS: ML760

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☐ No public access
- ☐ Limited public access
- ☐ Restricted public access
- ☑ Unrestricted public access

ACCESS CONTROLS:
- ☑ No controls
- ☐ Access signs
- ☑ Fencing
- ☐ Locked gates
- ☐ Log book
- ☐ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML760 MRS: ML760

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☑ State government	☐ Revocation of withdrawn land
☐ Local government	☑ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.10.3, 5.10.4, 5.10.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☐ Federal agency	☐ Tribal
☑ State government	☐ Other****
☑ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.10.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML762 MRS: ML762

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: McCormick Ranch Buffer

Site Description:

The ML762 McCormick Ranch Buffer is a 14.4-acre parcel outside the perimeter of the southwest corner of Kirtland AFB. It is directly south of ML760 (OB-7). ML762 resulted from the confluence of the ML760 (OB-7) firing fan (its on-base portion is the ML760 MRA) and the off-base ML126, which was investigated previously and has been granted closure by NMED (Figure 5-11.1). The terrain is predominantly flat grassland. The complete historical use of ML762 is unknown. Based on the formation of ML762, discussed above as the confluence of ML760 (OB-7) and the off-base ML126, the history and time of use for ML762 are most likely associated with these ranges. USACE, Albuquerque released a Final Preliminary Assessment Report, "Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639", which covered ML760 (OB-7) (USACE, 2007). The report concluded OB-7 was never used.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ML762 acreage documented only cultural surface features including chain link and barbed wire fencing. No munitions-related items were observed. The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.11.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.965569
Longitude: 106.573314

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 52

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 14

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML762 MRS: ML762

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☑ Testing
- ☐ Training
- ☑ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.11.2

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.11.2

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML762 MRS: ML762

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Barren or low grass

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.11.8, 5.11.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.11.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML762 MRS: ML762

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☐ No public access
- ☑ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☑ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☐ Fencing
- ☐ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML762 MRS: ML762

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☑ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.11.3, 5.11.4, 5.11.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☐ Federal agency	☐ Tribal
☑ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.11.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML774 MRS: ML774

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Gun Site Fan

Site Description:

The ML774 Gun Site Fan is a 622.6 acre large caliber range located in the western portion of Kirtland AFB. The history of ML774 is unknown. Although rumored to be within the firing fan of OB-7, the Final Preliminary Assessment Report, "Former Kirtland Air Force Base Gun Site Fan OB-7, FUDS NO. K06NM0639", which covered the OB-7/ML760 areas, concluded OB-7 was never used. The terrain is flat grassland except for four large earthen target mounds and is undeveloped open space. Access controls are in place and access is restricted but accessible after notification of DOE/SNL security.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of ML774 acreage documented only cultural surface features including construction debris. No munitions-related items were observed. The Air Force cohort assignment is F - Large Caliber Range.

The field verified acres for ML774 differ from the acres initially reported when the site was originally identified. Based on data from the CSE Phase II report the actual size of ML774 is 622.6 acres, not the 643.3 acres initially entered in the AFRIMS database.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.12.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.986383
Longitude: 106.565103

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 622

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 622

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML774 MRS: ML774

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☑ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: *5.12.1*

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.12.1*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML774 MRS: ML774

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.12.8, 5.12.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.12.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML774 MRS: ML774

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML774 MRS: ML774

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.12.3, 5.12.4, 5.12.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.12.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML781 MRS: ML781

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Firing In-Abutment

Site Description:

The ML781 Firing-In Abutment is a 0.6 acre multi-use range located just south of the airport runway. The Firing-In Abutment was used to unload aircraft weapons misfires; however, this area has also been used for aircraft machine gun maintenance. The period of use is unknown. The terrain is flat grassland and undeveloped open space. Access controls are in place and access is restricted within the airport's security zone.

Geophysical surveys revealed an area of high anomaly density across this MRA. Ground truthing of ML781 acreage documented only cultural surface features including the entire area surrounded by chain link fence. The only munitions-related item found was one 20mm casing found at the site. The Air Force cohort assignment is B - Bore-sight Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.13.1/5.13.2

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.040808
Longitude: 106.589858

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 1

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 1

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML781 MRS: ML781

Installation: KIRTLAND AIR FORCE BASE

☐ Testing ☐ Small Arms Range *Section:* *5.13.1*

☐ Training ☐ Skeet Range

☐ Treatment OBOD RCRA ☐ Waste Military Munitions

☐ Disposal RCRA ☑ Other* *Page:*

☐ Buffer Area

*Description of other: Multiple/Combined use

RANGE TYPES:

☐ Air to Air ☐ Air to land ☑ Land to land ☑ Other*

☐ Air to water ☐ Land to air ☐ Land to water

*Description of other: Multi-Use Range, aircraft machine gun maintenance

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.13.1*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML781 MRS: ML781

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 400

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.13.8, 5.13.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.13.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML781 MRS: ML781

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML781 MRS: ML781

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.13.3, 5.13.4, 5.13.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify: none

LAND USE INTEREST REFERENCES:

Section, Page #: 5.13.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML784 MRS: ML784

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: 40mm Test and Training Range

Site Description:

The ML784 40MM Test and Training Range is a 150.0 acre rifle grenade range and is located in the central portion of Kirtland AFB. ML784 was used from 1984 to 1994 for the Peacekeeper Challenge competition, which was held annually for security police units worldwide to enhance weapons proficiency, tactics, individual skills, and training programs. One of the marksmanship events was firing orange powder M781 40mm practice grenades from 12 different firing points at 12 different targets. The terrain is relatively flat grassland and undeveloped open space but is immediately surrounded by steep hillsides. Access controls are in place and area and access is limited by terrain and the Electro-Explosive Facility's security fencing but not monitored.

No field investigations were conducted because of the site's location within the Electro-Explosive Facility. Based on this ML784 is ineligible for inclusion in the Air Force MMRP. The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.14.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.994525
Longitude: 106.451942

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 150

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 150
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML784 MRS: ML784

Installation: KIRTLAND AIR FORCE BASE

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [x] Other*

Section: *5.14.2*

Page:

*Description of other: Rifle Grenade

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to land
- [x] Land to land
- [ ] Other*
- [ ] Air to water
- [ ] Land to air
- [ ] Land to water

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.14.2*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	[x]	[ ]	LOW
Explosive grenades (hand or rifle)	[ ]	[ ]	
Explosive landmine	[ ]	[ ]	
Explosive rockets	[ ]	[ ]	
Guided Missiles	[ ]	[ ]	
Explosive detonators	[ ]	[ ]	
Blasting caps	[ ]	[ ]	
Practice grenades (with spotting charges)	[ ]	[ ]	
Practice landmines (with spotting charges)	[ ]	[ ]	
Small arms complete round (.22-.50 cal)	[ ]	[ ]	
Small arms, expended	[ ]	[ ]	
Practice ordnance (without spotting charges)	[ ]	[ ]	
White phosphorous	[ ]	[ ]	
Incendiary material	[ ]	[ ]	
Primary or initiating explosives	[ ]	[ ]	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	[ ]	[ ]	
Military dynamite	[ ]	[ ]	
Less sensitive explosives (Ammonium Nitrate, etc.)	[ ]	[ ]	
Solid or liquid propellants	[ ]	[ ]	
Toxic chem. agents (choking, nerve, blood, blister)	[ ]	[ ]	
War gas identification sets	[ ]	[ ]	
Radiological ordnance (e.g., depleted Uranium)	[ ]	[ ]	
Riot control agents (vomiting, tear)	[ ]	[ ]	
Bombs (explosive)	[ ]	[ ]	
Bombs (practice)	[ ]	[ ]	
Fuses, Boosters, Bursters	[ ]	[ ]	
Flares, signals, & simulators (other than white phos.)	[ ]	[ ]	
Torpedoes/Sea Mines	[ ]	[ ]	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	[ ]	[ ]	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML784 MRS: ML784

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Shrubs and some trees

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.14.8, 5.14.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.14.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML784 MRS: ML784

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: ML784 MRS: ML784

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.14.3, 5.14.4, 5.14.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.14.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MU772 MRS: MU772

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: H-25 Site

Site Description:

The MU772 H-25 Site is a 132.8 acre multi-use range located in the east-central portion of Kirtland AFB. The history and use of MU772 is unknown. The terrain is piñon-juniper covered foothills and is undeveloped open space. Access controls are in place and access is restricted and monitored by frequent patrols.

Geophysical surveys revealed seven areas of high anomaly density across this MRA. Visual survey and ground truthing of MU772 documented cultural surface features including metal scrap, chain link fence, high voltage cables and fence posts. Munitions-related items observed included projectile fragmentation, an expended ground burst simulator and an unfired 40mm smoke grenade. The Air Force cohort assignment is F - Large Caliber Range

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.15.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.967597
Longitude: 106.446119

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 132

Acreage confirmed as containing UXO: 132
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MU772 MRS: MU772

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☑ Other*

Section: 5.15.1

Page:

*Description of other: Multiple/Combined Use

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☐ Land to land
- ☐ Land to water
- ☑ Other*

*Description of other: Multi-Use Range

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5-15.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☑	☐	LOW
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☑	☐	LOW
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.15.6.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MU772 MRS: MU772

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.16.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Rolling with gorges or gullie

Predominant Vegetation: Heavy shrubs and trees

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 90

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.15.8, 5.15.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.15.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MU772 MRS: MU772

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: MU772 MRS: MU772

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.15.3, 5.15.4, 5.15.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.15.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT123 MRS: PT123

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Tijeras Small Arms Range

Site Description:

The PT123 Tijeras Small Arms Range is a 434.2 acre multi-use range located in the northeast portion of Kirtland AFB. PT123 was used as a small combat training range. The period of use is unknown. The terrain is very steep and mountainous slopes and is undeveloped open space. Access controls are in place and access is unrestricted but monitored by both USAF and DOE/SNL.

Geophysical surveys revealed multiple areas of high anomaly density across this MRA. Visual survey and ground truthing of PT123 acreage documented cultural surface features including chain link and barbed wire fences, a wildlife watering tank, a shallow prospect pit, and a metal drum. Munitions-related items observed included 40mm grenade casings, 7.62mm blanks and a slap flare casing. The Air Force cohort assignment is E - Pyrotechnic/Practice Sites.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.16.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3, 1-4*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.035717
Longitude: 106.465311

LOCATION REFERENCES:

Section, Page #: *2.1, 2-1*

AREA:

Total Acreage: 434

Acreage confirmed as containing UXO: 434
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT123 MRS: PT123

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☑ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☑ Other*

Section: 5.16.1, 5.16.2

Page:

*Description of other: Multiple/Combined Use

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.16.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☑	☐	LOW
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☑	☐	LOW
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☑	☐	MEDIUM
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☑	☐	LOW
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.16.6.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT123 MRS: PT123

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.16.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Shrubs and some trees

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 100

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.16.8, 5.16.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.16.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT123 MRS: PT123

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT123 MRS: PT123

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.16.3, 5.16.4, 5.16.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.16.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT761 MRS: PT761

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Tijeras Small Arms and Training Range

Site Description:

The PT761 Tijeras Small Arms and Training Range is a 574.9 acre multi-use range that extends beyond the northern property boundary of Kirtland AFB and is off-base. PT761 was known to have formerly been a small combat training range and its period of use is unknown. The terrain is extremely steep and mountainous and undeveloped open space. Access controls are in place and access is restricted but not monitored.

Geophysical surveys revealed several areas of high anomaly density across this MRA. Visual survey and ground truthing of PT761 acreage documented cultural surface features including chain link and barbed wire fence, and vehicle hulk. No munitions-related items were observed. The Air Force cohort assignment is E - Pyrotechnic/Practice Sites.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.17.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.040383
Longitude: 106.459736

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 575

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 575

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT761 MRS: PT761

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.17.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.17.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT761 MRS: PT761

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Shrubs and some trees

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 100

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.17.8, 5.17.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.17.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT761 MRS: PT761

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☐ No public access
- ☐ Limited public access
- ☐ Restricted public access
- ☑ Unrestricted public access

ACCESS CONTROLS:
- ☑ No controls
- ☐ Access signs
- ☐ Fencing
- ☐ Locked gates
- ☐ Log book
- ☐ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: PT761 MRS: PT761

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.17.3, 5.17.4, 5.17.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☐ Federal agency	☐ Tribal
☐ State government	☐ Other****
☑ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.17.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR763 MRS: SR763

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Rifle Range

Site Description:

The SR763 Rifle Range is a 17.9 acre small arms range located in the central portion of Kirtland AFB. SR763 was once used as a Sandia Base rifle range; however, the years of operation are unknown. The range is visible in aerial photographs from the 1950s. The terrain is flat grassland partially covered by Pad 5. This area is strictly controlled via the utilization of signs, fencing, locked gates, vehicle patrols, guard posts, and electronic anti-intrusion devices.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The XRF lead and laboratory sample results were compared to NMED Residential and USEPA Region 6 SSLs. None of the results exceeded screening levels. In 19 locations XRF lead results exceeded the Kirtland AFB background level of 39 mg/kg. The Air Force cohort assignment is A - Small Arms Range.

The field verified acres for SR763 differs siginificantly from the acres iinitially reported when the site was originally identified. Based on the data from the CSE Phase II report, the actual size of SR763 is 17.9 acres, not the 499 acres initially entered into the AFRIMS database.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.20.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.039531
Longitude: 106.565986

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 18

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 18

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR763 MRS: SR763

Installation: KIRTLAND AIR FORCE BASE

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.20.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.20.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR763 MRS: SR763

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR763 MRS: SR763

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.20.8. 5.20.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.20.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR763 MRS: SR763

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☑ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR763 MRS: SR763

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.20.3, 5.20.4, 5.20.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.20.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR764 MRS: SR764

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Rifle Range

Site Description:

The SR764 Rifle Range is a 6.6 acre small arms range located in the northwest portion of Kirtland AFB. SR764 was once used as a Sandia Base rifle range; however, the years of operation are unknown. The range is visible in aerial photographs from the 1950s. The terrain is relatively flat grassland and undeveloped open space. Access controls are not in place and access is not restricted.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The XRF lead and laboratory sample results were compared to NMED Residential and USEPA Region 6 SSLs. None of the results exceeded the screening levels. The Air Force cohort assignment is A - Small Arms Range.

The field verified acres for SR764 differs significantly from the acres initially reported when the site was originally identified. Based on the data from the CSE Phase II report, the actual size of SR764 is 6.6 acres, not the 103.4 acres intially entered into the AFRIMS database.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.21.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.046767
Longitude: 106.565736

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 7

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 7

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR764 MRS: SR764

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.21.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.21.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR764 MRS: SR764

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.21.8, 5.21.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.21.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR764 MRS: SR764

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR764 MRS: SR764

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.21.3, 5.21.4, 5.21.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.21.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR765 MRS: SR765

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: WWII Pistol Range

Site Description:

The SR765 WWII Pistol Range is a 2.3 acre small arms range located in the northwest portion of Kirtland AFB. SR765 was used as a pistol range around WWII. The years of operation are unknown; however, historical records and aerial photographs show SR765 during the 1950s. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted but not monitored.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The XRF lead and laboratory results were compared to NMED Residential and USEPA Region 6 SSLs. None of the results exceeded screening levels. In 14 locations XRF lead results exceeded the Kirtland AFB background level of 39 mg/kg. The Air Force cohort assignment is A - Small Arms Range.

The field verified acres for SR765 differs significantly from the acres intiially reported when the site was originally identified. Based on data from the CSE Phase II report, the actual size of SR765 is 2.3 acres, not the 242.2 acres initially entered into the AFRIMS database.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.22.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.03815
Longitude: 106.560031

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 2

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 2

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR765 MRS: SR765

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.22.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.22.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR765 MRS: SR765

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.22.8, 5.22.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.22.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR765 MRS: SR765

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR765 MRS: SR765

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.22.3, 5.22.4, 5.22.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.22.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR766 MRS: SR766

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Sub-Machinegun Range

Site Description:

The SR766 Sub-Machine Gun Range is a 64.0 acre small arms range located in the northwest portion of Kirtland AFB. SR766 was reportedly a sub-machine gun range. Although included in a 1950s Sandia Base range regulation, no evidence of its existence could be found in historic base maps or aerial photographs. The terrain is flat grassland and undeveloped open space within the fenced area of the airport runway. Access controls are in place and monitored. Permission was required from Kirtland Base Operations and the New Mexico Air National Guard and an escort to and from the site was mandatory.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The XRF lead and laboratory sample results were compared to the NMED Residential and USEPA Region 6 SSLs. None of the results exceeded screening levels. In four locations XRF lead results exceeded the Kirtland AFB background level of 39 mg/kg. The Air Force cohort assignment is A - Small Arms Range.

The field verified acres for the SR766 differs significantly from the acres initially reported when the site was originally identified. Based on the CSE Phase II report, the actual size of SR766 is 64 acres, not the 148.7 acres initially entered into the AFRIMS database.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.23.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.043044
Longitude: 106.570867

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 64

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 64

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR766 MRS: SR766

Installation: KIRTLAND AIR FORCE BASE

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.23.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.23.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR766 MRS: SR766

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR766 MRS: SR766

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.23.8, 5.23.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.23.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR766 MRS: SR766

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☑ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR766 MRS: SR766

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.23.3. 5.23.4, 5.23.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.23.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR767 MRS: SR767

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Rifle Range

Site Description:

The SR767 Rifle Range is a 2.7 acre small arms range located in the northwest portion of Kirtland AFB. SR767 is a WWII-era rifle range visible in 1950s aerial photos, and reports indicate the range was used through the 1960s and 1970s. The terrain is flat grassland and undeveloped open space. Access controls are not in place and access is not restricted.

Geophysical surveys, visual survey, and ground truthing were not used to evaluate this MRA. No munitions-related items were observed. The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. The XRF lead and laboratory sample results were compared to NMED Residential and USEPA Region 6 SSLs. None of the results exceeded screening levels. In 20 locations XRF lead results exceeded the Kirtland AFB background level of 39 mg/kg. The Air Force cohort assignment is A - Small Arms Range.

The field verified acres for SR767 differs significantly from the acres initially reported when the site was originally identified. Based on the data from the CSE Phase II report, the actual size of SR767 is 2.7 acres, not the 188.5 acres initially entered into the AFRIMS database.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.24.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.047078
Longitude: 106.568128

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 3

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 3

AREA REFERENCES:

Section, Page #: 14.4

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR767 MRS: SR767

Installation: KIRTLAND AIR FORCE BASE

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.24.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.24.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR767 MRS: SR767

Installation: KIRTLAND AIR FORCE BASE

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.24.8, 5.24.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.24.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR767 MRS: SR767

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR767 MRS: SR767

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.24.3, 5.24.4, 5.24.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.24.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR768 MRS: SR768

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Close Combat Infiltration Course

Site Description:

The SR768 Close Combat Infiltration Course is a 180.7 acre multi-use range located in the central portion of Kirtland AFB. The history and use for SR768 is currently unknown. The terrain is rocky, pinon-juniper studded foothills and undeveloped open space. Access controls are in place and access is restricted but not monitored.

Geophysical surveys were not used to evaluate this MRA due to its rough terrain. Visual survey of SR768 acreage documented cultural surface features including a chain link and barbed wire fences and fence posts. Munitions-related items observed included an empty 155mm base ejection round. The Air Force cohort assignment is E - Pyrotechnic/Practice Sites.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.25.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 34.986072
Longitude: 106.435619

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 181

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 181

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR768 MRS: SR768

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.25.2

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.25.2

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☑	☐	LOW
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☑	☐	LOW
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☑	☐	LOW
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR768 MRS: SR768

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Shrubs and some trees

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.25.8, 5.25.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.25.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR768 MRS: SR768

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR768 MRS: SR768

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.25.3, 5.25.4, 5.25.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.25.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR777 MRS: SR777

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Rifle Range

Site Description:

SR777 is a 51 acre abandoned rifle range located in the northwest portion of Kirtland AFB. The period of use of the site is currently unknown. Despite mention of the range in base documents no aerial evidence was found in historical photographs. During the visual survey, no evidence of a small arms range was observed. The Air Force cohort assignment is A - Small Arms Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.26.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.037594
Longitude: 106.514069

LOCATION REFERENCES:

Section, Page #: *2.1*

AREA:

Total Acreage: 51

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 51

AREA REFERENCES:

Section, Page #: *14.4*

CLASSIFICATION:

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [x] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: *5.26.1, 5.26.2*

Page:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR777 MRS: SR777

Installation: KIRTLAND AIR FORCE BASE

RANGE TYPES:

☐ Air to Air ☐ Air to land ☑ Land to land ☐ Other*

☐ Air to water ☐ Land to air ☐ Land to water

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: *5.26.2*

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR777 MRS: SR777

Installation: KIRTLAND AIR FORCE BASE

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 500

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.26.8, 5.26.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.26.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR777 MRS: SR777

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR777 MRS: SR777

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.26.3, 5.26.4, 5.26.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.26.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR778 MRS: SR778

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Airfield Pistol Range

Site Description:

The SR778 Airfield Pistol Range is a 2.0 acre small arms range located in the northwest portion of Kirtland AFB. The site was a pistol range visible in 1950s aerial photos but the years of operation are unknown. The terrain is flat grassland but is now completely covered with asphalt by the Kirtland AFB Aircraft Fire Training area. Access controls are in place and access is restricted but not monitored.

Geophysical surveys and ground truthing were not used to evaluate this MRA. Visual survey of the area revealed all traces of the original pistol range are now covered by the Aircraft Fire Training Area. No munitions-related items were observed. The Air Force cohort assignment is A - Small Arms Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.27.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.03865
Longitude: 106.600881

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 2

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 2

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR778 MRS: SR778

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☑ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.27.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.27.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR778 MRS: SR778

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.27.8, 5.27.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.27.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR778 MRS: SR778

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR778 MRS: SR778

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.27.3, 5.27.4, 5.27.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.27.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR780 MRS: SR780

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Impact Area

Site Description:

Located in the central portion of Kirtland AFB, the SR780 Impact Area has been determined to be associated with the Madera Canyon Gun Site. The area formerly referred to as SR780 actually exists within AL120 northcentral. However, the original area thought to be SR780 was investigated as part of the CSE Phase II investigation. The period of use and purpose of SR780 are unknown. The steep mountainous terrain and the extremely rough roads provide physical barriers making access difficutlt. No MEC was found. The Air Force cohort assignment is F - Large Caliber Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.28.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.001994
Longitude: 106.451697

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 139

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 139

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR780 MRS: SR780

Installation: KIRTLAND AIR FORCE BASE

- [x] Testing
- [x] Training
- [ ] Treatment OBOD RCRA
- [ ] Disposal RCRA
- [ ] Buffer Area
- [ ] Small Arms Range
- [ ] Skeet Range
- [ ] Waste Military Munitions
- [ ] Other*

Section: 5.28.1

Page:

*Description of other:

RANGE TYPES:

- [ ] Air to Air
- [ ] Air to water
- [ ] Air to land
- [ ] Land to air
- [x] Land to land
- [ ] Land to water
- [x] Other*

*Description of other: Multi-use Range

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.28.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR780 MRS: SR780

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.28.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Mountainous

Predominant Vegetation: Shrubs and some trees

GENERAL MEDIA REFERENCES:

Section, Page #: 3.1, 3.2

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 250

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ◉ Yes ○ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.28.8, 5.28.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.28.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR780 MRS: SR780

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: SR780 MRS: SR780

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.28.3, 5.28.4, 5.28.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.28.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Bomb Target

Site Description:

The TG100 Bomb Target is a 37.8 acre air-to-ground range located in the northwest corner of Kirtland AFB. TG100 was identified in a 1958 aerial photograph that showed the outline of a bomb target. The years it was used are unknown. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted but not monitored. The TG100 MRS is 14.8 acres located in the northwest portion of the MRA.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of TG100 acreage documented cultural surface features including chain link and barbed wire fences, power lines, and security lights. Munitions-related items observed included multiple pieces of 100 pound practice bombs as would be expected from a practice bomb target. The Air Force cohort assignment is F - Air-to-Ground Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.29.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.032825
Longitude: 106.585453

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 15

Acreage confirmed as containing UXO: 15
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.29.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☑ Air to land
- ☐ Land to land
- ☐ Other*
- ☐ Air to water
- ☐ Land to air
- ☐ Land to water

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.29.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☑	☐	LOW
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 14.5

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.29.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.29.8, 5.29.9

WETLANDS:

Are there any wetland areas associated with this site? If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.29.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.29.3, 5.29.4, 5.29.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.29.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100A

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Bomb Target

Site Description:

The TG100 Bomb Target is a 37.8 acre air-to-ground range located in the northwest corner of Kirtland AFB. TG100 was identified in a 1958 aerial photograph that showed the outline of a bomb target. The years it was used are unknown. The terrain is relatively flat grassland and undeveloped open space. Access controls are in place and access is restricted but not monitored. The TG100a MRS is 23 acres located in the southern and eastern portion of the MRA.

Geophysical surveys revealed a low anomaly density across this MRA. Ground truthing of TG100 acreage documented cultural surface features including chain link and barbed wire fences, power lines, and security lights. No munitions-related items were found in this MRS. The Air Force cohort assignment is F - Air-to-Ground Range

GENERAL INFORMATION REFERENCES:

Section, Page #: 14.3.29

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.035111
Longitude: 106.585636

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 23

Acreage confirmed as containing UXO: 0
Acreage suspected or potentially containing UXO: 0
Acreage confirmed as NOT containing UXO: 23

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

CLASSIFICATION REFERENCES:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100A

Installation: KIRTLAND AIR FORCE BASE

- ☐ Testing
- ☑ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☐ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

Section: 5.29.1

Page:

*Description of other:

RANGE TYPES:

- ☐ Air to Air
- ☑ Air to land
- ☐ Land to land
- ☐ Other*
- ☐ Air to water
- ☐ Land to air
- ☐ Land to water

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.29.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☐	☐	
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100A

Installation: KIRTLAND AIR FORCE BASE

ANOMALY DENSITY REFERENCES:

Section, Page #:

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.29.8, 5.29.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.29.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100A

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TG100 MRS: TG100A

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.29.3, 5.29.4, 5.29.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.29.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS775 MRS: TS775

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Airfield Skeet Range

Site Description:

The TS775 Airfield Skeet Range is a 25.2 acre trap and skeet range located in the northwest portion of Kirtland AFB. TS775 is suspected of being a WWII-era trap and skeet range; however, the years of operation are unknown. The range is visible in aerial photographs from the 1950s. The terrain is flat grassland and undeveloped open space located adjacent to an airport runway. Access controls are in place and access is restricted and monitored. Permission was required from Kirtland Base Operations and an escort to the site was mandatory.

Geophysical surveys and ground truthing were not used to evaluate this MRA. Visual survey of TS776 acreage documented only cultural surface features including clay targets and spent pellets were observed and were visible at this small arms range. The western portion of the range appears to have had a layer of gravel across the surface and obvious grading work conducted. The concrete walkways visible in the historic aerial photographs are still in place where the firing points were located. The only munitions-related items were observed were expended shotgun shells.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. None of XRF results exceeded screening levels. In 11 XRF locations lead results exceeded the Kirtland AFB background level of 39 mg/kg. Antimony was detected above both screening and background levels in one laboratory sample. In all ten samples analyzed for PAHs, at least one analyte exceeded one or both screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Metals and/or PAH concentrations in soil at TS775 exceed the screening levels for direct contact with soil and consequently pose a potential risk to human health that merits further evaluation. Metals and PAH contamination exceed screening levels for one or more ecological receptors. Additional investigation of this MRA is recommended to assess the potential for ecological risk. The Air Force cohort assignment is A - Trap and Skeet Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: *5.30.1*

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: *1.3*

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.041686
Longitude: 106.600178

LOCATION REFERENCES:

Section, Page #: *2.1*

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS775 MRS: TS775

Installation: KIRTLAND AIR FORCE BASE

AREA:

Total Acreage: 25

Acreage confirmed as containing UXO: 12

Acreage suspected or potentially containing UXO: 13

Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☑ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.30.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☐ Other*

*Description of other:

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.30.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS775 MRS: TS775

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☑	☐	LOW
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: 5.30.6.1

ANOMALY DENSITY REFERENCES:

Section, Page #: 5.30.6.2

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: 3.2, 3.4

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS775 MRS: TS775

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.30.8, 5.30.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.30.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS775 MRS: TS775

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☑ Locked gates
- ☑ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS775 MRS: TS775

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.30.3, 5.30.4, 5.30.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.30.3

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS776 MRS: TS776

Installation: KIRTLAND AIR FORCE BASE

City: Albuquerque State: NM County: Bernalillo

Site Name: Skeet Range

Site Description:

The TS776 Airfield Skeet Range is a 29 acre trap and skeet range located in the northwest corner of Kirtland AFB. TS776 was used as a trap and skeet range from WWII until the late 1960s. From the late 1960s through May 1998, the Skeet Range was used as a recreational facility for clay pigeon shooting practice. The terrain is flat grassland and undeveloped open space. Access controls are not in place and access is not restricted.

Geophysical surveys and ground truthing were not used to evaluate this MRA. Visual survey of TS776 acreage documented one cultural surface feature of a small fenced compound with a brick building. No munitions-related items were observed.

The presence of surface and potential subsurface MEC is a risk to authorized personnel and trespassers. One XRF result exceeded the screening levels for lead. In 88 XRF locations lead results exceeded the Kirtland AFB background level of 39 mg/kg. Antimony was detected above both screening levels and the background levels in three laboratory sample. All but three samples analyzed for PAHs had benzo(a)pyrene above the USEPA Region 6 screening level. Six samples had multiple PAHs that exceeded one or both screening levels. The results of the CSE Phase II soil samples were compared to NMED Residential and USEPA Region 6 SSLs. Metals and/or PAH concentrations in soil at TS776 exceed the screening levels for direct contact with soil and consequently pose a potential risk to human health that merits further evaluation. Metals and PAH contamination exceed screening levels for one or more ecological receptors. Additional investigation of this MRA is recommended to assess the potential for ecological risk. The Air Force cohort assignment is A - Trap and Skeet Range.

GENERAL INFORMATION REFERENCES:

Section, Page #: 5.31.1

POINT OF CONTACT INFORMATION

Last Name: Bitner
First Name: Wayne
Organization: CEANR
Phone #: (505) 853-3484
Email: ludie.bitner@kirtland.af.mil

Address: 2050 Wyoming Blvd., SE, Building 2068
City: Kirtland AFB
State: NM
Zip: 87117-5270

POINT OF CONTACT REFERENCES:

Section, Page #: 1.3

LOCATION:

City: Albuquerque
State: NM
County: Bernalillo

Latitude: 35.038792
Longitude: 106.555297

LOCATION REFERENCES:

Section, Page #: 2.1

AREA:

Total Acreage: 29

Acreage confirmed as containing UXO: 29

Acreage suspected or potentially containing UXO: 0

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS776 MRS: TS776

Installation: KIRTLAND AIR FORCE BASE

Acreage confirmed as NOT containing UXO: 0

AREA REFERENCES:

Section, Page #: 14.4

CLASSIFICATION:

- ☐ Testing
- ☐ Training
- ☐ Treatment OBOD RCRA
- ☐ Disposal RCRA
- ☐ Buffer Area
- ☐ Small Arms Range
- ☑ Skeet Range
- ☐ Waste Military Munitions
- ☐ Other*

*Description of other:

CLASSIFICATION REFERENCES:

Section: 5.31.1

Page:

RANGE TYPES:

- ☐ Air to Air
- ☐ Air to water
- ☐ Air to land
- ☐ Land to air
- ☑ Land to land
- ☐ Land to water
- ☑ Other*

*Description of other: This range is from the WWII and post-WWII era.

RANGE/SITE TYPES REFERENCES:

Section, Page #: 5.31.1

ORDNANCE TYPES AND RELATED ANOMALY DENSITY:

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS776 MRS: TS776

Installation: KIRTLAND AIR FORCE BASE

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Medium/Large Caliber (20 mm and larger)	☐	☐	
Explosive grenades (hand or rifle)	☐	☐	
Explosive landmine	☐	☐	
Explosive rockets	☐	☐	
Guided Missiles	☐	☐	
Explosive detonators	☐	☐	
Blasting caps	☐	☐	
Practice grenades (with spotting charges)	☐	☐	
Practice landmines (with spotting charges)	☐	☐	
Small arms complete round (.22-.50 cal)	☐	☐	
Small arms, expended	☑	☐	LOW
Practice ordnance (without spotting charges)	☐	☐	
White phosphorous	☐	☐	
Incendiary material	☐	☐	
Primary or initiating explosives	☐	☐	

Ordnance Types (check all that apply)		Contaminant is a Chemical residue of munitions?	Density
Demolition charges	☐	☐	
Military dynamite	☐	☐	
Less sensitive explosives (Ammonium Nitrate, etc.)	☐	☐	
Solid or liquid propellants	☐	☐	
Toxic chem. agents (choking, nerve, blood, blister)	☐	☐	
War gas identification sets	☐	☐	
Radiological ordnance (e.g., depleted Uranium)	☐	☐	
Riot control agents (vomiting, tear)	☐	☐	
Bombs (explosive)	☐	☐	
Bombs (practice)	☐	☐	
Fuses, Boosters, Bursters	☐	☐	
Flares, signals, & simulators (other than white phos.)	☐	☐	
Torpedoes/Sea Mines	☐	☐	
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	☐	☐	

ORDNANCE TYPES REFERENCES:

Section, Page #: *5.31.3.1*

ANOMALY DENSITY REFERENCES:

Section, Page #: *5.31.3.2*

GENERAL MEDIA:

Predominant Soil Type: Sand/Gravel-Sand Predominant Topography: Flat

Predominant Vegetation: Low grass and few shrubs

GENERAL MEDIA REFERENCES:

Section, Page #: *3.2, 3.4*

GROUNDWATER:

Potential for contamination of drinking water: NO POTENTIAL

Depth to Groundwater (feet): 350

Is the MRS located above a drinking water aquifer? YES

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS776 MRS: TS776

Installation: KIRTLAND AIR FORCE BASE

Sole source aquifer? Yes

GROUNDWATER REFERENCES:

Section, Page #: 3.5.2

ARCHAEOLOGICAL/ECOLOGICAL:

Threatened or endangered species present? ○ Yes ◉ N

Archaeological or cultural sites present? ○ Yes ◉ N

ARCHEOLOGICAL/ECOLOGICAL REFERENCES:

Section: 5.31.8, 5.31.9

WETLANDS:

Are there any wetland areas associated with this site? NO If yes, please list acreage:

WETLANDS REFERENCES:

Section, Page #: 5.31.9

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS776 MRS: TS776

Installation: KIRTLAND AIR FORCE BASE

ENVIRONMENTAL RESPONSE:

Have environmental response activities been initiated/conducted on this MRS? ○ Yes ◉ No

If yes, what is the scope of the response activities?
- ☐ Past practices
- ☐ Chemical contamination
- ☐ Current practices
- ☐ Ordnance and explosives, including UXO

If yes, what is the status of the response activities?
- ☐ Data collection
- ☐ Investigation
- ☐ Response/remedial action
- ☐ Monitoring
- ☐ Close out
- ☐ Operation and maintenance

If yes, is contamination monitoring (i.e., groundwater sampling and analysis) needed?

If yes, under what authority were/are response actions conducted?

ENVIRONMENTAL RESPONSE REFERENCES:

Section, Page #:

UXO RESPONSE:

What types of UXO response actions have been initiated/conducted on the site?

- ☐ None
- ☑ Unknown
- ☐ Other*
- ☐ Emergency response actions
- ☐ Routine range clearance/maintenance
- ☐ Time-critical removal actions
- ☐ UXO response actions associated with ERP activities
- ☐ Non-time-critical removal actions with Engineering Evaluation/Cost Analysis

*Please specify other:

UXO RESPONSE REFERENCES:

Section: *Page:*

LAND USE RESTRICTIONS:
- ☑ No public access
- ☐ Unrestricted public access
- ☐ Limited public access
- ☐ Restricted public access

ACCESS CONTROLS:
- ☐ No controls
- ☐ Locked gates
- ☐ Access signs
- ☐ Log book
- ☑ Fencing
- ☑ Security patrol

COMPREHENSIVE SITE EVALUATION: AFRIMS DATA

MAJCOM: AFMC FFID: NM65718244230 MRAID: TS776 MRS: TS776

Installation: KIRTLAND AIR FORCE BASE

TRANSFERRED OR TRANSFERRING RANGES:

For transferred and transferring ranges, what is the nature of the transfer?

Lease to:	Ownership transfer to:	Additional reasons:
☐ Federal agency	☐ Federal agency	☐ Lease termination
☐ State government	☐ State government	☐ Revocation of withdrawn land
☐ Local government	☐ Local government	☐ Other***
☐ Private entity	☐ Private entity	
☐ Tribal	☐ Tribal	

***Please specify:

LAND USE, ACCESS CONTROL, TRANSFERRED/TRANSFERRING RANGES REFERENCES:

Section, Page #: 5.31.3, 5.31.4, 5.31.5

LAND USE INTEREST:

☐ DOD	☐ Public sector
☑ Federal agency	☐ Tribal
☐ State government	☐ Other****
☐ Local government	

****Please specify:

LAND USE INTEREST REFERENCES:

Section, Page #: 5.31.3