DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

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JUN 01 2016
NMED
Hazardous Waste Bureau

31 May 2016

ADAM M. KUSMAK, GS-13, USAF
Chief, Installation Management Flight (49 CES/CEI)
49th Civil Engineer Squadron (49 CES)
Holloman Air Force Base, NM

Mr. John E. Kieling
Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East Bldg. 1
Santa Fe NM 87505-6063

Dear Mr. Kieling,

Holloman AFB is pleased to submit the Interim Measures Work Plan for Drum Removal at Military Munitions Response Program (MMRP) site Able 51 Area (XU854) at Holloman Air Force Base, NM for your review. The buried drums have been discovered at this site during the Remedial Investigation performed in February 2015.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions regarding this submittal, please contact me at (575) 572-6675.

Sincerely,

KUSMAK.ADAM.M.1263331806

Digitally signed by KUSMAK.ADAM.M.1263331806
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=KUSMAK.ADAM.M.1263331806
Date: 2016.05.31 08:57:01 -06'00'

ADAM M. KUSMAK, GS-13, USAF

Attachment (hard copy and CD):
Interim Measures Work Plan for Drum Removal XU854 Able 51 Area Munitions Response Site, Holloman Air Force Base, NM.

cc:

(w/Atch)	(w/CD)	(w/o Atch)
Mr. David Strasser	Mr. Chuck Hendrickson	Mr. Cornelius Amindyas
Hazardous Waste Bureau	U.S. Environmental Protection Agency	Hazardous Waste Bureau
121 Tijeras Dr. NE, Ste.1000	1445 Ross Avenue, Suite 1200	121 Tijeras Dr. NE, Ste. 1000
Albuquerque NM 87102-3400	Dallas TX 75202-2733	Albuquerque NM 87102-3400

The information herein is For Official Use Only (FOUO) which must be protected under the Freedom of Information Act of 1966 and Privacy Act of 1974, as amended. Unauthorized disclosure or misuse of this PERSONAL INFORMATION may result in criminal and/or civil penalties.

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FINAL

INTERIM MEASURES WORK PLAN

for

DRUM REMOVAL
XU854 ABLE 51 AREA MRS

HOLLOMAN AIR FORCE BASE
NEW MEXICO

Performance Based Remediation
Contract Number: FA8903-13-C-0008

AIR FORCE CIVIL ENGINEER CENTER
2261 Hughes Ave., Suite 163
Joint Base San Antonio Lackland, Texas 78236-9853

May 2016

Prepared by:

FPM Remediations, Inc.

181 Kenwood Avenue
Oneida, NY 13421

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TABLE OF CONTENTS

SECTION PAGE

1.0 INTRODUCTION 1
1.1 Site Description and Operational History 1
1.2 Previous Investigations 1
1.3 Unanticipated Discovery of Buried Drums during the RI 2
1.4 Regulatory Input 4
2.0 OBJECTIVES 4
3.0 METHODOLOGY 4
3.1 Excavation of Drums 4
3.2 Sampling of Excavated Material for Disposal Characterization 5
3.3 Disposal of Excavated Material 5
3.4 Confirmatory End-Point Sampling 5
3.5 QA/QC samples 6
3.6 Decontamination 6
4.0 REPORTING 6
5.0 SCHEDULE 6
6.0 REFERENCES 6

LIST OF FIGURES

Figure 1 Holloman Air Force Base

Figure 2 XU854 Able 51 Area MRS Location

Figure 3 EM61-MK2 Gridded Data Drum Location XU854 MRS

Figure 4 G-858 Analytic Signal Drum Location XU854 MRS

LIST OF TABLES

Table 1 Project Schedule

ATTACHMENTS

Attachment 1 Waste Manifest

Attachment 2 NMED Approval with Modifications Remedial Investigation Report, Able 51 Area (XU854), Poorman Range (SR864), Ballistics Rain Field (ML865) and Debris Field (RR869a) MRSs

LIST OF ABBREVIATIONS AND ACRONYMS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AOC	Area of Concern
DGM	Digital Geophysical Mapping
FPM	FPM Remediations, Inc.
MC	Munitions Constituents
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MPPEH	Material Potentially Presenting an Explosive Hazard
MRA	Munitions Response Area
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NFA	No Further Action
NMED	New Mexico Environment Department
PID	Photoionization Detector
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RSL	Regional Screening Levels
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
USAF	U.S. Air Force
UXO	Unexploded Ordnance
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
WP	Work Plan
WSMR	White Sands Missile Range

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1.0 INTRODUCTION

This Letter Work Plan (WP) describes the work elements, technical approach, and safety guidance to be used to excavate and remove the remaining drums discovered during intrusive investigation of the geophysical anomalies performed as part of Remedial Investigation (RI) at XU854 Able 51 Area Munitions Response Site (MRS) at Holloman Air Force Base (AFB).

This WP has been prepared by FPM Remediations, Inc. (FPM) under Air Force Civil Engineer Center (AFCEC) Contract FA8903-13-C-0008 to support the U.S. Air Force (USAF) Military Munitions Response Program (MMRP).

1.1 Site Description and Operational History

XU854 MRS is located just west of the Holloman AFB main Base boundary fence, on the land that belongs to the White Sand Missile Range (WSMR) (**Figure 1**). The MRS is 47.70 acres in size and there is a fence around the site (**Figure 2**).

Able 51 Area Munitions Response Area (MRA) was used as a launch facility in the late 1950s and early 1960s for testing of Mace and Matador missiles. Also referred to as the Zero Length site or BQM-34A Drone Launch site, this area was also used for research on mobile launch capability of both manned and unmanned aircraft using rocket boosters, without the need for prepared airfields. Building 1440, completed in 1962, was used as an observation blockhouse for Mace and Matador missiles and drone launches. Since missile testing ended at the Able 51 Area in the early 1970s, Building 1440 has been either used for storage or has been vacant. Building 1442 was constructed in 1959 as a missile launch facility and is currently vacant. Missiles and aircraft were launched from a fixed launcher as well as mobile launchers tethered to concrete pads within the Able 51 Area.

1.2 Previous Investigations

Previous investigations performed at XU854 MRS under the regulatory framework of the USAF MMRP included:

- Modified Comprehensive Site Evaluation (CSE) Phase I (Shaw Environmental, Inc., 2010),
- CSE Phase II (HDR Environmental, Operations and Construction, Inc., 2013), and
- RI (FPM, 2016).

The **CSE Phase I** included identification and review of data repositories located both on and off the installation, interviews with base personnel and visual surveys. No Munitions and Explosives of Concern (MEC) or Munitions Debris (MD) other than small arms debris was observed, and no Munitions Constituents (MC) sampling was conducted during the CSE Phase I. Since historical use of this site as a missile test/launch facility may have resulted in MC release, the site was recommended for further evaluation during the CSE Phase II.

The **CSE Phase II** included a visual survey to identify MEC or MEC-related items as well as general features of the site. The visual survey identified the launch site and support buildings which consisted of an observation building, the launch shelter, and concrete launch pads.

No MEC or missile debris were observed during the visual survey; therefore, no MC sampling was conducted in the MRA. Although intact small arms ammunition was identified during the visual

survey, there is no historical record of small arms training conducted at the MRA, and since the CSE Phase II visual survey did not discover any evidence of formal small arms training (e.g., targets, berms, and firing positions), the small arms debris discovered at the MRA during the CSE Phase II suggest recent but minor usage of small arms. Therefore, no MC sampling for lead was conducted in the MRA. The CSE Phase II concluded that any human health or ecological risks at this site were expected to be similar to those associated with background conditions.

Based on the presence of surface MD within the MRA, the identified 47.7-acre XU854 MRS obtained a Munitions Response Site Prioritization Protocol (MRSPP) score of 6 and was recommended for further munitions response action at the conclusion of the CSE Phase II.

The **RI** included surface clearance and Digital Geophysical Mapping (DGM) along transects and selected grids, intrusive investigation of all (509) subsurface anomalies above the site-specific threshold, and soil sampling for propellant constituents at historic launch pad sites located within the MRS.

No MEC and 5 MD items (2 surface and 3 subsurface) were discovered during the RI. Incremental soil samples were collected from 12 decision units immediately surrounding known historical and suspected missile/rocket launch pad sites and analyzed for propellants (explosive compounds, nitrate, and perchlorate). Detected concentrations of explosives, nitrate and perchlorate were well below their corresponding residential soil screening levels (the more conservative value between the U.S. Environmental Protection Agency (USEPA) Residential Regional Screening Levels [RSLs] [June, 2015] and New Mexico Environment Department (NMED) Risk Assessment Guidance residential values [July 2015]). **Based on RI results, XU854 MRS was recommended for No Further Action (NFA) for both MEC and MC.**

1.3 Unanticipated Discovery of Buried Drums during the RI

During intrusive investigation (5 February 2015) of DGM anomalies at XU854, the Unexploded Ordnance (UXO) team uncovered and removed what initially appeared to be an isolated piece of badly deteriorated metal (the location of this geophysical anomaly is shown in **Figure 2**). This particular target, or anomaly, was deep, so a backhoe was used to remove the overburden soil. When the excavation was within a foot of the anomaly, the UXO team hand dug to the anomaly and verified **it was not MEC or Material Potentially Presenting an Explosive Hazard (MPPEH)**. All that was visible was a piece of deteriorated metal, so the backhoe was used to remove it in one scoop. When the backhoe bucket was lifted from the excavation, a small amount of thick, grey liquid was observed in the dirt and metal inside the bucket. Plastic sheeting was placed on the ground and a dirt coffer dam was built to contain the material prior to placing the material on the ground surface. The metal was observed to be a deteriorated small drum (approximately 25 to 30 gallons), and Holloman AFB and AFCEC were notified. The drum and associated soils/liquid were containerized in two 55–gallon drums. The waste material was sampled for waste characterization profile on 10 February 2015 and sent to Accutest Laboratories Southeast, Inc. of Florida for analysis.

The waste characterization sample was analyzed for:

- Toxicity Characteristics Leaching Procedure (TCLP) USEPA Method SW846 1311 for Volatile Organic Compounds (VOCs) using USEPA Method SW846 8260B,

- TCLP for Semi-Volatile Organic Compounds (SVOCs) using USEPA Method SW846 8270D,
- TCLP for herbicides/pesticides using USEPA Method SW846 8081B/8151A,
- TCLP for 8 Resource Conservation and Recovery Act (RCRA) Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) using USEPA Method SW846 6010C/7470A,
- Corrosivity as pH using USEPA Method SW846 CHAP7,
- Cyanide and Sulfide Reactivity USEPA Method SW846 CHAP7,
- Ignitability using USEPA Method SW846 1010, and
- Percent Solids using USEPA Method SM19 2540G.

The TCLP results did not indicate the presence of detectable concentrations with the exception of one VOC (2-butanone [MEK]) and one metal (barium) both well below their respective characteristic hazardous waste levels. The detailed results and laboratory analytical reports are provided in Technical Memorandum Unanticipated Drum Excavation/Sampling Summary XU854 MRS (FPM, 2015).

The material was characterized as a non-hazardous waste and the two drums containing the excavated metal drum and associated materials were transported on 1 April 2015 to US Ecology, Inc. Beatty, NV. A copy of the waste manifest is provided as **Attachment 1** to this WP.

Additional Subsurface Investigation

The initial excavation was backfilled due to safety concerns. The excavation was re-opened on 11 February 2015 to collect confirmatory end-point soil samples verifying all contaminated soils were removed. However, during re-excavation, the apparent opening for a second drum was observed in the sidewall. The second drum was not removed. Plastic sheeting was laid in the excavation and the soils replaced.

FPM completed 100% DGM in the area expanding outward from the original anomaly location to determine the extent of the buried metallic material. Two geophysical anomaly areas were identified (**Figures 3** [survey performed using Geonics Electromagnetic Induction Sensor EM61-MK2] **and 4** [survey performed using Geometrics G-858 Cesium Vapor Magnetometer]).

The geophysical anomaly areas were intrusively investigated on 21 February 2015. Intrusive investigations encountered approximately four additional buried drums which were not excavated. One of the drums contained material which was sampled for waste characterization profile (as listed above) and for total VOCs, SVOCs, RCRA metals, herbicides/pesticides. **The analytical results indicated no detections for the waste profile characterization, supporting a non-hazardous characterization**. For the total SVOCs, the analytical results indicated the presence of one SVOC (butyl benzyl phthalate) above the screening level (USEPA Industrial RSL, June 2015). The detailed results and complete laboratory analytical report are provided in Technical Memorandum Unanticipated Drum Excavation/Sampling Summary XU854 MRS (FPM, 2015).

The excavation was covered with plywood and surrounded by snow fencing pending analytical results and determination of path forward for the site.

1.4 Regulatory Input

NMED reviewed the RI Report and approved the recommendation for the XU854 MRS (i.e., **NFA for MEC and MC**) in the letter dated April 14, 2016 (the NMED letter is provided as **Attachment 2** to this Letter WP). However, based on discovery of buried drums and sampling results of buried material, NMED has determined that XU854 is a Solid Waste Management Unit (SWU) or Area of Concern (AOC), and that it should be added to Table A of Permit Part 4, Appendix 4-A, SWMUs/AOCs requiring Corrective Action. NMED further required a submission of a RCRA Facility Investigation (RFI) WP by June 30, 2016, to investigate and characterize the contents of the remaining drums and surrounding soil.

2.0 OBJECTIVES

The objectives of the work described in this Letter WP include:

- Removal (excavation) of non-munitions related source of anomaly identified during RI (suspected to be the drums with paint-related material);
- Waste characterization sampling to determine whether excavated material represents hazardous or non-hazardous waste;
- Confirmation end-point sampling within the excavated area to verify that all contaminated soil has been removed.

3.0 METHODOLOGY

3.1 Excavation of Drums

Drums and their contents together with immediately adjacent soil that has been impacted by the material from drums will be excavated using a backhoe. Initial determination regarding whether the remaining soil is contaminated will be done using the combination of visual examination and field screening methods. Field screening will consist of taking Photoionization Detector (PID) measurements during excavation to identify organic-containing material. Excavated waste and soil will be placed in UN-approved 55-gallon steel drums, and the excavated drums will be placed in UN-approved 85-gallon steel drums. To minimize the spread of contamination, equipment necessary for soil excavation will remain within the contamination control zones until completion of excavation activities. The drums will be labeled and secured until waste characterization is complete and drums are transported to an approved off-site disposal facility. Note excavated material that requires inspection prior to placement in drums will be placed on 20-millimeter polyethylene plastic sheeting.

The field team will maintain it's primary position upwind of the excavation to the extent practicable during work to reduce the potential for worker exposure. It is not anticipated that any team member will enter the excavation, and shoring will not be required. Air will be monitored for vapors within the work zone outside the excavation, and dust will be controlled, if necessary, by spraying the area with clean water. A minimum amount of water will be used to keep the dust under control. Based on the previous excavation of drums at XU854 in 2015 (FPM, 2015) and in accordance with Health and Safety Plan for XU854 MRS (FPM, 2014), it is anticipated that Level D protection will be sufficient for all work operations; however, if different conditions are encountered, the FPM

Team will upgrade to Level C protection for the heavy equipment operator and personnel running the PID.

3.2 Sampling of Excavated Material for Disposal Characterization

Excavated material will be sampled and analyzed to determine appropriate means of its disposal (i.e., to be shipped off-site for disposal as hazardous or non-hazardous waste). Two samples (one grab and one composite) will be collected from the excavated contaminated soil and analyzed for the same constituents and using the same USEPA Methods as described in **Section 1.3** above (i.e., toxicity [TCLP], ignitability, corrosivity, and reactivity). If free-flowing liquids and/or slurries are present in the excavated drums (e.g., in the case that drums are not completely deteriorated, and liquid content has not leached completely into the soil), samples of those liquids will be collected from each drum (in the case that different liquids are encountered in different drums) and analyzed for the same constituents as described in **Section 1.3**.

The samples will be sent to Accutest Laboratories Southeast, Inc. of Florida for off-site analyses under chain-of-custody protocol.

3.3 Disposal of Excavated Material

Drums containing the excavated material will be hauled to an approved off-site disposal facility based on waste characterization sampling results. It is anticipated that any waste or soil generated will be transported in closed-transport vehicles.

After loading and before leaving the area, the driver will visually inspect each drum to ensure that the exterior is not contaminated. Before leaving the area and under the direction of the field team leader, any discovered external contamination will be removed.

3.4 Confirmatory End-Point Sampling

Following excavation within each excavated pit or trench, discrete confirmation samples will be collected using disposable sampling equipment and supplies. The number of samples will depend on the size of the excavated area. If the area is smaller than 100 square feet, FPM will collect 4 sidewalls samples (one from each wall) and one sample from the bottom of each excavation. If the excavation area is larger than 100 square feet, FPM will collect one sidewall sample every 10 linear feet and two samples from the bottom of each excavation. The samples will be submitted to Accutest Laboratories Southeast, Inc. of Florida for analysis of:

- VOCs (USEPA Method SW846 8260B),
- SVOCs (USEPA Method SW846 8270D),
- Total metals (USEPA Method SW846 6010C/7470A), and
- Herbicides/Pesticides (USEPA Method SW846 8081B/8151A).

Soil analytical results will be compared to corresponding residential soil screening levels (the more conservative value between the USEPA RSLs [USEPA, 2015] and NMED Risk Assessment Guidance values [NMED, 2015]). It is anticipated that the excavation samples will verify clean soil conditions above the water table (all analytes below their corresponding residential screening levels), such that groundwater investigation is not necessary.

3.5 QA/QC samples

FPM team will collect field Quality Control (QC) samples including one duplicate, one Matrix Spike (MS)/Matrix Spike Duplicate (MSD), one equipment rinsate and one field blank. Trip blanks to be analyzed for VOCs will be included in each cooler containing VOC samples shipped to the laboratory.

Once the samples have been collected, sample preservation techniques and holding times will be employed to ensure that the integrity of the waste remains intact while the samples are in transport to the off-site laboratory.

3.6 Decontamination

We anticipate the use of disposable equipment for collecting soil and liquid (if any) samples. However, if non-disposable sampling equipment is used, all equipment that comes in contact with waste (including the backhoe bucket) will be cleaned thoroughly and decontaminated to minimize the potential for cross-contamination. Initial steps of decontamination will include moving the equipment onto a clean plastic and removing all loose debris and soil from the equipment, followed by a thorough cleaning process, including washing with an inert detergent solution (such as alconox) and rinsing with deionized water. A decontamination area will be established such that the potential for downwind contamination from the remediation site is mitigated.

Decontamination and rinse solutions will be collected in a 55-gallon drum and analyzed for disposal off-site (waste characterization sampling will be performed in the same manner as described in **Section 1.3**).

4.0 REPORTING

An Interim Measures Report, summarizing the field activities, waste characterization results, waste manifests, and confirmatory end-point sampling results will be prepared and submitted to USAF for review. Upon resolution of all comments, the Report will be submitted to NMED for review.

5.0 SCHEDULE

The project schedule is provided in **Table 1.**

Table 1 Project Schedule

Activity	Date
Final Interim Measures Work Plan	June 2016
Field Activities	May-June 2016
Draft Interim Measures Report	June 2016
Final Interim Measures Report	July 2016

6.0 REFERENCES

FPM. 2014. Final Remedial Investigation Work Plan XU854 Able 51 Area, SR864 Poorman Range, ML865 Ballistics Rain Field, and RR869a Debris Field MRSs. December.

FPM. 2015. Technical Memorandum Unanticipated Drum Excavation/Sampling Summary XU854 MRS. August.

FPM. 2016. Final Remedial Investigation Report XU854 Able 51 Area, SR864 Poorman Range, ML865 Ballistics Rain Field, and RR869a Debris Field MRSs. May.

HDR. 2013. Holloman Air Force Base, New Mexico, Comprehensive Site Evaluation Phase II, Final. September. HDR for United States Corps of Engineers (USACE) - Omaha District.

NMED. 2015. New Mexico Environment Department, Risk Assessment Guidance for Site Investigations and Remediation. July.

Shaw. 2010. Modified Comprehensive Site Evaluation Phase I, Holloman Air Force Base, New Mexico, Final. May. Shaw for USACE - Omaha District.

USEPA. 2015. Regional Screening Levels for Chemical Contaminants at Superfund Sites. June.

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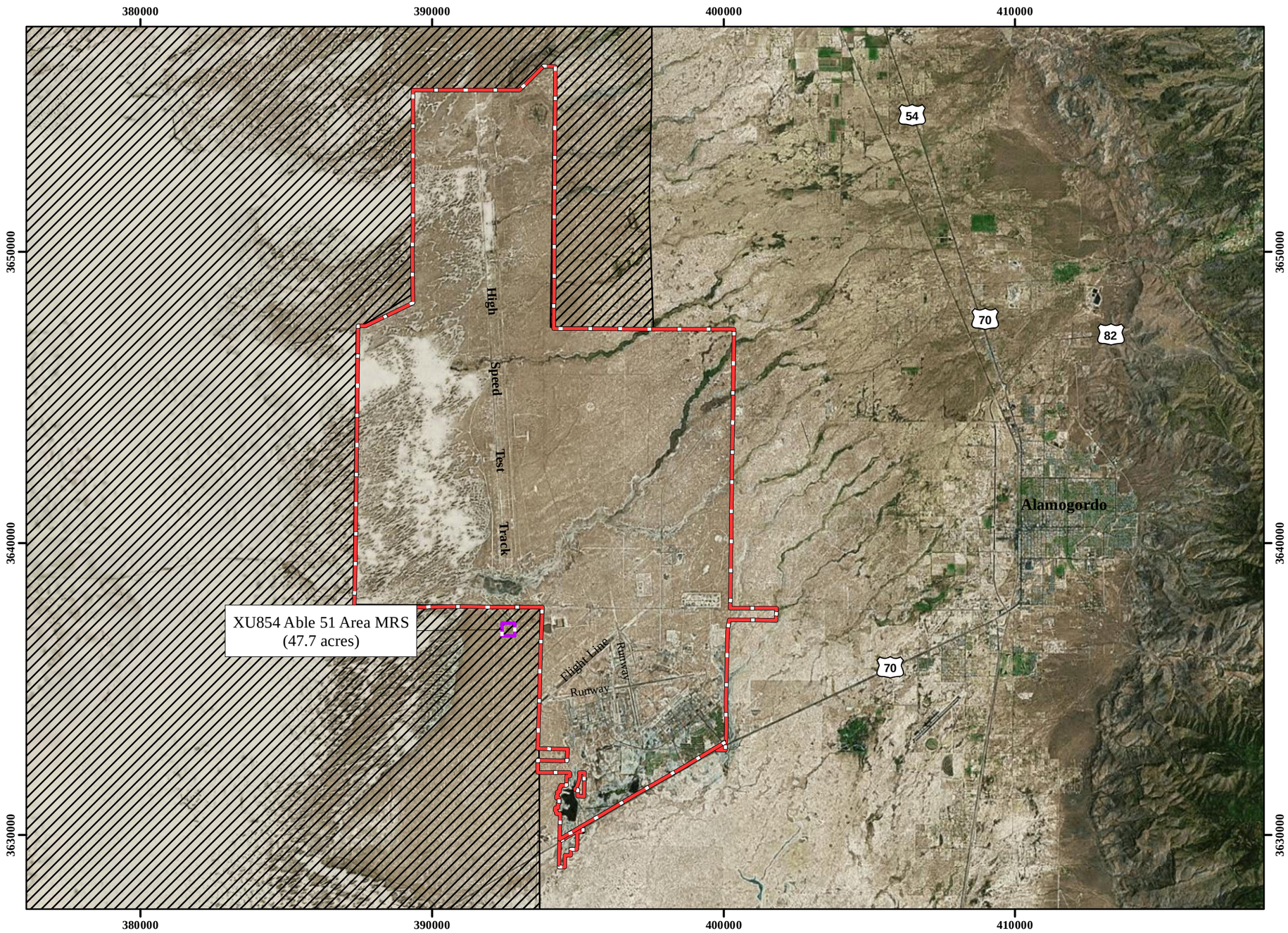
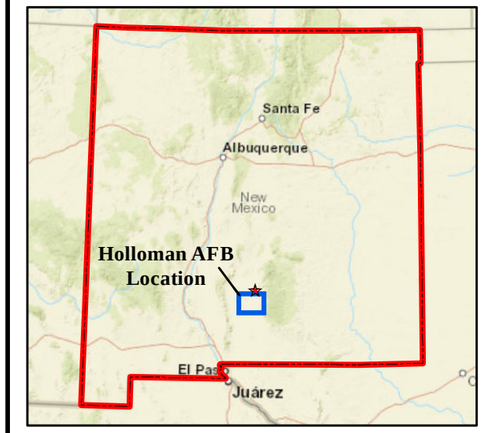
FIGURES





Legend

White Sands Missile Range

Installation Boundary

NOTES:

Revision Date: 5/21/2016

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Base Map Source: ESRI Online Bing Data Source

1 inch = 12,000 feet

0 1,850 3,700 Meters

0 6,000 12,000 Feet

N W E S

Performance Based Remediation
New Mexico-Arizona
Holloman Air Force Base
Alamogordo, NM
AFCEC

FIGURE 1

Holloman Air Force Base
Location

FPM Remediations, Inc.

2016

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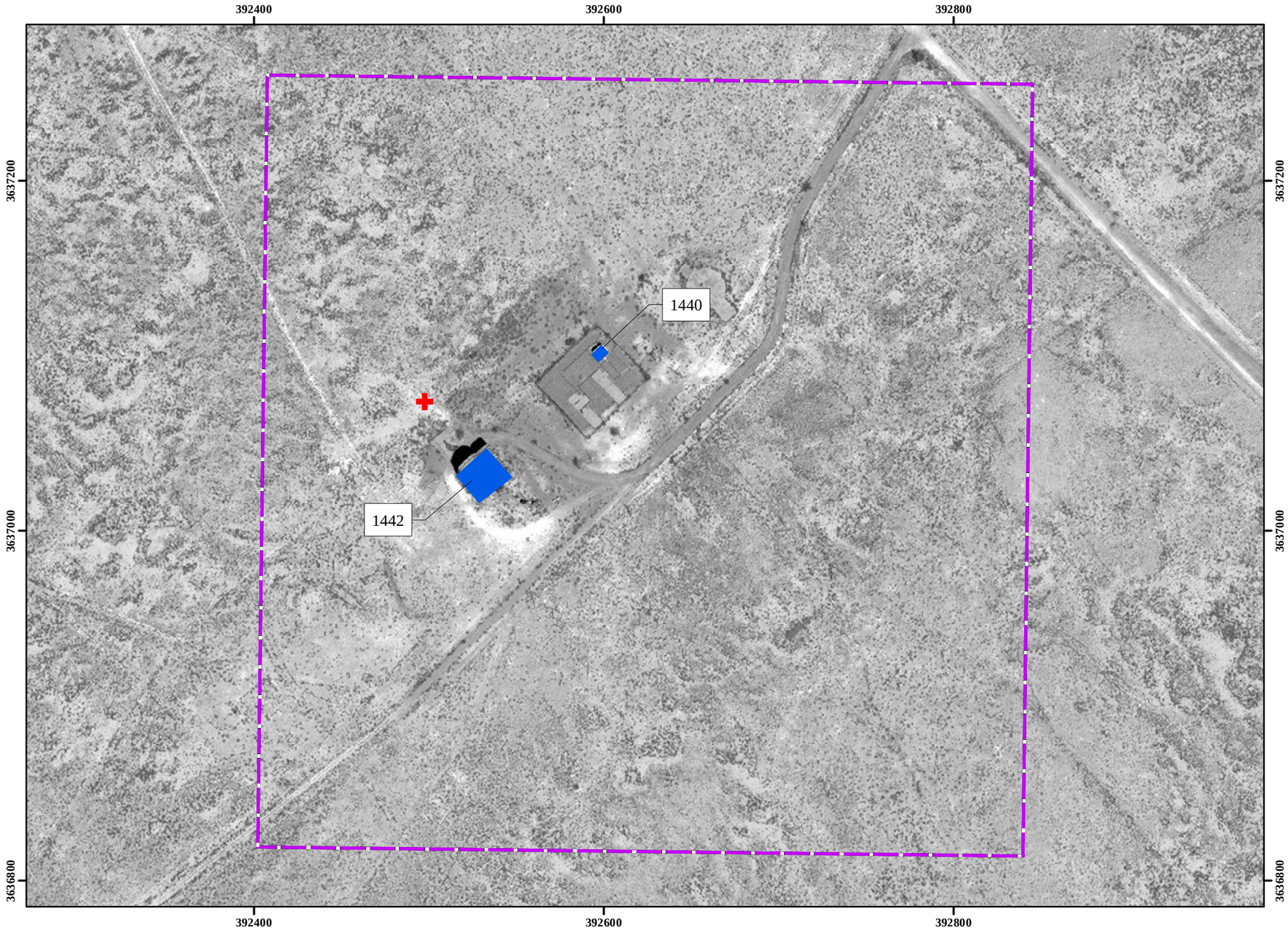

Legend

- Location of Buried Drums
- Buildings
- XU854 MRS Able 51 Area (47.7 acres)
- Installation Boundary

NOTES:

Revision Date: 5/21/2016

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False Northing: 0.0000
Central Meridian: -105.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
Base Map Date: (c) 2010 Microsoft Corporation and its data suppliers
Base Map Source: ESRI Online Bing Data Source

1 inch = 200 feet

0 30 60 Meters

0 100 200 Feet

N W E S

Performance Based Remediation
New Mexico-Arizona
Holloman Air Force Base
Alamogordo, NM
AFCEC

FIGURE 2

XU854 Able 51 Area
MRS Location

FPM Remediations, Inc.

2016

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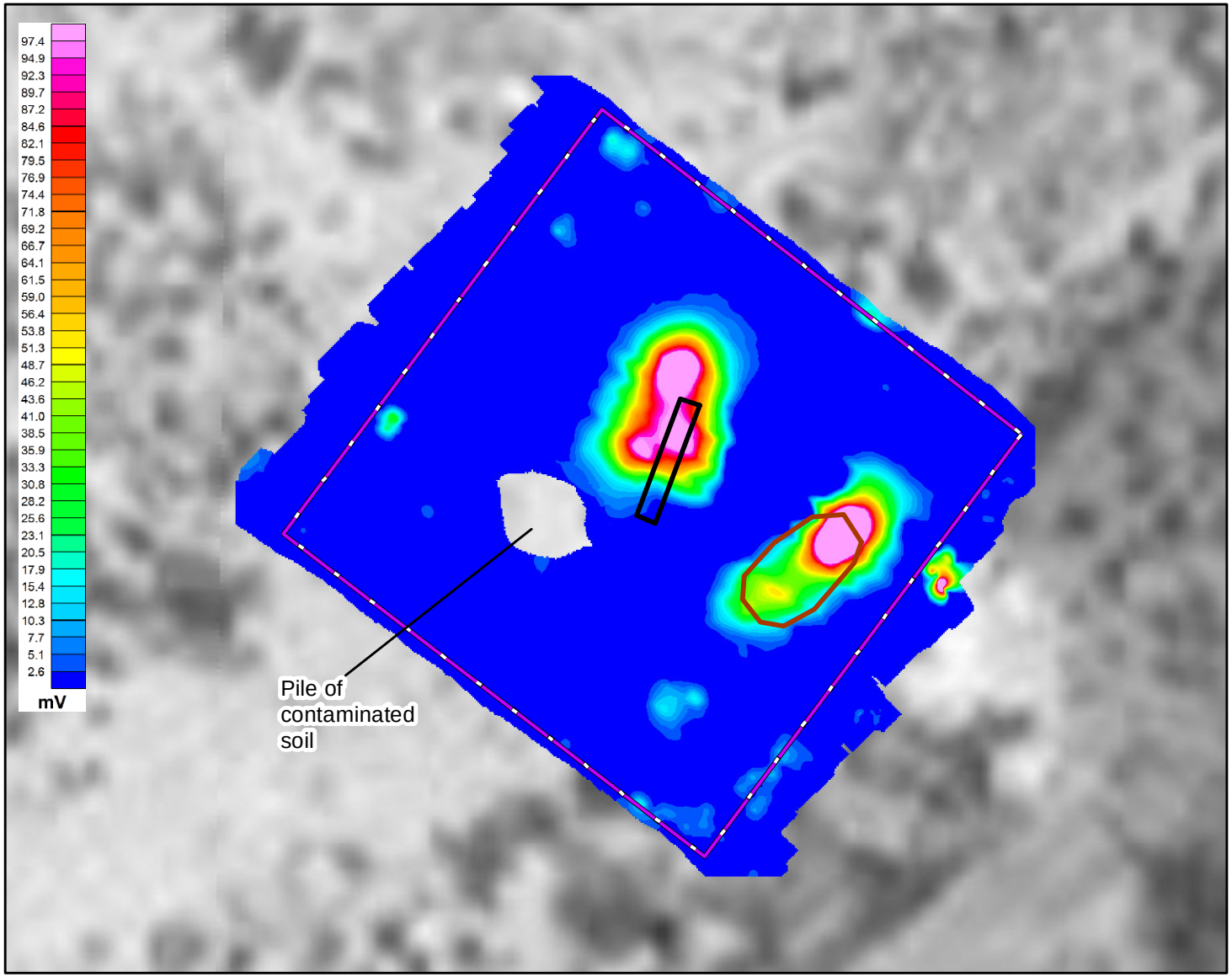

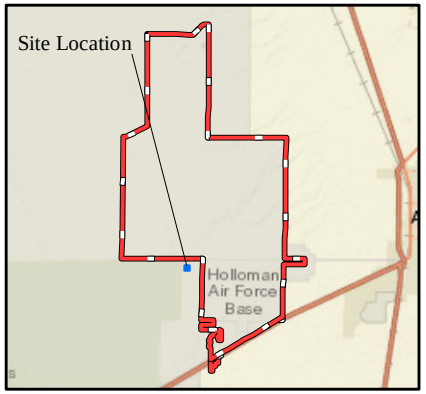

Legend

- Pit Location
- Trench Location
- DGM Grid Boundary
- Installation Boundary

Performance Based Remediation
New Mexico-Arizona
Holloman Air Force Base
Alamogordo, NM
AFCEC

FIGURE 3

EM61-MK2 Gridded Data
Drum Location XU854 MRS

NOTES:
Revision Date: 5/21/2016

Coordinate System:NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Horizontal Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -105.0000
Scale Factor: 0.9996
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Units: Meter
Base Map Date: (c) 2010 Microsoft Corporation and its data suppliers
Base Map Source: ESRI Online Bing Data Source

1 inch = 20 feet

0 3 6 Meters

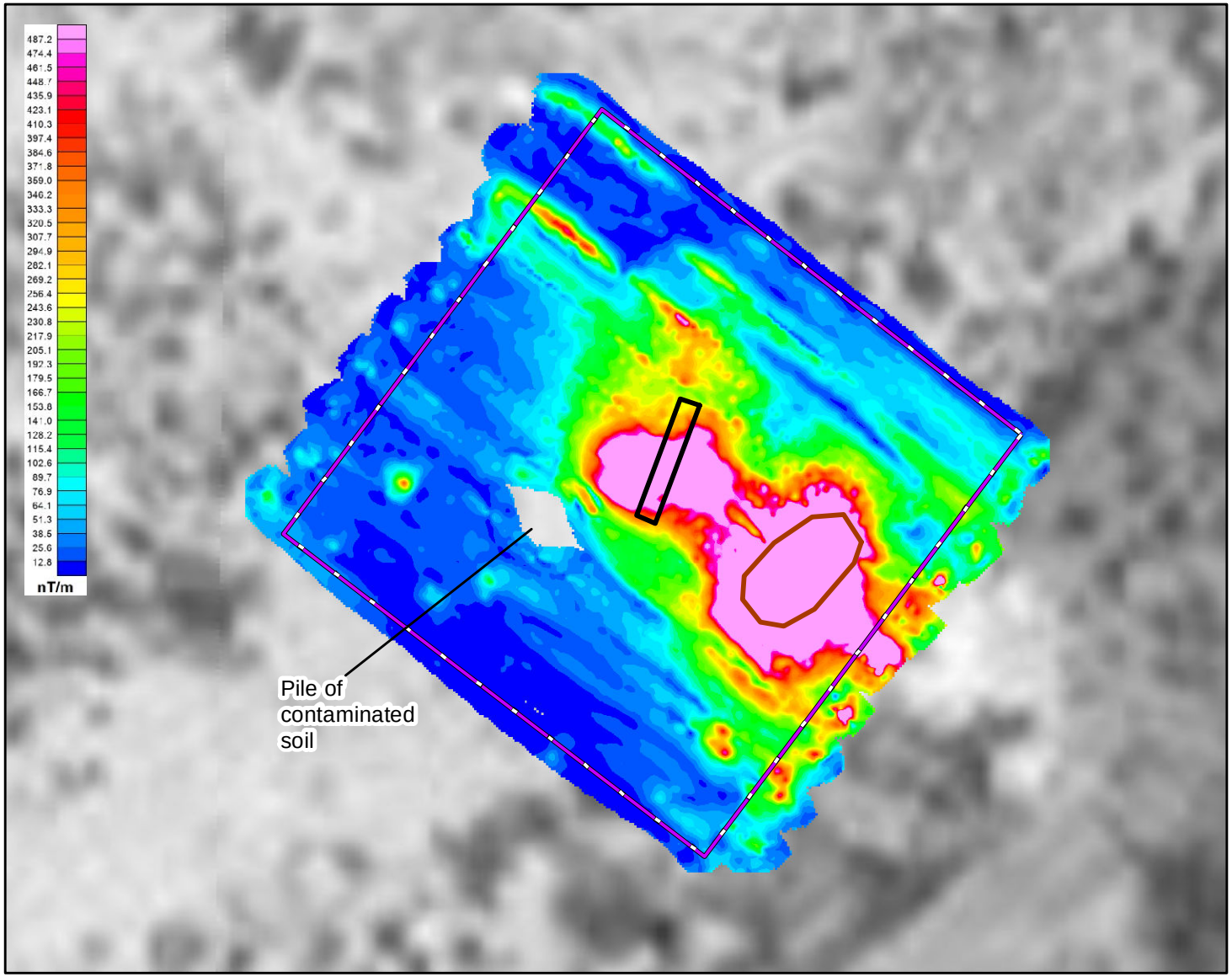
0 10 20 Feet

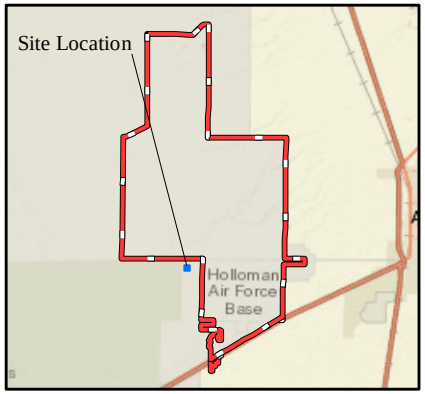
N W E S

FPM Remediations, Inc.

2016

Path: C:\Projects\New Mexico\GIS\XU854 Letter Work Plan\XU854 Letter Work Plan Fig3.mxd





Legend

- Pit Location
- Trench Location
- DGM Grid Boundary
- Installation Boundary

Performance Based Remediation
New Mexico-Arizona
Holloman Air Force Base
Alamogordo, NM
AFCEC

FIGURE 4

G-858 Analytic Signal
Drum Location XU854 MRS

NOTES:
Revision Date: 5/21/2016

Coordinate System:NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Horizontal Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -105.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter
Base Map Date: (c) 2010 Microsoft Corporation and its data suppliers
Base Map Source: ESRI Online Bing Data Source

1 inch = 20 feet

0 3 6 Meters

0 10 20 Feet

N W E S

FPM Remediations, Inc.

2016

Path: C:\Projects\New Mexico\GIS\XU854 Letter Work Plan\XU854 Letter Work Plan_Fig4.mxd

ATTACHMENT 1
Waste Manifest

Please print or type.
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1 of 1	3. Emergency Response Phone 1-505-861-1700 X-7	4. Waste Tracking Number 425-1

GENERATOR

5. Generator's Name and Mailing Address
49 CES/CEIE
550 Tabosa Avenue, Holloman AFB
Alamogordo, NM 88330
Generator's Phone: (575)572-3931

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: Advanced Environmental Solutions, Inc.
U.S. EPA ID Number: NMR000006502

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US Ecology, Inc.
Highway 95, 11 Miles south of Beatty
Beatty, NV 89003
Facility's Phone: (800)897-5571
U.S. EPA ID Number: NVT330010000

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Soil with Paint Related Material, Non-RCRA Regulated	2	DM	110	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
a) 2 x 55gal, Profile #: 9.1) D3158 - D3159

Job #: J11425, Shipment: 5515, P.O. # P13566

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: John Hamann
Signature: John Hamann
Month 4 Day 1 Year 15

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Ray MARQUEZ
Signature: Ray Marquez
Month 4 Day 1 Year 15
Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name
Signature
Month Day Year

ATTACHMENT 2
NMED APPROVAL WITH MODIFICATIONS
Remedial Investigation Report, Able 51 Area (XU854), Poorman Range (SR864), Ballistics Rain Field (ML865) and Debris Field (RR869a) MRSs

NEW MEXICO ENVIRONMENT DEPARTMENT

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
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RYAN FLYNN
Cabinet Secretary
BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 14, 2016

DeAnna M. Rothhaupt
Chief, Holloman AFB Environmental
49th CES/CEIE
550 Tabosa Avenue
Holloman AFB, NM 88330

RE: APPROVAL WITH MODIFICATIONS
REMEDIAL INVESTIGATION REPORT, ABLE 51 AREA MUNITIONS RESPONSE SITE (MRS) (XU854), POORMAN RANGE MRS (SR864), BALLISTICS RAIN FIELD MRS (ML865), DEBRIS FIELD MRS (RR869A), OCTOBER 2015
HOLLOMAN AIR FORCE BASE, EPA ID# NM6572124422
HWB-HAFB-15-016

Dear Ms. Rothhaupt:

The New Mexico Environment Department (NMED) has reviewed the document: *Remedial Investigation Report, Able 51 Area Munitions Response Site (MRS) (XU854), Poorman Range MRS (SR864), Ballistics Rain Field MRS (ML865), Debris Field MRS (RR869a), Holloman Air Force Base, New Mexico, October 2015,* which was received on October 16, 2015. The Remedial Investigation (RI) Report is hereby approved with modifications described below.

Munitions Response Site (MRS) Able 51 Area (XU854), a 47.7 acre site, was not historically used as a range (no target area). The MRS was primarily used as a launch area for an array of historical missile testing programs and for the launch of manned and unmanned aircraft using rocket boosters. In addition, small arms ammunition and debris associated with recent training activities were located at XU854. A surface clearance and an investigation using Digital Geophysical Methods (DGM), including 11 transects and 12 grids, identified 509 anomalies. All 509 of the anomalies were intrusively investigated and 12 incremental soil samples were collected, and analyzed for perchlorate, explosives, nitrate and nitrocellulose. No munitions and explosives of concern (MEC) were detected and all munitions constituents (MC) detected were

less than the applicable residential soil screening levels. Thus, results indicate that XU854 does not present an unacceptable risk to human health or the environment for MEC and MC. No additional corrective action will be required to assess the presence of MC or MEC unless further information becomes available.

However, the RI Report documented the presence of at least six 25 – 30 gallon drums (not MEC) buried at XU854. A Technical Memorandum dated August 2015 detailing the removal of one of the drums and its surrounding soil and the sampling of its contents and the soil for a waste characterization profile revealed detectable levels of 2-butanone (MEK) and barium. The detected concentrations for both constituents were well below their respective characteristic hazardous waste levels and the material was declared non-hazardous waste and the drum and soils were disposed of as solid waste. An intrusive investigation of subsurface anomalies in the vicinity found five additional 25 – 30 gallon drums. The contents of one of these drums was sampled and the analytical results indicated the presence of butyl benzyl phthalate, a volatile organic compound, above screening levels. The five remaining drums and surrounding soil were left in place and the excavation was covered with plywood and surrounded by snow fencing pending further analytical results and a "determination of a path forward for the site".

NMED has determined that XU854 is a Solid Waste Management Unit (SWMU) or Area of Concern (AOC), and that it is necessary to add the site to the list of SWMUs/AOCs in the Holloman Air Force Base (the Permittee) RCRA Facility Operating Permit (the Permit) that identifies SWMUs/AOCs requiring Correction Action (i.e., Table A of Permit Part 4, Appendix 4-A). The Permittee must submit a RCRA Facility Investigation Work Plan to NMED, prepared in accordance with Appendix 4-B of the Permit, to investigate and characterize the contents of the remaining drums and surrounding soil on or before June 30, 2016.

The Poorman Range MRS (SR864), a 22.8 acre site, was historically used as a range primarily for training using .50-caliber guns and ammunition including 25 gun placement stations. No free liquids were observed. A surface clearance was performed within 134 grid cells covering the entire footprint of the MRS. An investigation using DGM covered the entire site and identified 994 anomalies. All 994 of the anomalies were intrusively investigated and 3 composite incremental soil samples were collected, and analyzed for perchlorate, explosives, nitrate and nitrocellulose. No MEC was detected and all MCs detected were below soil screening levels. Eighteen surface soil samples were collected and analyzed for lead using X-Ray Fluorescence (XRF). Lead analysis results for the samples ranged from Non-Detect to a maximum of 25 mg/kg. No samples exceeded the human health screening level of 400 mg/kg. Eight surface and two subsurface soil samples were collected and analyzed for Polynuclear Aromatic Hydrocarbon (PAH) analysis. No results exceeded the human health screening level for PAHs. Thus, results indicate that SR864 does not present an unacceptable risk to human health or the environment for MEC and MC. NMED has determined that this site is not a SWMU or AOC, and that it is not necessary to add it to the list of SWMUs/AOCs in the Permit that identifies SWMUs/AOCs requiring Correction Action (i.e., Table A of Permit Part 4, Appendix 4-A).

The Ballistics Rain Field MRS (ML865), an 18.3 acre site, was historically used as a range primarily for testing the effects of rain on artillery including 20 millimeter (mm), 37 mm, 75 mm, 105 mm and 155 mm projectiles. Solid wastes have not been routinely and/or systematically released at the MRS. No free liquids were observed. A surface clearance was performed within 99 grid cells covering the entire footprint of the MRS. An investigation using DGM covered the entire site and identified 6,176 anomalies. Eight composite soil samples were collected, and analyzed for perchlorate, explosives, nitrate and nitrocellulose. No MEC was detected and all MC detected were less than the corresponding residential soil screening levels. The RI Report recommended that further intrusive investigation of all anomalies with responses above site-specific thresholds be conducted at the site. A report of this investigation must be submitted to NMED on or before July 30, 2016. After NMED has reviewed the report on that investigation a decision will be made as to whether further action is necessary to assess the presence of MC and MEC.

The Debris Field MRS (RR869a), a 3.5 acre site, was historically used as a range primarily for training using small arms ammunition, electric squibs, 2.75 and 5 inch rockets and hand grenades. In addition, debris consistent with a possible missile/drone crash were observed. . No free liquids were observed. A surface clearance was performed within 26 grid cells covering the entire footprint of the site. An investigation using DGM, covering the entire site, identified 339 anomalies. All 339 of the anomalies were investigated and 128 subsamples were collected, combined into six incremental soil samples, and analyzed for perchlorate, explosives, nitrate and nitrocellulose. No MEC was detected and all MC detected were at concentrations less than residential soil screening levels. The RI Report recommended that further intrusive investigation of all anomalies with responses above site-specific thresholds be conducted at the site. A report of this investigation shall be submitted to NMED on or before June 27, 2016. Based on review of the report on that investigation, NMED will determine whether further action to assess the presence of MC and MEC is necessary.

If you have any questions regarding this letter, please contact Mr. Brian Salem of my staff at (505) 222-9576.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
B. Salem, NMED HWB
C. Amindyas, NMED HWB
D. Strasser, NMED HWB
C. Schick, HAFB

C. Hendrickson, EPA Region 6 (6PD-F)
L. King, EPA Region 6 (6PD-F)

File: HAFB 2016 and Reading
HWB-HAFB-15-016