

Final

**Work Plan
Inner Fence, Parcel 3**

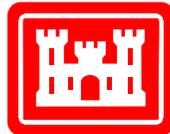
Revision 1.0

**Fort Wingate Depot Activity
McKinley County, New Mexico**

November 29, 2017

Contract No. W912BV-16-C-0033

Prepared for:



U.S. Department of the Army
Corps of Engineers

Tulsa District
1645 S 101st E Avenue
Tulsa, Oklahoma 74128

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REPORT DOCUMENTATION PAGE

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-----------------------------	----------------	------------------------------

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
--	--

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON	
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER (Include area code)	

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FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO**

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List of Acronyms

AECOM	AECOM Technical Services, Inc.
AOC	Area of Concern
AMSL	above mean sea level
AR	Department of the Army Regulation
Army	United States Army
ATF	Alcohol, Tobacco and Firearms
BATFE	Bureau of Alcohol, Tobacco, Firearms, and Explosives
BMDO	Ballistic Missile Defense Office
BIP	Blow in Place
BLU	Bomb Live Unit
BRAC	Base Realignment and Closure
CAMU	Corrective Action Management Unit
CE	Conditional Exemption
CFR	Code of Federal Regulations
COC	Chain of Custody
COR	Contracting Officer's Representative
DA	Department of Army
DDESB	Department of Defense Explosives Safety Board
DoD	Department of Defense
DOI	Department of the Interior
DQCR	Daily Quality Control Report
DSR	Daily Site Report
ECM	Earth Covered Magazine
EM	Engineering Manual
ESS	Explosive Safety Submission
EZ	Exclusion Zone
FWDA	Fort Wingate Depot Activity
ft	foot/feet
GIS	Geographic Information System
GPS	Global Positioning System
HAZWOPER	Hazardous Waste Operations and Emergency Response

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HE	High-Explosive
H&S	Health and Safety
HWCP	Hazardous Waste Contingency Plan
HWMU	Hazardous Waste Management Unit
Hz	Hertz
IAW	In Accordance With
ICM	Improved Conventional Munitions
ID	Identification
ISO	Industry Standard Object
ITS	Instrument Test Strip
IVS	Instrument Verification Strip
KO	Contracting Officer
KOA	Kickout Area
MD	Munitions Debris
MDAS	Material Documented As Safe
MDEH	Material Documented as an Explosive Hazard
MEC	Munitions and Explosives of Concern
mm	Millimeter
MPPEH	Material Potentially Presenting an Explosive Hazard
MRS	Munition Response Site
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSD	Minimum Separation Distance
NAD83	North American Datum 1983
NEW	Net Explosive Weight
NFA	No Further Action
NMED	New Mexico Environment Department
NMSHPO	New Mexico State Historic Preservation Office
NN	Navajo Nation
OB/OD	Open Burn/Open Detonation
OESS	Ordnance and Explosives Safety Specialist
OSHA	Occupational Safety and Health Administration
PAM	Pamphlet
PM	Project Manager

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POC	Point of Contact
POZ	Pueblo of Zuni
PPE	Personal Protective Equipment
PWS	Performance Work Statement
QA	Quality Assurance
QASP	Quality Assurance Surveillance Plan
QC	Quality Control
QCP	Quality Control Plan
RA	Removal Action
RCRA	Resource Conservation Recovery Act
RRD	Range Related Debris
RTK	Real-Time Kinematic
SOP	Standard Operating Procedures
SSHP	Site Safety and Health Plan
SSL	Soil Screening Level
SUXOS	Senior UXO Supervisor
SWMU	Solid Waste Management Unit
TP	Technical Paper
U.S.	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UXO	Unexploded Ordnance
UXOQCS	UXO Quality Control Specialist
UXOSO	UXO Safety Officer
UXOTI	UXO Technician I
UXOTII	UXO Technician II
UXOTIII	UXO Technician III
VOC	Volatile Organic Compound
WMM	Waste Military Munitions
WMP	Waste Management Plan
WP	Work Plan

1 1.1 PROJECT AUTHORIZATION

2 In accordance with (IAW) Contract Number W912BV-16-C-0033, AECOM Technical Services,
3 Inc. (AECOM) will conduct a subsurface removal action (RA) of waste military munitions
4 (WMM) and WMM scrap from the Inner Fence Area of the Fort Wingate Depot Activity
5 (FWDA) Kickout Area (KOA) Munitions Response Site (MRS). The location of FWDA is
6 shown on **Figure 1-1** and the Inner Fence Area is shown on **Figure 1-2**. Throughout this Work
7 Plan (WP), WMM and WMM scrap will be referred to as Munitions and Explosives of Concern
8 (MEC), unexploded ordnance (UXO) including Improved Conventional Munitions (ICM),
9 Material Potentially Presenting an Explosive Hazard (MPPEH), Material Documented as an
10 Explosive Hazard (MDEH), and/or Munitions Debris (MD). This WP is written for the United
11 States (U.S.) Army (Army) in order to comply with and implement the FWDA Resource
12 Conservation Recovery Act (RCRA) Permit Number NM6213820974, and follows the New
13 Mexico Environment Department (NMED)-approved Final WP, Munitions and Explosives of
14 Concern Removal and Surface Clearance Kickout Area (PIKA 2015a). AECOM will perform
15 this work under the direction of the U.S. Army Corps of Engineers (USACE) Tulsa District and
16 USACE Fort Worth District to implement the Army's Base Realignment and Closure (BRAC)
17 mission to close FWDA and revert this property to the Department of the Interior (DOI). An
18 Explosive Safety Submission (ESS) has been prepared and approved for use at the KOA,
19 including the Inner Fence Area (PIKA 2015b). A Deviation Approval and Risk Acceptance
20 Document have been prepared and submitted to USACE for staffing and approval according to
21 Army and Department of Defense (DoD) policy.

22 This WP was developed IAW USACE Engineering Manual (EM) 200-1-15, EM 385-1-97,
23 Change 1, and the FWDA RCRA Permit (dated December 2005 and revised in 2014). This
24 chapter identifies the site setting and background information for the KOA (and Inner Fence
25 Area) and describes the methods and procedures to be employed for the MEC RA.

26 1.2 PROJECT PURPOSE AND SCOPE

27 The purpose of this WP is to provide a detailed description of the subsurface MEC RA activities
28 that will take place at the Inner Fence Area within the KOA MRS. This RA project is being
29 undertaken to locate, identify, and remove MEC and MPPEH (to include MD and range-related
30 debris [RRD]) from the designated area within the KOA and IAW the NMED issued RCRA
31 Permit No. NM6213820974. Applicable sections of the Permit include: IV.A, IV.B, IV.C, IV.D,
32 IV.F, VIII.B.1, and IX. All activities involving work in areas potentially containing MEC will
33 be conducted in full compliance with the USACE, the United States Environmental Protection
34 Agency (USEPA), the DoD Explosives Safety Board (DDESB), and other applicable DoD
35 requirements regarding personnel, equipment, and procedures. The cleanup criteria (with respect
36 to size) for the Inner Fence Area RA will be all MEC (regardless of size) and metallic debris 1.5
37 inches by 3 inches or larger (approved criteria per NMED email dated March 17, 2014
38 **[Appendix A]**).

1 The KOA is defined in the NMED RCRA permit as: “Kickout Area means the combined area of
2 land adjacent to the Open Burn (OB)/ Open Detonation (OD) Unit, Solid Waste Management
3 Unit (SWMU) 14 (Demolition Landfill and Old Burning Ground), SWMU 15 (Old Demolition
4 Area) and SWMU 33 (“Waste Pile” KPI) to which WMM were released during the operation of
5 the OB/OD Unit and to which solid wastes were released during their operation of SWMU 14.
6 The Kickout Area is described in Permit Attachment 1.” The OB/OD Unit according to the
7 permit is the Hazardous Waste Management Unit (HWMU). The Inner Fence Area is not
8 mentioned in the permit; however, it lies within the KOA boundary and is therefore part of the
9 KOA.

10 RA activities within the Inner Fence Area will be initiated following acceptance of this WP. The
11 results and data generated from the work performed under this WP will be presented in a Permit
12 Section IV.D final report for review.

13 1.2.1 RCRA Permit Compliance

14 RCRA Permit Section IV, Alternative Requirements for the KOA provides the regulatory
15 guidance for the Army’s remediation of WMM and WMM scrap. This section provides an
16 overview of how this WP implements this section of the Permit.

17 1.2.1.1 Section IV.A Confirmation of Kickout Area

18 The Army has complied with Section IV.A of the RCRA permit by defining and identifying the
19 outer boundary of the KOA in 2009 (PIKA 2009). The KOA as defined in the accepted report is
20 shown on **Figure 1-2**.

21 1.2.1.2 Section IV.B Surface Clearance in the Kickout Area

22 The Army has complied with Section IV.B of the RCRA permit to conduct investigations and
23 removal of WMM from the surface of the inner fence areas readily accessible by foot without the
24 use of safety equipment on the steep slopes. At this time, it is the Army’s intent to retain this
25 property. A KOA clearance report is being written that describes how the Army used the best
26 available technology, applied by trained and qualified personnel, using geophysical equipment to
27 conduct the investigation and surface clearance of the Inner Fence Area located in the south
28 central part of Parcel 3 as depicted on **Figure 1-2**.

29 1.2.1.3 Section IV.C Clearance of Designated Areas

30 This WP provides the details necessary for the Army to conduct investigations and removal of
31 WMM and WMM scrap from archaeological sites and cultural resource areas (collectively
32 referred to as designated areas) and provide details for the on-going protection of unknown
33 cultural resources in the Inner Fence Area. Both Tribes will be consulted during the
34 development of this WP and will continue to be an integral part of the team investigating and
35 removing the WMM and WMM scrap from these designated areas.

1 *1.2.1.4 Section IV.D Kickout Area Clearance Report*

2 Within 180 days of the completion of the KOA investigation, clearance, and removal of WMM
3 and WMM scrap from the KOA, the Army will provide the NMED a report summarizing the
4 results of this work. In addition to presenting NMED the findings and conclusions of the
5 investigation and clearances, this report may contain recommendations for the KOA.
6 **Section 2.5** of this WP provides details of the content of this report.

7 *1.2.1.5 Section IV.E Annual Inspection and Removal*

8 This WP does not contain the annual inspection and removal details as these will be provided by
9 the Army at a later date.

10 *1.2.1.6 Section IV.F Transfer of Lands Within the Kickout Area*

11 It is the Army's intent and mission to eventually return, if possible, all of the property in Parcel 3
12 (which includes the land within the KOA) to the DOI. To accomplish this, the Army has written
13 this WP to fully comply with this section of the Permit. This WP explains that the Army is using
14 the best available technology, applied by trained and qualified personnel, using geophysical
15 equipment to conduct this investigation and clearance of 100% of the detected anomalies to the
16 detection depths of the equipment in the KOA (depicted on **Figure 1-2**).

17 **1.3 INVESTIGATION AND CLEARANCE SUMMARY**

18 The following section of this WP explains how the Army is using the best available technology,
19 applied by trained and qualified personnel, using geophysical equipment to conduct this
20 investigation and clearance of 100% of the anomalies meeting the NMED approved clearance
21 criteria (MEC [regardless of size] and metallic debris measuring 1.5 inches by 3 inches or
22 larger), where these investigations and clearances will occur. MEC and confirmed MPPEH
23 items located at the site will be destroyed through explosive demolition operations. MEC
24 determined acceptable to move will be moved to one of the earth covered magazines (ECMs) in
25 Block B or the 10-day Corrective Action Management Unit (CAMU) permitted temporary
26 storage area for later destruction at the CAMU IAW this WP. In the event such items are
27 determined unacceptable to move, they will be blown in place (BIP) IAW this WP. The team
28 will store donor explosives in the ECMs in Block B for the project.

29 Discovered MPPEH will be reclassified as MDEH or Material Documented as Safe (MDAS) if
30 certified as free of explosives. MPPEH and MD inspection, handling, and final disposition as
31 MDAS will be conducted IAW USACE EM 385-1-97, Change 1, DoD 4140.62, and DoD
32 6055.09-M. All MDEH will be destroyed using authorized disposal procedures. All MDAS
33 recovered at KOA will be delivered to a metal recycler to be smelted following completion of the
34 RA IAW EM 385-1-97, Change 1.

1 1.4 WORK PLAN ORGANIZATION

2 The WP consists of five sections:

- 3 • **Section 1:** Introduction
- 4 • **Section 2:** Technical Management Plan
- 5 • **Section 3:** Field Investigation Plan, provides the details of the surface and subsurface
6 investigations and clearance of the Inner Fence Area, excluding the Areas of Concern
7 (AOCs) and SWMUs
- 8 • **Section 4:** Quality Control (QC) Plan (QCP), provides the Quality Assurance (QA)/QC
9 procedures for documentation of the MEC RA
- 10 • **Section 5:** References

11 The WP also contains two appendices:

- 12 • **Appendix A:** Correspondence
- 13 • **Appendix B:** Response to Comments

14 1.5 PROJECT LOCATION

15 FWDA is located in northwestern New Mexico in McKinley County, approximately seven miles
16 east of Gallup, New Mexico. FWDA currently occupies approximately 24 square miles (15,277
17 acres) of land with facilities formerly used to operate a reserve storage facility providing for the
18 care, preservation, and minor maintenance of assigned commodities—primarily conventional
19 military munitions. The terrain is best described as gentle hills to steep inaccessible terrain, with
20 mixed pine and hardwood forests. McKinley County, bisected by the Continental Divide,
21 encompasses the scenic Chuska and Zuni Mountains with peaks ranging up to 8,969 feet (ft) at
22 the summit of Cerros de Alejandro. FWDA is located within the Zuni Mountains. The elevation
23 at FWDA ranges from 6,500 ft above mean sea level (amsl) to 8,250 ft amsl with terrain ranging
24 from rolling hills to impassable sheer cliffs and deep arroyos. The project location is shown on
25 **Figure 1-1.**

26 1.5.1 Climate and Vegetation

27 The following information regarding the site conditions at the FWDA is from the United States
28 Geological Survey (USGS) Report 2013-5098 15 (Robertson et al., 2013). The climate of the
29 region is arid to semiarid; precipitation has averaged 11.9 inches at FWDA (1940 to 1966); 11.3
30 inches at Gallup, New Mexico (1921 to 2005); and, 18.7 inches at McGaffey, New Mexico
31 (1923 to 2005), in the Zuni Mountains. The majority of the precipitation at the FWDA occurs
32 during the monsoon season (midsummer and early fall); however, the slow release of spring
33 snowmelt provides for a higher percentage of infiltration as compared to the precipitation from
34 the intense monsoon thunderstorms (Anderson and others, 2003). The regional climate supports

1 Ponderosa Pine and mixed fir forests above 7,500 ft and predominantly piñon and juniper forests
2 from 6,800 to 7,500 ft; shrubs and grasses dominate below 6,800 ft.

3 1.5.2 Regional Geology

4 The following information regarding the site conditions at the FWDA is from USGS Report
5 2013-5098 15 (Robertson et al., 2013). The FWDA is located in the Navajo Section of the
6 Colorado Plateau physiographic region within the Gallup sag and at the northwestern edge of the
7 Zuni Mountains (Zuni uplift). The Zuni uplift is a northwest-striking, asymmetric uplift. The
8 uplift gently tilted the bedrock underlying the majority of the FWDA to the northwest at an angle
9 of approximately five degrees from horizontal; subsequent erosion has exhumed the various
10 Triassic sedimentary layers visible across the surface of the FWDA.

11 The dominant topographic and structural feature at the FWDA is the Nutria monocline, known
12 locally as “The Hogback”. The Nutria monocline is a north-northwest to south-southeast
13 trending monocline that dips steeply to the south-southwest and defines the west and southwest
14 margin of the Zuni uplift. The northern boundary of the FWDA terminates in the strike valley (a
15 valley that is eroded parallel to the strike of the underlying rock formations) of the South Fork of
16 the Rio Puerco. This valley represents the transition between the Zuni uplift to the south and the
17 Chaco slope to the north.

18 Granites and smaller amounts of schist and gneiss of Precambrian age compose the underlying
19 basement formation of the region and are exposed in the Zuni Mountains to the southeast. The
20 preservation of sedimentary deposits now visible at the surface on the FWDA began in the Late
21 Pennsylvanian epoch; the depositional environment changed from marine to continental and
22 restricted marine by the Early Permian period. The Petrified Forest Formation of the Chinle
23 Group is the dominant formation exposed at FWDA and can be up to 800 ft thick. The Petrified
24 Forest Formation is composed of the Blue Mesa, Sonsela, and Painted Desert members. The
25 Chinle Group was elevated from formation to group status, but this change has not been fully
26 accepted. The Chinle Group designation is used for purposes of this report.

27 1.5.3 Surface Hydrology

28 The following information regarding the site conditions at the FWDA is from USGS Report
29 2013-5098 15 (Robertson et al. 2013). FWDA is located approximately 15 miles west of the
30 Continental Divide. While no perennial streams are located within the FWDA’s boundaries, the
31 surface water collecting in drainages flows northward to the South Fork of the Rio Puerco. The
32 South Fork of the Rio Puerco joins the Rio Puerco just east of Gallup and is part of the larger Rio
33 Puerco and Little Colorado River watersheds. The FWDA contains multiple unnamed drainages
34 that are high-gradient (100 ft/mile or greater) ephemeral streams and are typically fed by spring
35 snowmelt or monsoon season thunderstorms.

1 1.5.4 Groundwater Hydrology

2 The following information regarding the site conditions at the FWDA is from USGS Report
3 2013-5098 15 (Robertson et al. 2013). There are several water-bearing units underlying the
4 FWDA. These include the San Andres-Glorieta Formations, the Shinarump Formation, and the
5 Sonsela Member and several thin sandstone beds within the Painted Desert Member of the
6 Petrified Forest Formation, as well as the Quaternary alluvium. In the Administration Area, the
7 Quaternary alluvium contains interbedded layers of sediments with variable moisture content in
8 the vertical profile. Groundwater in the region has been produced from the Shinarump
9 Formation and the Sonsela Member of the Petrified Forest Formation. Yields reported from
10 these aquifers range from 5 to 50 gallons per minute.

11 The San Andres-Glorieta aquifer is the principal aquifer in the region. At the FWDA, the top of
12 the San Andres-Glorieta aquifer is about 1,100 ft below land surface and has a thickness of about
13 200 ft. The San Andres-Glorieta aquifer is composed of the San Andres Limestone and the
14 Glorieta Sandstone. The two units are considered a single aquifer because no impermeable bed
15 separates them and extensive interfingering makes determination of the contact difficult.

16 1.6 KICKOUT AREA DESCRIPTION

17 The KOA totals 3,252 acres (approximately 2,729 are accessible with the exclusion of 523 acres
18 designated too steep to access). The KOA is shown on **Figure 1-2**. The KOA encompasses all of
19 Parcel 3 and parts of Navajo Trust Land (west of FWDA) and portions of Parcels 1, 2, & 20
20 (south, north, & east of Parcel 3, respectively). The KOA is defined in the NMED RCRA permit
21 as: “Kickout Area means the combined area of land adjacent to the OB/OD Unit, SWMU 14
22 (Demolition Landfill and Old Burning Ground), SWMU 15 (Old Demolition Area) and SWMU
23 33 (“Waste Pile” KPI) to which WMM were released during the operation of the OB/OD Unit,
24 and to which solid wastes were released during their operation of SWMU 14. The Kickout Area
25 is described in Permit Attachment 1.” The OB/OD Unit according to the permit is the HWMU.
26 The Inner Fence Area, AOCs, and SWMUs not mentioned in the permit (such as 90, 91, and 92)
27 lie within the KOA boundary, and are therefore part of the KOA. WMM in the KOA were
28 expelled or “kicked out” during detonation activities.

29 For this WP, RA activities will include subsurface clearance of MEC, MD and other metallic
30 debris in the Inner Fence Area of the KOA only, associated activities specific to the CAMU for
31 disposal efforts, and ECMs under conditional exemptions (CE) for storage, as well as
32 maintenance of the CAMU and ECMs. Reference to the KOA for this WP excludes all
33 MEC/MD clearance of SWMUs 14, 15, 33, and 74, and AOCs 76, 89, 90, 91, and 92 located in
34 the KOA.

35 1.7 FORT WINGATE DEPOT ACTIVITY HISTORY

36 The FWDA is located in McKinley County, New Mexico, approximately seven miles east of
37 Gallup, New Mexico and currently occupies approximately 15,277 acres. The FWDA was

1 originally established by the Army in 1862. In 1918, the mission of the FWDA changed from
2 tribal issues to World War I related activities. Beginning in 1940, the FWDA's mission was
3 primarily to receive, store, maintain, and ship explosives and military munitions, as well as
4 disassemble and dispose of unserviceable or obsolete explosives and other military munitions. In
5 January 1993, the active mission of the FWDA ceased, and the installation closed as a result of
6 the Defense Base Realignment and Closure Act of 1990. In 2005, environmental activities began
7 under Permit USEPA ID No. NM 6213820974 (FWDA RCRA Permit), which was finalized in
8 December 2005 (NMED 2005). In 2014, Permit NM6213820974 was modified for activities in
9 the CAMU located in Parcel 3. FWDA is currently undergoing final environmental
10 characterization and restoration activities prior to final property transfer/return and reuse.

11 1.8 PREVIOUS INVESTIGATIONS AT FORT WINGATE DEPOT ACTIVITY

12 In 1995, UXB International, Inc. (under contract to USACE Huntsville District) conducted a
13 MEC clearance to a depth of 1 ft in 512 grids, each measuring 100 ft x 200 ft along 6,600 ft of
14 the western boundary (a portion of the proposed fence corridor) of Parcel 3. Sixty-nine live
15 items were recovered and disposed of ranging from tracers to 90-millimeter (mm) high-explosive
16 (HE) projectiles (models unknown). Most of the items were found on the surface or near
17 surface. Eleven items found required BIP procedures. The munitions included five M83
18 fragmentation "Butterfly" bomblets, one 40mm HE projectile, two 75mm projectiles, one
19 M66A1 base fuze, one 3.5-inch rocket fuze, and one base fuze/booster (model unknown).

20 From November 1998 to May 1999, Environmental Hazards Specialists International, Inc.
21 (2000) performed MEC location and removal actions at FWDA. They conducted a surface
22 removal action of 82, 200 ft x 200 ft grids, and a subsurface removal action to a depth of four
23 feet below ground surface (bgs) of 88 grids varying from 200 ft x 200 ft to irregular shape. Of
24 the 337 items recovered, 32 were live. The 32 live items were seven 60-mm mortars, one M404
25 fuze, three 57-mm armor piercing HE, five 40mm projectiles, two 75mm projectiles, four 37mm
26 projectiles, two M83 fragmentation "Butterfly" bomblets, one M1 burster, one miscellaneous
27 fuze components, two M66 base detonating fuzes, and four M148 fuzes.

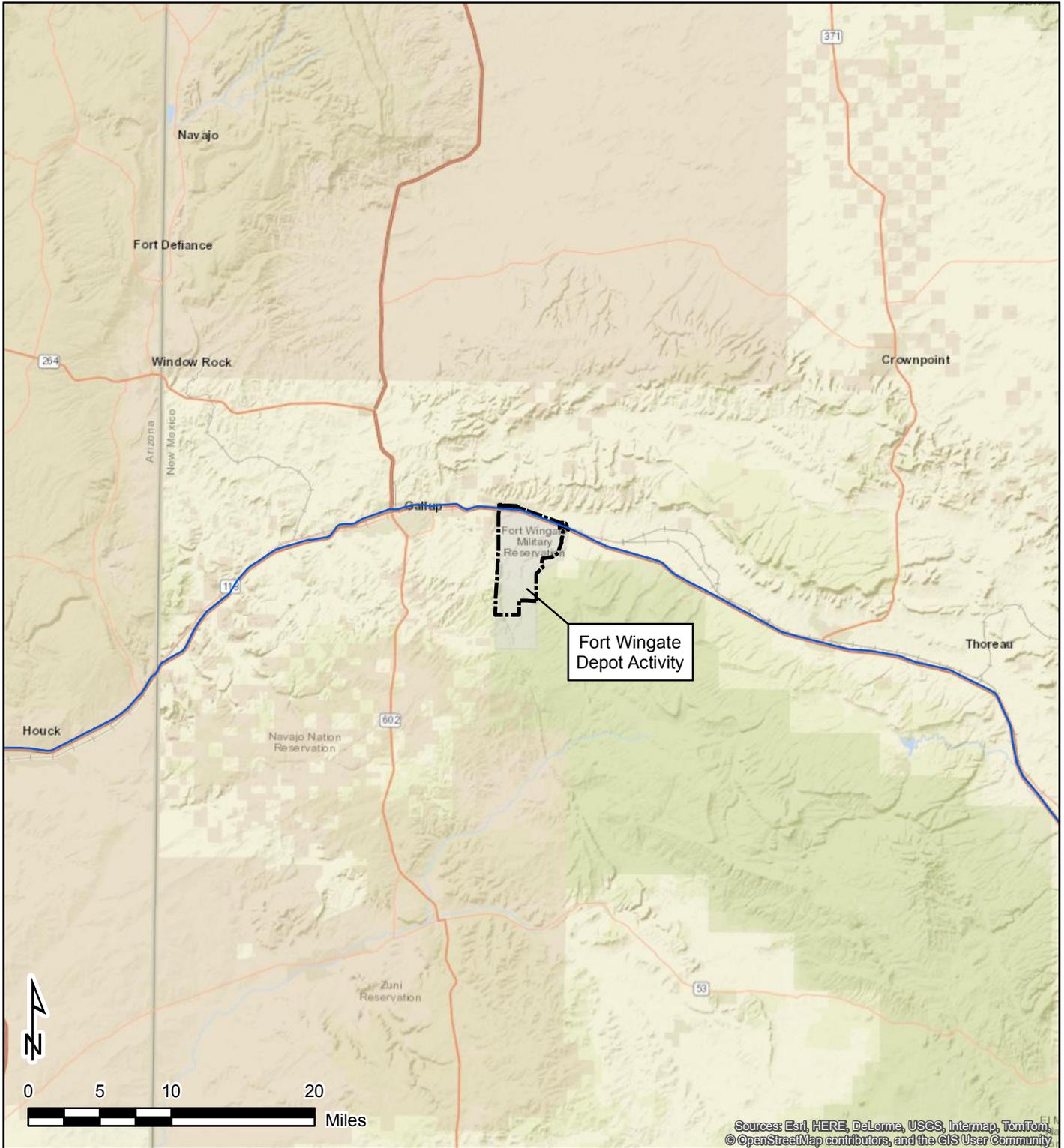
28 In 2001, USA Environmental, Inc., (for USACE Huntsville District, report dated January 11,
29 2002) performed MEC fence line construction support at FWDA, which included locating,
30 identifying, and disposing of items.

31 In 2009, IAW the RCRA Permit Section IV.A, Confirmation of the KOA, the KOA outer
32 boundary was delineated. This delineation established the estimated outer boundary by
33 conducting radial transect investigations, and adding 275 ft from the furthest detected WMM or
34 WMM scrap. The Army provided NMED a Site Specific Final Report (PIKA, 2009) to
35 document this delineation. This Report was accepted by the USACE and approved by NMED.
36 The present estimated KOA boundary includes Parcel 3, portions of Parcel 1 to the south, Parcel
37 2 to the north, and Parcel 20 to the east, as well as a segment of Trust Lands bordering the
38 western side of the FWDA Facility.

1 In 2015, the PIKA-Pirnie Joint Venture began a removal action of WMM and WMM scrap from
2 designated areas of the KOA, including the Inner Fence Area. A surface clearance of the Inner
3 Fence Area is ongoing.

4 1.9 INITIAL SUMMARY OF MUNITIONS AND EXPLOSIVES OF CONCERN RISK

5 Parcel 3 is confirmed to contain ICMs. MEC items identified at the Parcel 3 project site include
6 a wide range of MEC and MPPEH to include various ICMs (e.g., Bomb Live Unit (BLU)-3 and
7 BLU-4 bomblets). Other munitions reportedly demolished in Parcel 3 KOA include M83(s),
8 projectiles ranging from 20mm to 240mm, bombs ranging from 3 to 10,000 pounds, and assorted
9 rockets, mortars, missiles, land mines, grenades, flares, and bulk explosives.



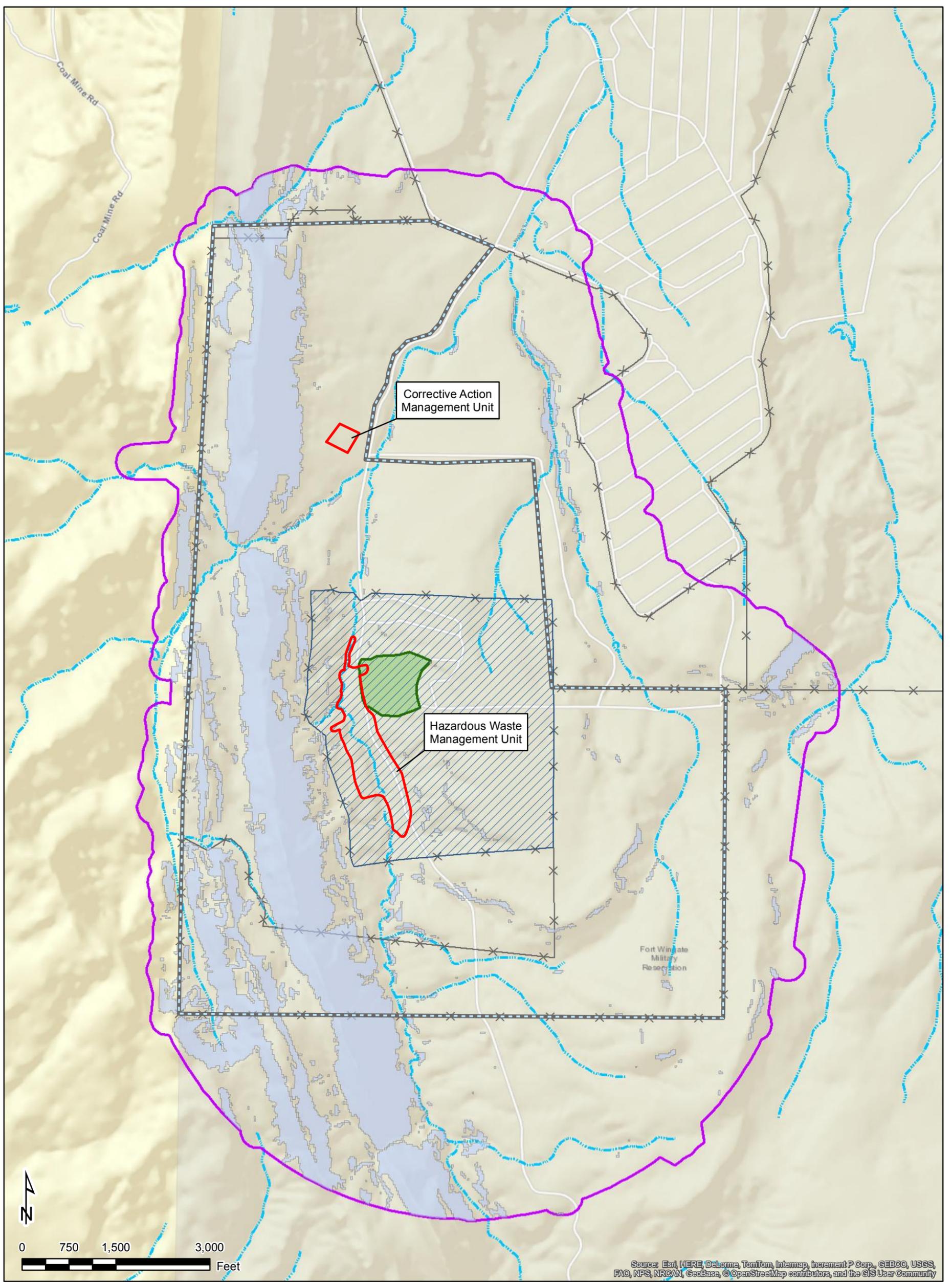
Sources: Esri, HERE, DeLorme, USGS, Intermap, TomTom, © OpenStreetMap contributors, and the GIS User Community



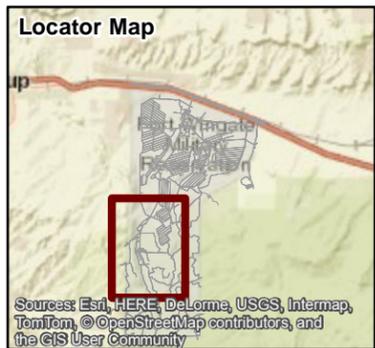
Sources: © OpenStreetMap (and) contributors, CC-BY-SA

Legend
 Installation Boundary

FWDA Location Map Fort Wingate Depot Activity McKinley County, New Mexico		
Drawn By:	Date:	Figure 1-1
JZ	10/5/2017	
Checked By:	Project No.	
JC	60517380	



Source: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBasa, ©OpenStreetMap contributors, and the GIS User Community



Legend

- Installation Boundary
- HWMU/CAMU Boundary
- Parcel 3 Boundary
- Inner Fence Area
- AOC 92 (Out of Scope)
- Kickout Area
- Inaccessible Area (35% grade or more)
- Arroyo
- Fence

Inner Fence Area Detail Map		Figure 1-2
Fort Wingate Depot Activity McKinley County, New Mexico		
Drawn By: JZ	Date: 11/16/2017	
Checked By: JC	Project No: 60517380	

2.1 OBJECTIVES

The objective of this project is to provide all Military Munitions Response Program services under the contract necessary to conduct the following:

- Operations Security Awareness and Level I Antiterrorism Awareness Training;
- Mobilization;
- Site Set-up;
- Cultural Resources Monitoring/Surveys (as needed);
- Limited Vegetation Removal (as needed);
- Survey Operations;
- Subsurface MEC RA;
- MPPEH Inspection/Processing;
- Management of the ECMs under CE Control;
- Operation of CAMU;
- MEC Demolition; and,
- Demobilization.

Specifically, the objective of the MEC RA for this WP is to achieve a MEC subsurface clearance conducted over approximately 319 acres IAW with RCRA Permit IV.C and IV.F. A MEC surface clearance is currently being conducted at the Inner Fence Area under a separate contract. As part of the subsurface MEC RA described in this WP, MEC (regardless of size) and metallic debris 1.5 inches by 3 inches or larger that was inadvertently missed during the surface clearance will also be removed.

This MEC RA will not occur in areas too steep and requiring specialized safety equipment to safely work. The designated clearance area is shown on **Figure 1-2**. The areas designated as too steep to work within, were delineated using Light Detection and Ranging technology by the Army as part of previous investigation efforts. Inaccessible area due to incline averages of approximately 35 percent grade or more as shown on **Figure 1-2**. Parcel 3 is known to contain ICMs; therefore, all personnel working inside of Parcel 3 will meet the requirements of Department of Army (DA) Pamphlet (PAM) 385-63. Areas outside of Parcel 3 are considered non-ICM areas.

All recovered MEC will be destroyed either through BIP, transported to the ECMs under CE control, or the 10-day CAMU permitted temporary storage area for later destruction at the CAMU IAW this WP depending on the final explosive hazard assessment made by the SUXOS and UXOSO. MPPEH will be further inspected to make a determination if an explosive hazard exists. If the inspection indicates a known or possible explosive hazard, the MPPEH item will be classified as Material Documented as an Explosive Hazard (MDEH). MDEH items will be

1 destroyed through BIP, transported to the ECMs under CE control, or transported to the 10-day
2 CAMU permitted temporary storage area for later destruction at the CAMU IAW this WP. If the
3 inspection indicates there is no explosive hazard, the MPPEH will be designated as MDAS. All
4 MDAS (to include MD and RRD) certified and verified to be explosive free will be documented
5 on a DD Form 1348-1A, IAW USACE EM 385-1-97, Change 1.

6 2.2 ORGANIZATION

7 The project team consists of:

- 8 • Mr. A. Brian Brobson, USACE Contracting Officer (KO);
- 9 • Mr. Dennis J. Myers, USACE Contracting Officer's Representatives (COR);
- 10 • Mr. Saqib Khan , USACE Project Manager (PM);
- 11 • Mr. Steve Smith, USACE Program Manager;
- 12 • Mr. Mark Patterson, BRAC Environmental Coordinator;
- 13 • Mr. Richard Cruz; FWDA Manager and Site Caretaker;
- 14 • Mr. Larry Rogers, Navajo Nation (NN);
- 15 • Governor Val Panteah, Pueblo of Zuni (POZ); and
- 16 • Other team members responsible for overall contract management.

17 **Figure 2-1** depicts the overall project organization and identifies key personnel.

18 2.3 PERSONNEL

19 **Table 2-1** identifies primary roles/responsibilities of the personnel assigned to the project.

20 **Figure 2-1** identifies key personnel.

21 2.4 CULTURAL RESOURCES MONITORING

22 **Section 1.2.1.3** of this WP discusses removal actions in designated areas for compliance with
23 RCRA Permit Section IV.C. A Programmatic Agreement among the U.S. Army, the NN, the
24 POZ, and the New Mexico State Historic Preservation Office (NMSHPO) was signed in 2008
25 and currently provides the framework at the FWDA for federal actions that may impact cultural
26 resource sites. IAW Section 106 of the National Historic Preservation Act, USACE has
27 consulted with the NN, the POZ, and the NMSHPO. Both the POZ and NN have determined
28 there are potential cultural resources within the sites that will likely be affected by operations.
29 The Army is currently reviewing a cultural resources management plan. When the review is
30 complete, it will be routed to the NN and POZ for review and comment.

1 The NN and the POZ will be contacted to renew previous contracts for cultural support of this
2 project. Subcontracts will be established with both the NN and the POZ outlining the
3 expectations from each Tribe (document review, cultural awareness training, and assisting the
4 field teams) to ensure the project objectives are met. Site personnel will be trained on Tribal
5 concerns and potential cultural resources that may be encountered. If culturally sensitive issues
6 arise, or suspect items are encountered, the team leader will contact the Senior UXO Supervisor
7 (SUXOS), who will in turn contact the PM/Ordnance and Explosives Safety Specialist (OESS).
8 The PM/OESS will notify the Army personnel.

9 2.5 DELIVERABLES

10 An Inner Fence Removal Report will be prepared describing the MEC RA activities conducted
11 over the course of the project. This report will contain findings of the investigations and
12 clearance actions, conclusions, and if necessary, recommendations about changes to the fence
13 footprint, or additional protective actions. A draft report will be prepared for review and
14 comment; corresponding revisions will be incorporated and the document submitted as 'Final' to
15 the Tribes and NMED (with a copy to the Army) for review and comment. Revisions will be
16 prepared as needed based on Tribal and NMED comments. Geographic Information System
17 (GIS) data files will be provided in the final report.

18 2.6 SCHEDULE

19 The Army has developed a proposed baseline Project Schedule for the completion of all tasks
20 and it is presented in **Figure 2-2**.

21 2.7 PERIODIC REPORTING

22 All written and verbal (i.e., person-to-person or via telephone) correspondence will be
23 documented and routed to the PM. Incoming written communications will be annotated with the
24 date received. Project-related telephone communications to office personnel will be recorded on
25 a Telephone Conversation/Correspondence Record form. Of critical importance is the
26 documentation of activities stopping work or requiring a communication to or from the USACE
27 PM/COR.

28 2.7.1 Project Records

29 Project records will be maintained in project files for the contract duration. Project records will
30 be maintained electronically and in hard copy format in the project offices. Relevant project
31 records will also be maintained in the office trailer. A description of the daily reports completed
32 during fieldwork is provided below.

1 *2.7.1.1 Daily Site Reports*

2 For each day of fieldwork, the SUXOS will complete a Daily Site Report (DSR) that will present
3 a list of contractor personnel, list of subcontractor personnel, a description of work completed,
4 and include MEC and MD findings. DSRs will be consolidated and submitted weekly, via email,
5 to the USACE PM and USACE OESS. A compilation of DSRs will be included with the Inner
6 Fence Removal Report at the conclusion of the project.

7 *2.7.1.2 Daily Quality Control Reports*

8 A QCP has been developed for this project and is included as **Section 4**. During each day of
9 fieldwork, the UXO Quality Control Specialist (UXOQCS) will complete a Daily Quality
10 Control Report (DQCR) that includes the following information:

- 11 • Contract information (e.g., Agency, PM, Contract Number, Task Order Number).
- 12 • A description of the definable feature work completed.
- 13 • What phase of control that a definable feature of work is currently in.
- 14 • UXOQCS inspections conducted (if applicable).
- 15 • List of subcontractor work performed (if applicable).
- 16 • Compliance of any materials and equipment received.
- 17 • Verification inspections of any material and equipment leaving the site.
- 18 • Quality management information pertaining to field activities.

19 DQCRs will be consolidated and submitted weekly, via email, to the USACE PM and USACE
20 OESS. A compilation of DQCRs will be included in the Inner Fence Removal Report.

21 *2.7.1.3 Daily Health and Safety Reports*

22 An APP has been developed for this project and is provided as a separate submittal. During each
23 day of fieldwork, the UXO Safety Officer (UXOSO) will complete a Daily Health and Safety
24 Report (DHSR) that includes the following information:

- 25 • Contract information (e.g., PM, Contract Number, Task Order Number).
- 26 • Description of work completed.
- 27 • Safety inspections conducted (if applicable).
- 28 • Site weather conditions.
- 29 • List of subcontractor work performed (if applicable).
- 30 • A description of visitors to the site (if any).
- 31 • Safety and risk management information pertaining to field activities.

- 1 • Documenting safety incidents, accident, and/or injuries (if applicable).
- 2 DHSRs will be consolidated and submitted weekly, via email, to the USACE PM and USACE.
- 3 A compilation of DHSRs will be included in the Inner Fence Removal Report.

4 2.8 PUBLIC RELATIONS SUPPORT

5 Contractor personnel will not make available or publicly disclose any data generated or reviewed
6 under this contract. When approached by any person or entity requesting information about the
7 subject of this data or this contract, contractor personnel shall defer to the USACE COR for
8 response.

9 2.8.1 Dissemination of Data

10 Reports and data generated under this contract shall become the property of the Government, and
11 distribution to any other source by the contractor is prohibited unless authorized by the USACE
12 COR.

13 2.9 FIELD OPERATION MANAGEMENT PROCEDURES

14 The field management staff will include a Field Site Manager, SUXOS, UXOSO, UXOQCS, and
15 UXO Technician III (UXOTIII) Team Leaders. Each UXO clearance team working within the
16 Inner Fence Area will consist of a UXOTIII, and up to six UXOTIIs. All technicians will meet
17 the requirements of DA PAM 385-63 and DDESB TP-18.

18 Methods of communication will include daily team kickoff meetings, weekly team planning
19 sessions, and daily reviews with the USACE COR/PM and FWDA personnel, as appropriate.
20 Records of these meetings will be maintained and transmitted within this team and included with
21 the Inner Fence Removal Report. The SUXOS will establish a daily communications protocol
22 with the FWDA Point of Contact (POC) identifying the times the work force enters and leaves
23 the site, daily accounting of personnel and equipment, and radio usage.

24 Communication will occur routinely with the USACE Site Representative, PM, and FWDA
25 Caretaker to discuss project logistics such as transportation routes, work being performed by
26 other contractors on site, planning and implementing emergency drills, White Sands Range
27 coordination, and shipping document signatures (e.g., bill of lading or waste manifest, as
28 needed). These meetings will be documented in the daily report.

**TABLE 2-1
PERSONNEL ROLES AND RESPONSIBILITIES
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO**

Title	Roles and Responsibilities
Program Manager	<ul style="list-style-type: none"> • Primary POC for programmatic and contractual issues with USACE • Negotiate and execute contract and task orders • Oversee contract development and implementation, to include administration, QC, subcontract/teaming agreements, and small business goals • Ensure practical and effective systems are developed to meet contract performance objectives • Ensure quality work is completed safely within schedule and budget, and immediately implement corrective action if performance is not acceptable to USACE • Stop, amend, or curtail work for quality, H&S, regulatory, or operational deficiencies
Project Manager	<ul style="list-style-type: none"> • Primary POC for developing and implementing plans to meet performance objectives and other requirements • Manage the AECOM Team during project execution, including integration of subcontractor services • Oversee schedule, status reporting, and invoices • Hold regular project review/status meetings with USACE, stakeholders, and relevant AECOM staff • Perform day-to-day coordination with USACE and stakeholders • Stop, amend, or curtail work for quality, H&S, regulatory, or operational deficiencies • Assign project staff, approve budgets and expenditures, and approve deliverables • Report to the USACE PM
Program QA/QC Manager	<ul style="list-style-type: none"> • Provide an independent assessment of QC procedures employed during site operations • Develop quality program for MMRP/environmental restoration work, oversee quality processes, evaluate recommendations to improve these processes, and implement continuous improvement • Review and approve work plans, QC plans, training, deliverables, and processes to ensure adherence to USACE quality requirements and delivery of high quality products and services to USACE • Oversee the UXOQCS; review and evaluate daily job-site QC activities and reports • Stop, amend, or curtail work for major quality non-conforming conditions • Verify compliance with MMRP-related DoD publications, USACE documents, as well as local, state, and federal statutes and codes • Conduct periodic job-site quality audits • POC for USACE counterparts on quality issues following notifications to USACE and AECOM PM
Program Munitions Response Safety Manager	<ul style="list-style-type: none"> • Develop, maintain, and ensure the implementation of the AECOM H&S systems • Review and approve APP/SSHP, field safety training, and safety processes and ensure adherence to ESS and USACE safety requirements • Oversee the UXOSO and site-specific safety program; review and evaluate daily job-site safety meetings and daily safety reports • Stop, amend, or curtail work if unsafe or unhealthy conditions exist • Conduct periodic job-site safety audits • POC for USACE counterparts on safety issues following notifications to USACE and AECOM PM
Corporate H&S Officer	<ul style="list-style-type: none"> • Develop and maintain Corporate Safety Program, including occupational safety training and medical programs • Address overall occupational H&S issues and ensure related laws, regulations, and policies are adhered to at the project planning and execution level • Stop, amend, or curtail work if unsafe or unhealthy conditions exist • Reports to the AECOM corporate management
Program Cultural Resources Specialist	<ul style="list-style-type: none"> • Develop, maintain, and ensure implementation of cultural resources program • Review and approve Cultural Resources Plan, and oversee fieldwork processes to ensure adherence to Native American requirements pertinent to archaeological and historical resources • Stop, amend, or curtail work if cultural resources are encountered that require mitigation • POC for USACE counterparts on cultural resources issues following notification to USACE and AECOM PMs
Field Site Manager/Field Superintendent	<ul style="list-style-type: none"> • Oversee AECOM field personnel and field subcontractors, and document field activities • Ensure fieldwork adheres to safety and quality plans • Communicate necessary work plan deviations to AECOM PM and oversee change requests • Direct and oversee non UXO-related corrective actions following communications with Site Manager and AECOM PM • Coordinates with OESS on environmental field activities and schedules with notifications to AECOM PM and SUXOS

**TABLE 2-1
PERSONNEL ROLES AND RESPONSIBILITIES
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO**

Title	Roles and Responsibilities
SUXOS	<ul style="list-style-type: none"> • Plan, coordinate, and supervise all on-site munitions activities • Supervise UXO field teams • Certify MDAS as ready for turn-in or disposal in accordance with current policies • Provide MEC response support for explosives safety, MEC destruction, and blast designs • Provide technical input to H&S Design Analyses and emergency response requirements • Stop work if performance is not in compliance with SSHP or QAPP • Direct and oversee UXO-related corrective actions following communications with Site Manager and AECOM's PM • Coordinates with OESS on munitions field activities and schedules with notifications to AECOM's PM and Site Manager
UXO Safety Officer	<ul style="list-style-type: none"> • Analyze operational risks, explosive hazards, and safety requirements • Develop and implement approved explosives and UXO H&S program in compliance with applicable DoD policy and federal, state, and local H&S statutes, regulations and codes • Establish and ensure compliance with all site-specific explosive operations safety requirements • Enforce personnel limits and safety exclusion zones for explosives-related operations • Conduct, document, and report the results of safety inspections to ensure compliance with all applicable explosives safety policies, standards, regulations and codes • Ensure all protective works and equipment used within the exclusion zone are operated in compliance with applicable DoD policy, DDESB approvals, and federal, state, and local statutes, regulations and codes • Stop, amend, or curtail work for H&S deficiencies • Reports to Program Munitions Response Safety Manager and communicates with SUXOS, Site Manager, and field teams
UXO Quality Control Specialist	<ul style="list-style-type: none"> • Develop and implement the MEC-specific sections of the work plan for all explosive related operations • Conduct and document QC audits and inspection of all explosive operations for compliance • Identify, document, report and ensure completion of corrective actions to ensure all explosive operations comply with requirements • Stop, amend, or curtail work for quality deficiencies • Reports to Program QA/QC Manager and communicates with SUXOS, Site Manager, and field teams

Notes:

AECOM = AECOM Technical Services, Inc.
APP = Accident Prevention Plan
DDESB = Department of Defense Explosives Safety Board
DoD = Department of Defense
ESS = Explosives Safety Submission
H&S = Health and Safety
MDAS = Material Documented As Safe
MEC = Munitions and Explosives of Concern
MMRP = Military Munitions Response Program
OESS = Ordnance and Explosives Safety Specialist
PM = Project Manager
POC = Point of Contact
QA = Quality Assurance
QC = Quality Control
SSHP = Site Safety and Health Plan
SUXOS = Senior UXO Supervisor
USACE = United States Army Corps of Engineers
UXO = Unexploded Ordnance
UXOQCS = UXO Quality Control Specialist
UXOSO = UXO Safety Officer

Figure 2-1: Project Organizational Chart

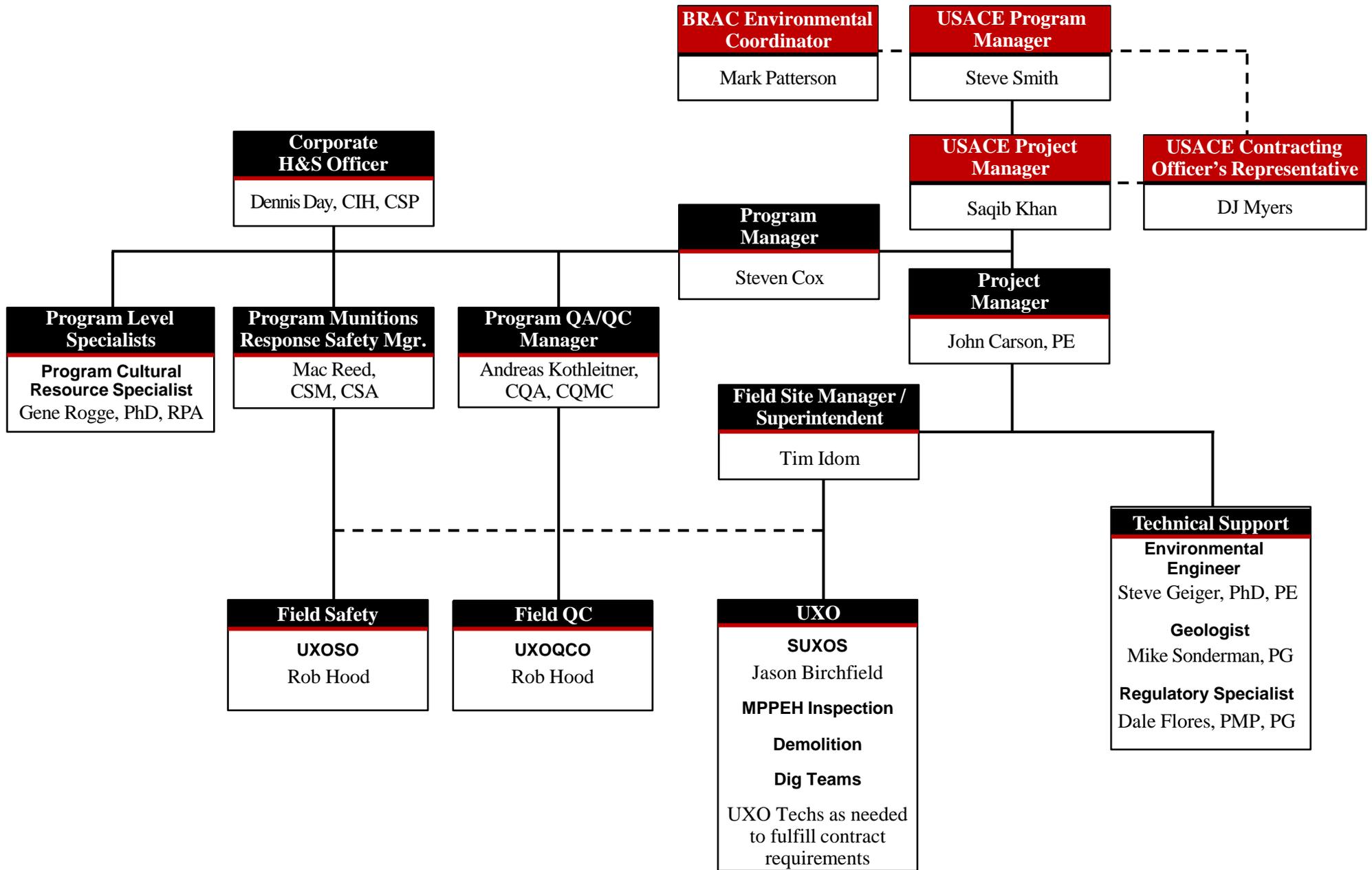


Figure 2-2 Project Schedule



ID	Task	CLIN	Task Name	Duration	Start	Finish	2016	2017	2018	2019	2020	2021	2022	2023	2024
1			FWDA Parcel 3 Closure and Corrective Action at Fort Wingate Depot Activity, McKinley County, New Mexico	2296 d	Fri 8/19/16	Sat 1/28/23									
2	2		Inner Fence Work Plan, Fieldwork, and Report	2296 d	Fri 8/19/16	Sat 1/28/23									
3	2	0012	Government Approval -Inner Fence Work Plan - Army Final	196 d	Fri 8/19/16	Mon 3/6/17									
9	2	0013	NMED Approval- Inner Fence Work Plan - NMED Final	276 d	Tue 3/7/17	Thu 12/14/17									
10	2	0013	NMED/Tribal Review Final Inner Fence Work Plan	188 d	Tue 3/7/17	Wed 9/13/17									
11	2	0013	RTC (Prepare and Submit Final Version)	74 d	Thu 9/14/17	Thu 11/30/17									
12	2	0013	Government/NMED/Tribal Back-check Final Version	14 d	Fri 12/1/17	Thu 12/14/17									
13	2	0013	NMED/Tribal Approval of Final Inner Fence Work Plan - NMED Final	0 d	Thu 12/14/17	Thu 12/14/17									
14	2	0014	Inner Fence Field Work	809 d	Sun 8/13/17	Wed 11/20/19									
66	2	0040	Government Approval-Kick-Out Area (Inner Fence) Final Report - Army Final	134 d	Thu 1/27/22	Fri 6/10/22									
72	2	0041	NMED Approval-Kick-Out Area (Inner Fence) Final Report - NMED Final	224 d	Sat 6/11/22	Sat 1/28/23									
73	2	0041	NMED/Tribal Review Final Inner Fence Final Report	180 d	Sat 6/11/22	Tue 12/13/22									
74	2	0041	RTC (Prepare and Submit Final Version)	30 d	Wed 12/14/22	Fri 1/13/23									
75	2	0041	Government/NMED/Tribal Back-check Final Version	14 d	Sat 1/14/23	Sat 1/28/23									
76	2	0041	NMED/Tribal Approval of Final Inner Fence Final Report	0 d	Sat 1/28/23	Sat 1/28/23									

Task Milestone Summary Manual Summary Rollup Progress Manual Progress

3.1 OVERALL APPROACH TO MUNITIONS RESPONSE ACTIVITIES

The overall objective of this WP is to conduct a subsurface MEC RA of the Inner Fence Area inside the KOA MRS of Parcel 3 to the depth of detection. The removal includes all encountered MEC (regardless of size) and metallic debris measuring 1.5 inches by 3 inches or larger. A surface clearance of the Inner Fence Area is being completed under a separate contract; however, MEC (regardless of size) and metallic debris 1.5 inches by 3 inches or larger that was inadvertently missed by the previous contractor will be removed. The removal will not occur in areas too steep to safely work as shown on **Figure 1-2**. Areas with a slope of approximately 35 percent or more are considered too steep to safely work.

MEC subsurface clearance of the Inner Fence Area will utilize the existing grid system used for the KOA surface clearance. If necessary, a state-licensed professional land surveyor will certify all surveying requirements to include all control points, grid corners, and boundaries as required. Teams will use Trimble hand held Global Positioning System (GPS) units (with horizontal accuracy of sub-meter or better) to navigate work areas, and install interior grids and subdivisions within the work area using stakes of deterioration-resistant material. **Figure 3-1** shows the anticipated existing Inner Fence Area grid system (generally 100 ft x 100 ft).

Areas containing low-lying vegetation will be searched using hand-held analog geophysical instruments and will not require vegetation removal. If an area requires limited vegetation removal for safe performance of an activity, access to MEC, demolition of UXO, or fire prevention prior to demolition efforts, the NN and the POZ will be coordinated with as required to determine vegetation removal extents and limitations. The Tribes will be coordinated with (according to the consultation procedures in Permit Section VIII.B.1) for work in designated access areas for archaeological sites and cultural resources, as applicable. If the area is approved for limited vegetation removal, the UXO team will clear the moderate to dense vegetation using the most feasible low impact means. To handle the limited areas of dense vegetation, the teams will be cautious to not disturb the plant root balls. UXO technicians removing the vegetation will wear Personal protective equipment (PPE) as required by EM 385-1-1 and described in the APP.

MEC removal will be conducted implementing an analog survey and removal action approach (i.e., “mag and dig” or “mag, flag, and dig”) using a Schonstedt 52Cx or equivalent and White’s XLT or equivalent. MEC (regardless of size) and metallic debris measuring 1.5 inches by 3 inches or larger will be removed from the surface and subsurface by manual digging of anomalies IAW EM 385-1-97 to depth of detection. Depth of detection varies depending on the size and orientation of the subsurface anomaly. In general, the depth of detection utilizing handheld detectors is 11 times the diameter of that item. Expected MEC types and approximate geophysical detection depths are shown in **Table 3-1**. UXO teams will survey each grid using a combination of handheld ferrous and non-ferrous (e.g., White’s XLT or equivalent) metal detectors to obtain complete coverage. MEC items not acceptable to move will be BIP. MEC items acceptable to move will be transported to the ECMs under CE control (**Figure 3-2**), or the 10-day CAMU permitted temporary storage area until they can be disposed of, when required,

1 using demolition explosives in the CAMU. MDAS will be separated and stored in independent
2 secure storage containers.

3 Based on previous activities and geophysical surveys, it is likely that some portions of the Inner
4 Fence Area adjacent to the HWMU boundary will exhibit subsurface conditions that are
5 “HWMU-like” (i.e., contaminated areas that contain a sufficient number of anomalies such that
6 excavation and processing the material through a processing plant would be more efficient and
7 safer than manual excavation). Such areas will require mechanized MEC procedures in
8 accordance with EM 385-1-97 instead of the analog survey and manual excavation procedures.

9 In a letter dated November 2, 2017, the NMED agreed that conditions, sampling protocols, and
10 cleanup criteria specified in the NMED-approved Final HWMU WP (URS 2013) apply to the
11 removal of contaminated soils that extend beyond the HWMU boundary (i.e., “HWMU-like”
12 areas) within the Inner Fence Area. Contaminated areas requiring mechanical excavation (e.g.,
13 “HWMU-like” areas) as described above will be cleared in accordance with the NMED letter
14 addressing contaminated soils beyond the HWMU boundary within the Inner Fence Area
15 (**Appendix A**). In accordance with the NMED-provided letter, subsurface clearance of these
16 areas will proceed as directed in the Approved Final HWMU WP (URS 2013). Details of how
17 “HWMU-like” areas within the Inner Fence Area will be cleared and sampled are provided in
18 **Section 3.12**.

19 The arrival of the work force will be scheduled in a manner designed to facilitate immediate
20 productivity. All personnel mobilized to the site will meet requirements for Occupational Safety
21 and Health Administration (OSHA) hazardous waste operations training and medical
22 surveillance requirements as specified in the APP/Site Safety and Health Plan (SSHP). Site
23 personnel will also be trained to perform the specific tasks to which they are assigned. At no
24 time will site personnel be tasked with performing an operation or duty for which they do not
25 have appropriate training.

26 3.2 DATA QUALITY OBJECTIVES

27 3.2.1 Data Quality Objectives

28 The process used for development of the data quality objectives for the MEC RA in the Inner
29 Fence Area to achieve NMED No Further Action (NFA) is described in the sections below.

30 3.2.2 Statement of Problem

31 The surface and subsurface of the Inner Fence Area are contaminated with WMM or WMM
32 scrap. WMM may include: MEC, MD, UXO (such as primed, fuzed, armed, or otherwise
33 prepared for action, fired, dropped, launched, projected), and may remain unexploded by
34 malfunction, design, or any other cause. WMM scrap may include: munitions packaging,
35 banding, fragmentation, packing or shipping debris, or other facility production scrap that may
36 be on site.

1 The current condition of the Inner Fence Area does not comply with Sections IV.C, IV.D and
2 IV.F of the RCRA Permit. This WP is designed to allow the Army to achieve compliance with
3 Sections IV.C, IV.D, and IV.F of the RCRA Permit.

4 3.2.3 Identification of Project Goals

5 To comply with the RCRA Permit and to achieve a NFA determination from NMED, this WP is
6 written with the intent to conduct an investigation and removal of WMM or WMM scrap from
7 the Inner Fence Area.

8 3.2.4 Identification of Inputs to Achieve the Goals

9 3.2.4.1 *Establishing Clean up Criteria*

10 MEC (regardless of size) or metallic debris 1.5 inches by 3 inches and larger will be removed to
11 detection depths. The clean-up criteria are in compliance with RCRA Permit Sections IV.C,
12 IV.D and IV.F and approved by NMED (email dated March 17, 2014). This WP is written to
13 achieve these Inner Fence Area clean-up criteria.

14 3.2.4.2 *Identification of Defining Acceptance of the Cleanup Criteria*

15 Once the investigation and removal is completed in each established grid, the UXOQCS will
16 conduct QC inspection IAW the QCP (**Section 4**). Following QC acceptance, the grids will be
17 turned over for QA inspection by the USACE OESS IAW the QASP. When the investigation
18 area(s) are determined to be within the boundaries and meeting the cleanup criteria, the Army
19 will issue a signed ENG Form 6048 (Munitions Response Quality Assurance Report Form),
20 stating the area(s) have met the established cleanup criteria for the investigation and removal.

21 3.2.5 Define the Boundaries of the Study

22 As required by Section IV.A, the Army has confirmed and delineated the KOA of FWDA. In
23 addition, this project will focus on Inner Fence Area (319 acres) of the KOA.

24 3.2.6 Technical Approach to Achieve the Goal

25 **Section 3.7** of this WP provides specific details of the investigation and removal. In summary,
26 the Inner Fence Area will be divided into grids, which will be further sub-divided into
27 investigation/clearance lanes. UXO technicians, using hand-held analog geophysical
28 instruments, will investigate each lane to locate, identify, and remove MEC (regardless of size)
29 or metallic debris 1.5 inches by 3 inches and larger from the surface and subsurface to depth of
30 detection.

1 3.2.7 Confirmation of Achievement of the Goal

2 **Section 4** of this WP provides specific details of the QC and QA procedures and protocols used
3 to ensure that the removal of all surface and subsurface MEC (regardless of size) or metallic
4 debris 1.5 inches by 3 inches and larger on the surface or subsurface to depth of detection has
5 been achieved. The USACE issuance of a signed ENG Form 6048 will confirm the removal of
6 surface and subsurface MEC or MD for each established grid. The Army will comply with
7 Section IV.D of the RCRA Permit and a Final Report will be provided to NMED summarizing
8 the clearance actions and include all necessary supporting documentation for the Inner Fence
9 Area. This report will provide the NMED with documentation that the Army has complied with
10 Sections IV.B, IV.C, IV.D, and IV.F of the RCRA Permit establishing eligibility for NFA.

11 3.3 IDENTIFICATION OF AREAS OF CONCERN

12 AOC 92 located in the KOA is not addressed in this WP, but will be delineated and marked
13 during this phase of the MEC RA. As previously stated in **Section 1.2**, the investigation and
14 clearance of AOC 92 will be completed as part of a separate contract. There are no other AOCs
15 related to the MEC RA identified for this phase of the WP.

16 3.4 INSTRUMENT TEST STRIP

17 An instrument test strip (ITS) will be established to verify functionality and to simulate the
18 techniques needed to detect MEC while traversing the established grids for the Inner Fence Area
19 surface and subsurface clearance. The ITS will be approximately 50 ft long and 5 ft wide and
20 coordinates will be collected for documentation and retrieval purposes. The ITS will be cleared
21 of all anomalies prior to its use. The ITS will be swept at the beginning of fieldwork activities
22 each day by the analog geophysical instruments.

23 The purpose of the ITS is a QC measure demonstrating the functionality of the detection
24 equipment being used during the RA operations and the ability of the equipment operator to
25 detect items that may be encountered in the field. The UXOQCS will place small, medium, and
26 large Industry Standard Objects (ISOs) at various depths and orientations. ISOs have been
27 defined as schedule 40 pipe nipples, threaded at both ends, made from black welded steel,
28 manufactured to an American Society for Testing and Materials specification. The objects are
29 available through McMaster-Carr as well as most hardware and plumbing stores. The three ISO
30 sizes being used are listed in **Table 3-2**. The location of each item placed will be marked with
31 the depth, orientation and size on a stake adjacent to each item. If an instrument is found to be
32 functioning improperly during the daily function test, it will be replaced and removed during the
33 field activities until it has been repaired and passes the function test.

3.5 LOCATION SURVEYS AND MAPPING PLAN

The existing grid system will be surveyed and implemented during the previous KOA RA. If additional surveying is required, then a New Mexico state licensed professional surveyor will perform such location surveying and mapping at the Inner Fence Area. A survey team will re-establish the boundaries of the clearance zone within the Inner Fence Area. The surveyed Inner Fence Area will be marked, if necessary, with deterioration-resistant stakes. All surveyed points will be established at “Class I, Third Order, with tolerances of 0.001 meters and 0.01 ft. The survey data will be reported in North American Datum 1983 (NAD83), Universal Transverse Mercator zone 12N, with vertical datum North American Vertical Datum 1988 (with units of U.S. survey feet).

The site boundary data will include a map of the entire area with the boundaries shown in relation to other pertinent site features. Boundary coordinates will be presented as a tabulated list in Microsoft Excel spreadsheets.

All grid corner stakes will be painted orange, yellow stakes will be used for line of sight, white stakes will be used for MRS boundaries, and red stakes (or pin flags, flagging, or marking paint) will be used to mark areas to be avoided due to hazardous conditions.

3.5.1 Munitions and Explosives of Concern Safety Provisions

During all field and intrusive operations, the survey crew will be accompanied by a UXO escort implementing MEC and anomaly avoidance procedures in accordance with EM 385-1-97, Change 1. The UXO technician will perform a visual survey for surface MEC before the survey crew enters the area. Then using an analog geophysical instrument they will conduct a survey of each intrusive activity site to ensure the survey/staking point is anomaly-free before the survey crew begins setting monuments, driving stakes, or establishing other points.

3.5.2 Control Points

Existing permanent monuments will be used, where available. If existing permanent monuments are limited or not present, the surveyor will establish additional monuments.

3.5.2.1 Accuracy

A tabulated list of all control points and monuments, including their final adjusted coordinates, will be provided. A tabulated list of the boundary will also be provided showing the adjusted control point coordinates to the nearest 0.01 ft.

3.5.2.2 Monument Caps

Existing permanent monuments will be used, where available. If existing permanent monuments are limited or not present, the surveyor will establish additional monuments.

1 3.5.2.3 Plotting

2 All of the control points (monuments, and property corners) recovered and/or established at the
3 site will be plotted at the appropriate coordinate points on reproducible electronic or hard copy
4 media for production of planimetric or topographic maps at scales appropriate for the parcel size.

5 3.5.3 Mapping

6 The location, identification, coordinates, and elevations of all the control points recovered and/or
7 established at the site will be plotted on reproducible media for planimetric or topographic maps
8 at the scale specified in the task order. Each control point will be identified on the map by its
9 name, number, and the final adjusted coordinates and elevations (to the closest 0.001 meter and
10 0.01 foot). Each map will include a grid north, a true north, and a magnetic north arrow and
11 showing the differences between them in degrees, minutes, and seconds. Grid lines or tic marks
12 at systematic intervals with their grid values will be shown on the edges of the map. Also, a
13 legend showing the standard symbols used for the mapping and a map index showing the site in
14 relationship to all other sites within the boundary lines of the project area will be shown. The
15 coordinates for the grid corners will be shown to the nearest foot (1.0 ft), but may require greater
16 accuracy to meet geophysical mapping and re-acquisition requirements. The locations of
17 individual recovered MEC items will be plotted and identified on the map.

18 3.6 GEOGRAPHIC INFORMATION SYSTEM PLAN

19 Spatial data created for the project will be provided in neutral, nonproprietary Spatial Data
20 Transfer Standard format at the completion of the project, as well as in Environmental Systems
21 Research Institute compliant formats (shapefiles, coverages, or geodatabases) during this project.
22 Raster data (e.g., orthophotography, remote sensing imagery) will be provided at the completion
23 of the project. Supporting tabular data will be provided in Microsoft Access format at the end of
24 the project. The final submittal in electronic format will contain all required Project (ArcGIS
25 .mxd) files and Layout files for all plates, figures, and drawings conveyed in the Final Report.

26 3.7 INTRUSIVE INVESTIGATION

27 3.7.1 Preliminary Activities

28 During the initial mobilization, site management personnel will engage in the following
29 preliminary activities:

- 30 • Coordination with the designated FWDA POC to finalize access requirements, location of
31 any temporary facilities to be used, and communications requirements;
- 32 • Contact and coordination with the FWDA POC and local fire, medical, and other emergency
33 services to ensure availability of services, and the appropriate response actions IAW the WP
34 and APP;

- 1 • Coordination with the NN and the POZ for cultural resources training;
- 2 • Coordination with the Ballistic Missile Defense Office (BMDO) site caretaker about the
- 3 investigations being conducted on BMDO properties;
- 4 • Contact and coordination with local vendors for accommodations and vendors/suppliers for
- 5 routine purchases to ensure smooth project start up; and
- 6 • Inspection of the work area to identify possible environmental constraints, terrain limitations,
- 7 and other interferences.

8 3.7.2 Equipment

9 To ensure it is in proper working order all equipment will be inspected upon arrival. Any
10 equipment found damaged or defective will be repaired or a replacement will be secured. All
11 instruments and equipment requiring routine maintenance will be checked initially upon its
12 arrival and again prior to its use each day. This system of checks ensures the equipment is
13 functioning properly. If an equipment check indicates that any piece of equipment is not
14 operating correctly, and field repair cannot be made, the equipment will be tagged and removed
15 from service. Replacement equipment will meet the same specifications for accuracy and
16 precision as the equipment removed from service.

17 As part of the initial equipment set-up and testing, communication equipment will be installed
18 and tested including the following:

- 19 • Security Band Radios (if made available from FWDA) to maintain communication with site
- 20 caretaker and USACE OESS personnel.
- 21 • Hand-held portable radios used to maintain communications between the office trailer,
- 22 SUXOS, and the field teams.
- 23 • Cellular telephones to be used as back up communications between the SUXOS, UXOSO,
- 24 UXOQCS, and the field teams.

25 3.7.3 Site-Specific Training

26 As part of the mobilization process, a site-specific training will be performed for all assigned on-
27 site personnel. The purpose of this training is to ensure all on-site personnel fully understand the
28 operational procedures and methods to be used. Individual responsibilities and safety and
29 environmental concerns associated with operations will also be covered in the training. The
30 UXOSO will conduct the training sessions including the topics identified below:

- 31 • Field equipment operation, including the safety and health precautions, field inspection and
- 32 maintenance procedures being used.
- 33 • Interpretation of relevant sections of this WP and APP/SSHP as they relate to the tasks being
- 34 performed.

- 1 • Personnel awareness of potential site and operational hazards associated with site-specific
2 tasks and operations.
- 3 • How to respond when approached by any person or entity requesting information about the
4 subject of this data or this contract, specifically, personnel shall defer to the USACE.
- 5 • Public relations to ensure personnel will not make any public statements to the media without
6 prior coordination with and approval of USACE Public Affairs Office.
- 7 • Environmental concerns and sensitivity including endangered/threatened species and historic,
8 archaeological, and cultural resource issues (this includes the NN and POZ cultural resources
9 training).
- 10 • Additional USACE and/or FWDA training as required.
- 11 • Identification of features, hazards, and disposal methods of MEC (including ICM) that may
12 be encountered.

13 3.7.4 Project Notifications

14 The SUXOS will contact all appropriate local emergency services to verify the availability of
15 requisite services and confirm the means used to summon those services. General notifications
16 will be made to key project personnel at this time as well.

17 3.7.5 Compliance with Plans and Procedures

18 The Army will evaluate the requested changes and communicate with NMED via phone or
19 email, and if necessary communicate with the field teams to ensure that the agreed upon
20 procedures are in place. All changes or deviations from this WP will be explained and
21 documented in the Final Report.

22 All personnel will adhere strictly to approved plans and established procedures. If operational
23 parameters change, and there is a corresponding requirement to change procedures or routines,
24 careful evaluation of such changes will be conducted by on-site supervisory personnel. Any new
25 course of action or desired change in procedures will be submitted in writing (along with
26 justification for approval) to the USACE on-site personnel and the COR. Approved written
27 changes will be implemented in a manner ensuring procedural uniformity and end-product
28 quality complying with the Permit and/or applicable guidance documents. The USACE PM will
29 be notified of any field change submission requests.

30 3.7.6 General Site Practices

- 31 • All operational activities will be performed under the supervision and direction of qualified
32 UXO personnel. Non-UXO qualified personnel will be prohibited from performing any
33 operation unless they are accompanied and supervised by a UXO technician. Throughout the
34 entire project, personnel will adhere to the following general practices:

- 1 • **Work Hours:** Operations will be conducted only during daylight hours. Five 10-hour work
2 days are planned each week, as weather and conditions permit. Permission from the KO will
3 be required to modify the work schedule. Due to the inherent risk associated with MEC
4 operations, UXO personnel will be limited to a 60-hour workweek consisting of a maximum
5 of 45 hours of MEC field operations. No single workday will exceed ten hours. Twenty-four
6 hours must separate each MEC field operation workweek. Should extended hours be
7 employed during fieldwork, the SUXOS shall ensure a Fatigue Management Plan is included
8 and approved in the APP IAW EM 385-1-1, Para 01.A.20. These work restrictions apply to
9 all personnel.
- 10 • **Basic Procedures and SOPs:** During site operations, personnel will adhere to the
11 operational and Environmental Safety & Health procedures outlined in the SOPs.
- 12 • **Site Access:** As there are multiple contractors working within the KOA, a weekly managers
13 meeting will be held with the Government and the on-site OESS for forward planning,
14 agreement for all contractors, and Government approval of the weekly schedule. The FWDA
15 POC and the USACE OESS will be coordinated with daily for site access and controls of all
16 areas. Access to all areas where work is being conducted will be controlled. No hazardous
17 MEC operations will be conducted when non-UXO or unauthorized personnel are inside the
18 defined minimum separation distance (MSD) zone.
- 19 • **Handling of MEC:** Only UXO qualified personnel, as defined in DDESB Technical Paper
20 (TP) 18, will handle MEC items. During all operations with the potential for encountering
21 MEC, all personnel will adhere to the general procedures outlined in EM 385-1-97,
22 Explosives Safety and Health Requirements Manual.
- 23 • **Visitor Safety:** All visitors entering the site will report to the SUXOS and sign the visitor's
24 log. All site visitors will receive a safety briefing, as outlined in the SSHP, and visitors will
25 be escorted at all times by UXO personnel when inside the MEC area.
- 26 • **ICM Areas:** Only personnel meeting the requirements of DA PAM 385-63 will be allowed
27 to perform clearance activities in designated ICM areas. ICMs found outside the designated
28 ICM areas will be handled IAW appropriate guidance and properly marked and reported to
29 the OESS. The OESS will coordinate with USACE PM to determine the path forward for
30 any ICMs found outside of the designated ICM area.

31 3.7.7 Overall Safety Precautions and Practices

32 Personnel will conduct safety and operational briefings daily. Additionally, the SUXOS or
33 UXOSO may hold a safety stand-down to conduct training at any time to address site specific
34 safety concerns or incidents. The safety and operational training and briefings will be performed
35 IAW the SSHP for this project as summarized below:

- 36 • **Daily Safety Briefing:** Each day, prior to the commencement of work, the UXOSO will
37 conduct a safety briefing for all site personnel. In addition, the UXOQCS or SUXOS will
38 provide input discussion to plan for the day or quality lessons learned. A written record of
39 this meeting will be maintained in the Safety Meeting Attendance Log. The briefing will

1 focus on specific daily hazards, potential hazards and risks that may be encountered, and the
2 safety measures that should be used to eliminate or mitigate those hazards. These briefings
3 will provide personnel with the known or potential task-specific hazards related to the day's
4 operation. The Activity Hazard Analysis forms will be available and used during the safety
5 briefing to inform personnel of the task-related hazards. The Activity Hazard Analysis forms
6 will also be used to inform personnel of the PPE and safe work practices used to mitigate the
7 task hazards. In addition to the daily safety briefing, each Team Leader will hold a daily
8 tailgate safety meeting to discuss the day's operations, individual team assignments, and any
9 other concerns for the day's operations.

- 10 • **Environmental Concerns:** The promotion of environmental sensitivity and cultural
11 resources will be an ongoing part of the daily safety and operational briefs.
- 12 • **UXO Refresher:** Prior to the performance of field operations all UXO personnel will be
13 given UXO refresher training by the UXOSO, UXOQCS, or SUXOS, on the known
14 MEC/ICM that may be encountered on-site. The refresher will include topics related to
15 explosives and munitions items that may be encountered on-site, including the identification
16 of the MEC, the hazards, and the disposal methods. Periodic training will be conducted as
17 UXO are encountered and included as part of the daily team tailgate meetings.
- 18 • **Additional Training:** The SSHP prepared for this project details additional on-site training.

19 3.7.8 Vegetation Removal

20 Limited mechanical brush removal will be conducted within the proposed areas to facilitate
21 MEC removal operations; however, only limited and light vegetation removal is expected and
22 will be required using manual and/or mechanical equipment. Prior to any vegetation removal, the
23 Tribes and FWDA will be coordinated with for any vegetation removal restrictions. Elements
24 such as cottonwood trees and other culturally significant features will be marked and avoided.
25 Prior to, and during vegetation removal, UXO technicians will visually search the area where the
26 vegetation will be removed to ensure the area is free of surface MEC items or other items that
27 may present a physical hazard. During the brush removal, the affected site personnel will utilize
28 all the safety and health PPE specified in the APP. The UXO technicians cutting the vegetation
29 will wear PPE as required by EM 385-1-1. Vegetation will be cut no closer than six inches from
30 the ground surface. During any vegetation removal, strict attention will be given so as not to
31 remove any root ball of the vegetation being cut. Cut vegetation will be removed from the
32 immediate work area and placed outside of the area and allowed to degrade naturally at the
33 project site. The SUXOS will coordinate with FWDA personnel to determine the optimal
34 location(s) to place the vegetation removed from the clearance area. All vegetation removal
35 activities will be completed in accordance with EM-385-1-1, Section 31.

3.7.9 Munitions and Explosives of Concern and Material Potentially Presenting an Explosive Hazard Clearance

The Army is complying with Sections IV.C and IV.F of the Permit by conducting MEC and MPPEH clearances within the Inner Fence Area. This section contains the details of the Army adhering to these RCRA requirements.

The Army's intent is to return, if possible, this property to DOI. This section provides details of the Army's compliance with Section IV.C and IV.F to implement a clearance of the area inside the KOA (excluding AOCs and SWMUs) and designated areas with consultation of the Tribes. The UXO clearance teams will perform MEC surface and subsurface clearance to depth of detection within the Inner Fence Area (**Figure 1-2** depicts this clearance area), excluding the HWMU and AOC 92.

Upon arrival at the assigned grid, Team Leaders will verify location and install any missing grid stakes, as necessary. Team members mark lane divisions using flagging or biodegradable paint as they survey the grid using analog geophysical instruments to identify subsurface target anomalies. Control lanes will run north to south and will be approximately five ft in width with some variations based on terrain and vegetation hazards. Instruments will be maintained on the designated setting proven to locate failure criteria materials as established at the ITS. During grid clearance operations, the UXO Technicians will sweep the instruments through their respective lanes in a tight forward pattern, following the contours of the terrain and ensuring complete area coverage.

Arroyos located within the Inner Fence Area will be cleared to depth of detection in the arroyo bed and in the lower walls where it is deemed safe to traverse. A competent person will be assigned to monitor clearance activities and ensure they remain within the height and safety factors IAW EM 385-1-1, Section 21.A. Specific zones, which present a collapse or engulfment hazard, will be circumvented; the zones will be marked with red painted stakes and caution tape around the boundaries, and several GPS points will be collected to accurately represent the area in the GIS database. This information will be provided to all teams and used for the subsequent work in the identified arroyos, AOCs, and SWMUs. It is anticipated that any inaccessible areas within the arroyos will be previously identified during the on-going surface clearance of the Inner Fence Area (PIKA 2015a). If additional areas are deemed inaccessible, those areas will be identified and presented to the Army for approval.

Subsurface target anomaly findings meeting the NMED approved clearance criteria (MEC [regardless of size] and metallic debris measuring 1.5 inches by 3 inches or larger) will be removed. Identified subsurface anomalies will be manually excavated IAW EM 385-1-97 to determine the anomaly source. At no time will UXO technicians dig directly over an anomaly until its depth has been determined by digging to the side of the anomaly. An excavator may be used for deeper digs but will not be used within 12 inches of the anomaly. Once the anomaly has been located, it will be visually inspected, identified and assessed for hazards by two appropriately qualified UXO technicians, one of whom will be the UXOTIII. Target anomaly locations will be rechecked after the removal of any material to verify the material is not

1 masking anything below it. Once the target anomaly location has been determined to be
2 resolved, it will be backfilled and hand tamped. If MEC is discovered, it will be marked and
3 managed IAW the procedures described in EM 385-1-97, Change 1.

4 *3.7.9.1 Munitions and Explosives of Concern Items Encountered*

5 The MEC identification process will start when the suspected item is located. The UXO
6 technician locating the item will contact the UXOTIII when the MEC is identified and the
7 UXOTIII will confirm the identity. Once the item has been identified and marked with a pin
8 flag, the SUXOS and UXOSO will be notified and requested to evaluate whether the MEC item
9 is acceptable to move or not. If the MEC item is acceptable to move, it will be transported to the
10 ECMs under CE control, or the 10-day CAMU permitted temporary storage area for later
11 destruction at the CAMU IAW this WP. If the item is determined unacceptable to move, it will
12 be BIP. The USACE OESS will be notified and assistance requested if personnel cannot make a
13 positive identification.

14 Prior to disposal, the location of each MEC item within the grid and all relevant information
15 related to the item will be recorded. The location of each item will be recorded with GPS
16 equipment. Data associated with MEC locations will include:

- 17 • The grid number where the item was found.
- 18 • Item number assigned.
- 19 • Type of item.
- 20 • Location of item in coordinates.
- 21 • Depth below ground surface.
- 22 • Digital photograph and disposition.

23 Post-MEC disposal actions include the implementation of the MPPEH inspection process on any
24 remaining material at the shot location. If the MPPEH has an explosive hazard it will be
25 designated as MDEH, if not, it will be designated as MDAS. Items designated as MDEH will
26 undergo explosives demolition operations as discussed for MEC items in **Section 3.10.1**.

27 *3.7.9.2 Material Potentially Presenting an Explosive Hazard Inspection and* 28 *Munitions Debris/Range Related Debris Storage Requirements*

29 All suspected MPPEH will be 100 percent inspected by the UXO Field Team. Two separate
30 UXO qualified personnel will conduct the inspections prior to removing any material from the
31 grid. At a minimum a UXO Technician II will conduct a 100 percent inspection and a UXOTIII
32 will conduct a 100 percent re-inspection to determine if the item is MDEH, or MDAS (including
33 MD or RRD) and ensuring it does not contain an explosive hazard. Items designated as MDEH
34 will undergo explosive demolition operations as discussed for MEC items in **Section 3.10.1**.
35 MDAS segregated as MD and RRD will be kept in sealed and locked containers in a holding
36 area until final disposition.

1 The SUXOS will perform random spot checks to ensure and verify the established inspection
2 process is being implemented as required by the WP and that all located MD and RRD being
3 placed in the secure storage containers are free of any explosive hazards and is properly
4 segregated from other removed material to prevent comingling. If the security of the lockable
5 storage containers or drums is breached in any way, the contents must be 100 percent re-
6 inspected by two separate UXO Technicians, as described above.

7 The UXOQCS will conduct daily audits of the above procedures for processing MPPEH, MD,
8 and RRD to ensure they are being conducted as required by the WP. The UXOQCS will further
9 perform random sampling inspection of designated MDAS, MD, or RRD, as required to verify
10 no items containing explosive hazards are being comingled with the inspected MDAS, MD, or
11 RRD material.

12 Inspected and certified MDAS (MD/RRD) will be secured in a locked container such as a
13 drum(s) or roll-off container until final disposition to prevent comingling MD with material that
14 has not been inspected. The container will be secure and lockable, clearly labeled on the outside
15 with the following information: Unique identification that will start with USACE/Installation
16 Name/Contractor's Name/0001/Seals unique identification and continue sequentially for each
17 additional container used for the same project site. The seal will be attached in such a manner
18 that the container cannot be opened without damaging the seal.

19 *3.7.9.3 MDAS Final Disposition*

20 The SUXOS will certify the MDAS is free of explosive hazards and the OESS will verify the
21 MPPEH inspection process has been followed.

22 The DD form 1348-1A used to document the description of the container will be used as the
23 certification/verification documentation for each container. All DD 1348-1As must clearly show
24 the typed or printed names of the SUXOS and UXOQCS, organization, signature, contractor's
25 home office, and the field office phone number(s) of the persons certifying and verifying the
26 debris as free of explosive hazards. Also, the following must be present on the Form:

- 27 • Basic material content (Type of metal; e.g., steel or mixed);
- 28 • Estimated weight;
- 29 • Unique identification of each of the containers and seals stated as being turned over;
- 30 • Location where MD or RRD was obtained; and,
- 31 • Seal identification, if different from the unique identification of the sealed container.

32 The following certification/verification will be entered on each DD 1348-1A for turnover of MD
33 or RRD and will be signed by the SUXOS and the OESS. This statement will be used on any
34 ranges where RRD is being processed along with MD:

1 • “This certifies that the material listed has been 100 percent properly inspected and, to the best
2 of our knowledge and belief, is free of explosive hazards, engine fluids, illuminating dials
3 and other visible liquid HTRW materials.”

4 The following certification/verification will be entered on each DD 1348-1A for turnover of
5 MDAS and will be signed by the OESS. This statement will be used where only MD is being
6 processed:

7 • “This certifies that the material listed has been 100 percent inspected and, to the best of our
8 knowledge and belief, are inert and/or free of explosives or related materials.”

9 The chain of custody will be maintained and final disposition of the certified and verified
10 materials will be documented. The certified and verified material will only be released to an
11 organization that will:

12 • Upon receiving the unopened labeled containers, each with its uniquely identified and
13 unbroken seal (ensuring a continued chain of custody), and after reviewing and concurring
14 with all the provided supporting documentation, will sign for having received and agreed
15 with the provided documentation that the sealed containers contained no explosive hazards
16 upon receipt. This will be signed on the recycler’s company letterhead and clearly state that
17 the contents of these sealed containers will not be sold, traded or otherwise given to another
18 party until the contents have been smelted and are only identifiable by their basic content.

19 • Send notification and supporting documentation to the sealed container-generating contractor
20 documenting that the sealed containers have been smelted and are now only identifiable by
21 their basic content.

22 • This document will be incorporated into the Final Report as documentation for supporting
23 the final disposition of MD and RRD. If the chain of custody is broken, the MD reverts to
24 MPPEH and must undergo a second 100 percent inspection, a second 100 percent re-
25 inspection, and be documented to verify its explosives safety status (identified as either MD
26 or RRD). Material that has been documented as safe is no longer considered MPPEH as long
27 as the chain of custody remains intact. A legible copy of inspection, re-inspection, and
28 documentation must accompany the material through final disposition and be retained on file
29 for a period of three years.

30 3.8 SITE CONTROL DURING MUNITIONS AND EXPLOSIVES OF CONCERN 31 OPERATIONS

32 For the purpose of this WP, a MEC operation is defined as any activity involving investigation,
33 inspection, demolition, or the controlled movement of any MEC or explosive materials. Once a
34 MEC operation commences in an area, only essential personnel involved in the on-site activities
35 will be permitted into the MSD. The Explosive Safety Quantity-Distance Arcs for various
36 scenarios are presented in the DDESB-approved ESS (PIKA 2015b).

1 Prior to the field mobilization, the FWDA POC will be contacted to limit access to the Inner
2 Fence Area to personnel as a means to control site access. Signs will be posted to warn
3 personnel and the public that hazardous operations are being conducted. The posted signs and
4 project personnel will ensure that non-essential personnel are restricted from the exclusion zone
5 (EZ) during MEC operations. Project personnel will maintain sharp vigilance to ensure that non-
6 essential personnel do not encroach around posted signage into the EZ during MEC operations.

7 3.9 MINIMUM SEPARATION DISTANCES

8 3.9.1 Minimum Separation Distances

9 Parcel 3 is confirmed to contain ICM. MEC items identified at the Parcel 3 project site include a
10 wide range of MEC and MPPEH to include various ICMs (e.g., BLU-3 and BLU-4 bomblets).
11 Other munitions reportedly demolished in Parcel 3 at the KOA include M83(s), projectiles
12 ranging from 20mm to 240mm, bombs ranging from 3 to 10,000 pounds, and assorted rockets,
13 mortars, missiles, land mines, grenades, flares, and bulk explosives. During intentional
14 detonation operations, facilities or structures within the MSD will be vacated. During MEC
15 operations, the SUXOS, UXOSO, and UXO team leaders will ensure that the applicable MSD
16 based on the nature of the activity has been established and is maintained IAW the DDESB-
17 approved ESS. The ESS with associated MSD figures is provided under a separate cover. All
18 MSD restrictions will be established IAW this plan for the Inner Fence Area and will be enforced
19 for all personnel during all operations/activities.

20 Sandbag or water mitigation may be used as engineering controls to reduce the intentional
21 detonation MSD for MEC items that sandbag or water mitigation is permitted. These controls
22 will be used IAW HNC-ED-CS-98-7, Amendment 2 dated November 2014, HNC Safety
23 Advisory dated 7 November 2011, and DDESB Memo dated 22 May 2014. Water mitigation
24 will be used IAW HNC-ED-CS-S-00-3 Use of Water for Mitigation of Fragmentation and Blast
25 Effects Due to Intentional Detonation of Munitions, dated September 2000. Tamping (single or
26 multiple items) to reduce the MSD may be used in accordance with DDESB TP 16 and the
27 Buried Explosion Module Version 6.3.3, or most current version. These documents will be
28 available on site.

29 3.9.2 Minimum Separation Distances for Unintentional Detonations

30 The applicable MSDs for unintentional detonations for the Inner Fence Area are located in the
31 DDESB-approved ESS.

32 Preliminary site work such as surveying does not require the establishment of an MSD for
33 Quantity Distance purposes. The MSD restrictions during MEC operations apply to all non-
34 essential personnel. Essential personnel are defined as those Army and subcontractor personnel
35 essential to the safe and effective performance of the MEC removal activities along with those
36 approved and authorized visitors; all others are designated as non-essential.

1 3.10 DISPOSITION TECHNIQUES

2 3.10.1 Munitions and Explosives of Concern Disposal

3 All MEC encountered during site activities will be properly disposed. MEC disposal operations
4 will be supervised by the SUXOS and coordinated with the OESS and other site contractors.
5 MEC disposal operations will be conducted IAW the procedures outlined in USACE EM 385-1-
6 97, Change 1, Explosives Safety and Health Requirements Manual.

7 Detailed MEC demolition procedures are detailed in **Section 3.10.5**. Physical control of the on-
8 site disposal operations will be accomplished by blocking access roads/trails to the site at the
9 point of the EZ. Control of the disposal operations must be maintained to ensure no
10 unauthorized access of the site by non-essential personnel. During disposal preparation, all non-
11 essential personnel must evacuate to locations outside the applicable MSD to a designated
12 location, and all essential personnel will be evacuated to a designated safe location prior to the
13 initiation of the disposal shot. Evacuation routes are shown on **Figure 3-3**.

14 When permitted, MEC disposal operations may be conducted using sandbag or water mitigation
15 as described in **Section 3.9.1**. While preparing MEC for disposal, the UXOSO will ensure the
16 number of personnel on-site is kept to the minimum required to safely accomplish the disposal
17 task. If required, the FWDA POC will be contacted to assist with the coordination for the
18 evacuation of non-essential personnel from all inhabited buildings and storage structures within
19 the MSD IAW with this plan and the approved ESS as amended.

20 3.10.2 Munitions and Explosives of Concern Transportation

21 If MEC is encountered that is determined unacceptable to move, BIP operations will be
22 conducted. In the event MEC is determined acceptable to move, transportation of MEC will be
23 done in a specially-equipped pickup truck, dump truck or flatbed truck. MEC determined
24 acceptable to move will be relocated to the ECMs under CE control or the 10-day CAMU
25 permitted temporary storage area for later disposal at the CAMU IAW with this WP.

26 3.10.3 Planned or Established Demolition Areas

27 The CAMU will be used as an established demolition area. CAMU operation details are
28 presented in **Section 3.11**.

29 3.10.4 Collection Points and Consolidated Shots

30 In-grid collection points are those areas used to temporarily accumulate MEC pending disposal.
31 MEC items at collection points must be laid out as shown in “Procedures for Demolition of
32 Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites.” The maximum
33 net explosive weight (NEW) at a collection point will be limited such that the K40 overpressure
34 distance for the total NEW does not exceed the hazardous fragment distance for the area.

1 Collecting multiple MEC is anticipated for this project. If determined acceptable to move by the
2 SUXOS and UXOSO, consolidated MEC disposal shots at the CAMU are anticipated for this
3 project, and US Army Engineering and Support Center, Huntsville (USAESCH) publication
4 “Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and
5 Explosives (OE) Sites”, dated March 2000 will be used; a copy of this report will be available on
6 site. The maximum NEW for a consolidated shot will be limited such that the K328
7 overpressure distance for the total NEW (including donor charges) does not exceed the MSD for
8 the intentional detonation.

9 3.10.5 MEC Demolition Procedures

10 Prior to beginning disposal operations, an appropriate exclusion zone will be established around
11 the demolition activity. The exclusion zone will be based on MSD calculations for the specific
12 item being disposed of or the MSD established in the approved ESS. For consolidated shots, the
13 MSD will be selected based upon either the cumulative NEW overpressure distance or the
14 appropriate fragment range, whichever is greater.

15 Electric demolition, remote firing device, and shock tube/NONEL are the three methods that
16 may be utilized for demolition operations. The operations will be completed in accordance with
17 in TM A-1-1-31 and are generally described below:

- 18 • Once the demolition charges have been primed and set and all personnel have returned to the
19 firing point, a head count will be taken. The team will verify that all notifications have been
20 made and all site personnel have taken cover.
- 21 • Safety signals will be used in accordance with EM 385-1-1
- 22 • If there is no response from the verbal notification, the charge will be initiated.
- 23 • After the detonation, a 5-minute wait time will be observed.
- 24 • After the 5-minute wait time, the Demolition Team Leader and one other UXOQP
25 Technician will proceed to the shot area. One person will check the shot, and the second will
26 remain at a safe distance to render assistance or aid, if required. The team will complete a
27 thorough search of the shot hole and immediate area with a magnetometer to verify that
28 complete demolition was accomplished.
- 29 • The SUXOS will notify all personnel with an audible “all clear” that the shot is clear and
30 they may leave the safe area and open access roads as applicable.

31 The following will be observed during demolition activities:

- 32 • The number of persons involved in MEC disposal operations will kept to a minimum,
33 consistent with safe performance of the work at hand. Personnel will not be allowed to work
34 alone.
- 35 • Only the Demolition Team, OESS, SUXOS, UXOSO, and UXOQC will be permitted in the
36 area where charges are being assembled and demolition operations are being conducted.

- 1 • MEC disposal operations will not commence without a functioning communications
2 capability between all disposal team members. The audible signals described in EM 385-1-1,
3 Paragraph 29.H.04 will be sounded before any attempt is made to fire a demolition shot.
- 4 • All access roads to the demolition area will be secured and the site will be visually checked
5 for any unauthorized personnel.
- 6 • The team will comply with the authorized explosive limits and safe separation distances of
7 teams.
- 8 • The team will discontinue explosive operations when an unforeseen hazardous condition
9 develops and will not resume operations until the condition is corrected.
- 10 • Smoking, matches, electronic cigarettes, or other flame-producing materials will not be
11 permitted within 100 feet of an area in which explosives are being handled. Smoke only in
12 designated areas.
- 13 • During demolition operations, an emergency vehicle will be designated (in addition to the
14 vehicle associated with the Demolition Team) that will remain in the area.
- 15 • Demolition operations will only be conducted during daylight hours.
- 16 • Explosives and munitions items will be protected from the elements and static electricity.
- 17 • Only authorized spark-resistant tools will be used within 15 feet of exposed energetic
18 materials.
- 19 • MEC will not be used for donor charges in demolition operations.

20 3.11 CORRECTIVE ACTION MANAGEMENT UNIT OPERATION

21 The CAMU, located in Parcel 3, SWMU 14, is operated under Section IX of the FWDA RCRA
22 Permit and will be used for destruction and desensitization of MEC by OB/OD. The CAMU will
23 be operated for destruction and desensitization of MEC (too dangerous to remove from FWDA)
24 determined by the SUXOS, UXOSO, and the OESS. The operations of the CAMU will include
25 detonations and burning as determined by the nature of the MEC.

26 During periods of operation at the CAMU, dry grass, leaves, and other flammable vegetation will
27 be removed for a distance of at least 200 ft from the treatment units. Live vegetation will not be
28 allowed to exceed a height of six inches within 200 ft of the treatment units. The CAMU will be
29 cleared at the conclusion of each treatment by visually clearing the dirt in the pit, removing the
30 resulting ash after each burn, and all scrap and MD after each detonation.

31 Designated temporary storage area(s) for recovered MEC will be located within the CAMU and
32 will be used only if treatment and disposal processes are delayed. The temporarily stored
33 materials will be treated/disposed of as soon as the next treatment/demolition day can be
34 scheduled. At no time will items be held within the CAMU for more than 10 calendar days.
35 Any materials placed in the designated temporary storage area will be properly containerized
36 (where possible), segregated, and stacked in a manner minimizing the possibility of spreading

1 contamination. This area (i.e., Parcel 3) provides the required security measures, as it is within a
2 locked and controlled double fence. The FWDA caretaker performs security checks of the area,
3 as required.

4 The amount of MEC treated at the CAMU will not exceed 200 pounds NEW per event.
5 Treatments will not exceed 1,000 pounds NEW in any seven-day period. A log will be
6 maintained detailing NEW consumption of donor charges and MEC per event/day/week by type,
7 location and methodology to ensure expenditures are maintained within specified limitations.

8 At the CAMU, MEC, explosive components, and other associated components such as
9 propellants, bulk explosives, metal powders, detonators, and miscellaneous munitions
10 constituents will be treated. Incidental solid wastes such as wooden or metal ammunition boxes,
11 banding material and containers that can be safely separated from the munitions item/constituent,
12 will upon successful inspection, be certified as MDAS IAW DoD and USACE regulations and
13 requirements. These wastes will then be sent off-site for recycling or disposal.

14 In addition to MEC/MPPEH/MD items being recovered from the project, MEC/MPPEH/MD
15 may also be treated if found on other Parcels of FWDA by USACE or other contractors. These
16 items will be managed through inspection upon receipt, inventory documentation, storage, and
17 treatment/demolition utilizing the same procedures described above.

18 3.11.1 Corrective Action Management Unit Records

19 Pursuant to Section IX.M of the Permit, during the operations of the CAMU, the treatment and
20 maintenance operations for the CAMU will continue to be documented. The records will include
21 volume and type of munitions treated, method of treatment, type and volume of ignition source
22 or donor charges, estimated volume of incidental solid waste treated, reason separation (of the
23 solid waste) was not possible, and date and time of each treatment. In addition, a detailed record
24 of the maintenance and repairs conducted to prevent migration of contamination at the CAMU
25 will also be documented. This logbook record will be maintained at the field office, with a copy
26 located at the FWDA information repository (located at: Ft. Wingate Army Depot, 7 Miles East
27 of Gallup, Bldg. 1, Ft. Wingate, NM 87316). The log book will made available for review
28 during normal business hours.

29 3.12 MECHANIZED MEC REMOVAL AND SOIL SAMPLING

30 If areas beyond the HWMU boundary, but within the Inner Fence Area are identified as
31 “HWMU-like”, then mechanized MEC removal and confirmation soil sampling will be
32 conducted in accordance with the NMED-approved Final HWMU WP (URS 2013). In a letter
33 dated November 2, 2017 (**Appendix A**), the NMED agreed that the conditions, sampling
34 protocols, and cleanup criteria specified in the NMED-approved Final HWMU WP apply to the
35 removal of contaminated soils that extend beyond the HWMU boundary within the Inner Fence
36 Area. Procedures from the NMED-approved Final HWMU WP that will be used to clear
37 “HWMU-like” areas are presented in the following subsections.

1 3.12.1 Identification of Areas Requiring Mechanized MEC Removal

2 Potential areas requiring mechanized MEC removal procedures will be evaluated in the field by
3 both contractor and Army personnel. The identification process will be completed, tracked, and
4 documented using a grid methodology. As shown **Figure 3-1**, a typical grid in the Inner Fence
5 Area will be 100 feet by 100 feet in size. Field staff will visually inspect the ground surface of
6 each grid and utilize hand-held detectors (e.g., Schonstedt 52Cx or equivalent and White's XLT
7 or equivalent) to evaluate the subsurface conditions of the grid. If the surface and/or subsurface
8 conditions of the grid contain a sufficient number of anomalies such that excavation and
9 processing the material through a processing plant would be more efficient and safer than manual
10 excavation, then the grid will be marked for mechanized MEC removal and confirmation soil
11 sampling. In general, grids requiring mechanized MEC removal will exhibit anomaly densities
12 so high that single point anomalies cannot be acquired.

13 3.12.2 Excavation Method

14 Once areas are identified for mechanized MEC removal, debris and incidental soils will be
15 excavated using a large remote controlled excavator. The remote excavator operator will be
16 located inside an armored operating station, positioned beyond the K18 distance in accordance
17 with the DDESB-approved ESS. Additionally, the operator will don the PPE required in
18 accordance with the ESS.

19 The excavator will start at the edge of an excavation area and excavate lifts of soil from the area.
20 Once a single lift has been completed, the excavator will remove the next lift. As the soils and
21 debris are removed, the excavator will place the soils and debris into a conveyor system for
22 transport to the processing plant (described in **Section 3.12.3**). Excavation operations will
23 generally be completed working from upstream to downstream (south to north) of the arroyo to
24 prevent re-contamination of the areas where excavation work has been performed.

25 When the limits of an excavation have been reached, UXO technicians will complete an
26 instrument aided visual inspection of each excavation to verify that debris has been removed
27 prior to collecting digital geophysical mapping (DGM) on the excavation. The visual inspection
28 will be completed by a UXO technician equipped with handheld detectors such as a Schonstedt
29 GA-52CX magnetic locator or a White's or Minelab's all metal detector. The UXO technician
30 will visually inspect the surface and use the detector to identify any area that may have a high
31 density of subsurface anomalies and require additional removal. If visual or detector evidence of
32 debris is not identified, the area will be considered ready for DGM collection. Completed
33 excavations will be mapped with DGM equipment to verify and document that the debris has
34 been removed. If the DGM results indicate that additional target anomalies remain in the
35 excavation, the target anomalies will be removed and additional DGM will be collected.

36 3.12.3 Debris and Soil Processing

37 The debris and soil processing will be completed using a closed-loop screening and separation
38 plant. The process will separate material 5/8-inch or larger from soils. The process consists of

1 multiple magnets, size reduction equipment, and screens coupled with an eddy current non-
2 ferrous metal separator.

3 The multi-stage materials screening plant will be erected to receive and process materials.
4 Armoring for the protection of personnel will be in accordance with the DDESB-approved ESS.
5 The plant will be operated from a remote control station, armored in accordance with the
6 DDESB-approved ESS. The screen plant operator will be able to observe and control the
7 conveyors, screens, hammer mill, and electromagnets. The screen plant operator will remain in
8 constant contact with the loader operator, UXO technicians, and site supervision. In addition, all
9 manned inspection locations and the remote control tower will be equipped with an emergency
10 kill switch.

11 3.12.4 Post-Excavation DGM

12 After soil within the excavation area has been removed for soil processing, the area will undergo
13 100 percent DGM to identify where additional debris removal is still required. Large areas of
14 contamination will be subject to additional remote mechanical excavation, while single point
15 target anomalies will be resolved by UXO personnel. Following excavation or resolution of
16 single point target anomalies within each area (i.e., grid, acre), additional DGM will be
17 completed to verify that anomalies have been resolved.

18 The area will be divided into square grids of approximately 200-foot-by-200-foot (60 meters by
19 60 meters, or 0.94 acre) to simplify tracking of DGM completion and areas requiring further
20 remediation. Consideration will be given to grids of different dimensions if site conditions or
21 findings call for grids different from 200-foot-by-200-foot squares. The grid-based survey will
22 be conducted through deployment of a fixed line pattern with approximately 2-foot (0.6 meter)
23 line spacing, resulting in consistent data density throughout the survey area. Prior to conducting
24 the survey, grid corner coordinates will be exported from the GIS for location in the field. Grid-
25 based data will be reviewed in GIS and overlain on the survey grid layout.

26 3.12.4.1 Geophysical Equipment Electromagnetic System

27 The Geonics, Ltd., EM61 MK2 is a time-domain electromagnetic system and will be the primary
28 DGM system used during the removal. The EM61 sensors detect electrically conductive and
29 magnetically susceptible objects. A current pulse within the transmitter coil creates the primary
30 electromagnetic field. Changes in this primary field set up eddy currents in the nearby
31 conductive objects. The changing eddy currents produce a secondary or induced electromagnetic
32 field emanating from the object. This induced electromagnetic field is associated with the decay
33 of eddy currents in metal objects near the sensor and is measured by the receiver coil, the output
34 signal being proportional to the rate of change of the electromagnetic flux through the receiver
35 coil. The receiver is timed to measure the signal within four time gates (216, 336, 660, and
36 1,266 microseconds) after the primary electro-magnetic field within the ground has dissipated.
37 An anomalous secondary electromagnetic field implies a metal object is present, and the signal
38 strength of the secondary field can be used to estimate its size. The EM61 can record up to 16
39 records per second with four time gates per record, typical operations often record 10 records per

1 second with four time gates per record. Two EM61 configurations are anticipated to be utilized
2 at FWDA; a single, man-portable 1.0 by 0.5 meter coil and a three-coil vehicle-towed array. All
3 EM61 coils utilized in the survey will contain both a transmitter and receiver and will be located
4 no higher than 42 cm above the ground surface.

5 *3.12.4.2 Navigation and Positioning Equipment*

6 Real-time kinematic (RTK) GPS will be used to determine the location of the EM61 sensors.
7 This system consists of a rover and base station and provides centimeter level accuracy. The
8 RTK GPS base station will be set up based over known benchmarks in close proximity to the
9 excavation area. An RTK Rover will be mounted over the EM61 coil(s) and interfaced with the
10 data logger to record positional data coincident with instrument readings. Correction data will be
11 radio transmitted from the base station to the rover. The RTK GPS readings will be recorded at a
12 minimum rate of 1 Hertz (Hz). The positional information will be logged in the projected
13 coordinate system; NAD83, State Plane New Mexico, U.S. Survey feet.

14 *3.12.4.3 General Field Procedures*

15 Data will be collected using either a single coil, wheeled, man-portable system or a towed array
16 of more than one coil. The multiple coil towed array will have a synchronization cable between
17 the instrument electronics to allow the sensors (i.e., coils) to operate independently without any
18 significant interference. The coils of the EM61 will be oriented with the long axis perpendicular
19 to the direction of travel. The average velocity of the man-portable data collection system will
20 be 2 mph, and the average velocity of the towed array data collection system will be 2 mph.
21 Using a collection rate of 10 Hz, the man-portable system sampling interval will be at least one
22 reading per 10 cm.

23 *3.12.4.4 Standard Data Processing and Target Selection*

24 The most common, standard approach used to select anomalies is referred to as “threshold
25 picking.” The standard approach for target selection will be applied to data using the following
26 steps:

- 27 • Isolated electromagnetic anomalies will be selected from the gridded data (filtered
28 summation channel) utilizing a peak-picking algorithm (Blakely test or equivalent).
- 29 • A grid value cutoff level (threshold) will be determined in agreement with specific
30 requirements as indicated from the geophysical system verification process.
- 31 • Data will be reviewed visually by the processor, and any anomalies that may have been
32 missed by the peak-picking algorithm but with peak value above the threshold, or areas
33 masked by larger adjacent anomalies, will be manually selected, and any overlapping or
34 duplicate anomalies will be manually removed.
- 35 • Anomalies selected will be summarized in an anomaly table which will include entries for
36 optional columns used in making the dig sheet.

1 3.12.4.5 Dig Sheet Development

2 An intrusive investigation target list will be developed based on the various criteria mentioned
3 above. The methodology for final detection and selection of anomalies will be documented and
4 available for review. Anomaly, dig selection, and intrusive results tables will be submitted
5 digitally in accordance with DID MMRP-09-004, Geophysics. The dig sheet will include all
6 anomalies which have peak responses above the required threshold as well as those manually
7 picked using analysis of both the footprint and shape of the anomaly. Each target list will
8 include:

- 9 • Title information
- 10 • Project number
- 11 • Location of the survey (grid number)
- 12 • Target information
- 13 • Unique identification number
- 14 • Easting and northing positional data
- 15 • Grid value (millivolt reading and channel information)
- 16 • Dig results
- 17 • Reacquired instrument response
- 18 • Dig team
- 19 • Anomaly description
- 20 • Anomaly type (MEC, MD, RRD)
- 21 • Offset distance
- 22 • Offset direction
- 23 • Depth to top
- 24 • Weight
- 25 • Length
- 26 • Multiple (number of pieces)
- 27 • Date and time
- 28 • Post-dig target anomaly resolution verification
- 29 • Post dig target anomaly resolution verification check
- 30 • Verifiers initials
- 31 • Date

- 1 • UXOQCS target anomaly resolution inspection results (where applicable)
- 2 All targets will be reported in NAD83, State Plane, New Mexico West, U.S. Survey feet.

3 3.12.4.6 Anomaly Reacquisition

4 The purpose of anomaly reacquisition is to verify that detected and selected anomalies are
5 marked for excavation. The anomaly reacquisition team will reacquire the geophysical
6 anomalies identified for excavation on the dig sheets using the same type of instrument as the
7 original digital survey (i.e., EM61). Each reacquisition team will complete a static background
8 test followed by a cable shake and operator test at the beginning of each day to record instrument
9 background readings, measure electronic drift, locate potential interference spikes, and confirm
10 that cable connections and operators are not a significant noise source. These tests will be
11 performed if equipment malfunctions and every time equipment is replaced. The morning test
12 will include: 1) a static background collection after a 15-minute instrument warm-up, 2) a cable
13 shake test, and 3) each operator approaching and stepping away from the instrument. An ISO
14 item will then be reacquired in the Instrument Verification Strip (IVS) and the location and
15 instrument response noted in the team log.

16 The anomaly reacquisition will be conducted by operations using the following general sequence
17 and procedures:

- 18 1. Target lists will be generated with unique identification numbers, easting and northing
19 positional data, peak value, and target file name. All selected targets will be reported in
20 NAD83, State Plane New Mexico, U.S. Survey feet, and submitted for internal review and
21 approval.
- 22 2. Geophysical and navigational instruments will be set up.
- 23 3. After warming up of equipment, opening QC tests will be conducted.
- 24 4. The results of QC tests will be written on daily QC forms.
- 25 5. If the results of the IVS are within the predicted bounds identified in the initial IVS testing
26 results, the operator may begin reacquisition.
- 27 6. The target lists will be given to the intrusive teams, who will relocate the targets using RTK
28 GPS and mark the location with a polyvinyl chloride pinflag and high-visibility paint.
- 29 7. After relocation, the team will use the EM61 to locate the peak of the response. They will
30 pass over the anomaly in two perpendicular directions in order to locate the response peak as
31 accurately as possible.
- 32 8. Finally, the distance between the flag and position of the recovered material will be recorded
33 on the dig sheets.
- 34 9. At the completion of data collection, both the closing QC tests and IVS will be performed.
- 35 10. Results will be written on the QC form.

1 11. At the end of the day, instruments and cables will be visually checked, and batteries will be
2 recharged.

3 12. Data will be downloaded, backed up, and sent to the data manager. Field logs and
4 documentation will be prepared, signed, and sent.

5 The anomaly reacquisition team will also document anomalies that cannot be reacquired (false
6 positives) for follow-up by the QC Team.

7 3.12.5 Confirmation Soil Sampling

8 Following the completion of post-excavation DGM, soil samples will be collected from the
9 limits of the remedial excavations to characterize the soils remaining for future action(s). In
10 accordance with paragraph 7.3 of Attachment 7 of the RCRA Permit, the Army may elect to
11 propose an alternate land use scenario and associated cleanup goals for the site. The locations of
12 the samples will be based upon the final size and orientation of each excavation.

13 Each excavation or grid will be sampled for the constituents listed in Section III.A.4 of the
14 FWDA RCRA Permit. The purpose of the sampling is to identify those areas that have
15 constituents that exceed the cleanup criteria stipulated in Attachment 7 the RCRA Permit. Those
16 areas that exceed the cleanup criteria may require future remedial action. Screening values will
17 include values from the NMED approved Soil Background Study and Data Evaluation Report
18 (Shaw 2010) and the most current NMED Soil Screening Levels (SSLs) for a residential land use
19 scenario. If an NMED residential SSL is not available for an analyte, the most current USEPA
20 residential Regional Screening Level will be used. When background concentrations of a
21 constituent exceed the NMED residential screening value, then the background concentration for
22 that constituent will be used as the screening value.

23 3.12.5.1 Confirmation Soil Sampling Method

24 Samples will be collected from the bottom and sidewalls of each excavation. Each excavation
25 will likely vary significantly in shape and size; therefore, a composite sample will be collected
26 from at least every 100 linear feet of sidewall. The total length of excavation sidewall will be
27 measured and rounded up to the nearest 100 feet to determine the number of composite samples
28 to be collected from the excavation (e.g. an excavation with 347 feet of sidewall will have four
29 samples). The sample locations will be spaced equally along the sidewall (e.g. an excavation
30 with 347 feet of sidewall will have four composite samples collected, one from each 86 foot
31 segment of sidewall). For excavations having less than 200 feet of sidewall, three composite
32 samples, spaced equally, will be collected from the sidewalls (e.g. an excavation with 180 feet of
33 sidewall will have a composite sample collected from each 60 foot segment of sidewall).

34 If an excavation is deeper than 20 feet, a composite sample will be collected for every ten feet of
35 depth every 100 feet of sidewall.

36 A composite sample will be collected from the bottom of each excavation that is less than 100
37 feet by 100 feet (10,000 square feet). For excavations larger than 100 feet by 100 feet (10,000

1 square feet), a composite sample will be collected for every 10,000 square feet of bottom area.
2 The total area of excavation bottom will be estimated and rounded up to the nearest 10,000 feet
3 to determine the number of samples to be collected from the excavation (e.g. an excavation with
4 13,000 square feet of bottom area will have two composite samples).

5 Each sample area will consist of one discrete soil sample for volatile organic compounds (VOCs)
6 (Method 8260B) and one composite sample collected and analyzed for target analyte list metals
7 (Method 6010B/6020A/7471B), semi-volatile organic compounds (Method 8270D), explosives
8 (Method 8330B), polychlorinated biphenyl aroclors (Method 8082A), nitrate (Method 9056A),
9 cyanide (Method 9014), dioxins/furans (Method 8290), and perchlorate (Method 6850) as
10 stipulated in Section III of the FWDA RCRA Permit. Each composite sample will be comprised
11 of nine subsamples randomly collected from within each sampling area. Each sample will be
12 submitted to Agricultural Priority Pollutants Laboratory, Inc. for chemical analysis. QC samples
13 will be collected at a frequency of 10 percent.

14 *3.12.5.2 Sampling Procedures*

15 *Sampling Equipment*

16 Soil will be collected using a stainless steel spoon or trowel or disposable sampling equipment.
17 Certified, pre-cleaned sample containers obtained from the laboratory shall be used to store the
18 samples prior to laboratory analyses. Sample volumes, container types, and preservation
19 requirements shall be followed per specific method requirements in accordance with USEPA
20 SW-846.

21 *Sample Identification*

22 Samples collected during site activities will have discrete sample identification numbers. These
23 numbers are necessary to identify and track each of the many samples collected for analysis
24 during the life of this project. In addition, the sample identification numbers will be used in the
25 database to identify and retrieve the analytical results received from the laboratory. Each sample
26 is identified by a unique code that indicates the parcel number, site identifier, matrix, sample
27 location identifier, and sample number. The sample locations will be numbered sequentially
28 starting at number 001. The sample parcel number is P3 and the site identifier is "IF" for Inner
29 Fence. Source of samples IDs will incorporate matrix IDs, include the following:

- 30 • SW - Side Wall
- 31 • EB - Excavation Bottom
- 32 • Grid - Surface soil sample collected from soils in the remainder of the site

33 An example of the sample identification (ID) code for the first soil sample collected from the
34 bottom of grid F10 would be P3IF-GRID-F10-001. Matrix spikes/matrix spike duplicates
35 (MS/MSD) samples are given the same sample ID as the analytical sample, but have "MS/MSD"
36 written on the label. Field Duplicate samples are blind samples to the laboratory and are given a

1 unique sample ID. Soil samples will add 100 to the sample number to signify it is a duplicate
2 location.

3 *Field Decontamination*

4 Disposable sampling equipment (e.g., plastic spoons and disposable buckets) does not require
5 decontamination. If non-disposable soil sampling devices are used (e.g., stainless steel spoons),
6 the devices shall be decontaminated prior to each use. The reusable devices shall be
7 decontaminated by the following procedure:

- 8 1. Brush equipment with a wire or other suitable brush, if necessary or practicable, to remove
9 large particulate matter;
- 10 2. Rinse with potable tap water;
- 11 3. Wash with nonphosphate detergent or other detergent approved by NMED followed by a tap
12 water rinse;
- 13 4. Rinse with 0.1 molar nitric acid (to remove trace metals, if necessary) followed by a tap
14 water rinse;
- 15 5. Rinse with methanol (to remove organic compounds, if necessary) followed by a tap water
16 rinse;
- 17 6. Rinse with potable tap water; and
- 18 7. Double rinse with deionized water.

19 Decontamination water and waste generated during decontamination shall be containerized for
20 disposal as investigation derived waste. If decontamination water has no detected contaminant
21 levels (other than naturally occurring metals) the water will be placed in the evaporation tank
22 behind Former Building 542.

23 *Soil Sample Collection*

24 The following procedure should be used to collect surface excavation soil samples:

- 25 1. Decontaminate sampling equipment.
- 26 2. Record the sample grid location in the field logbook.
- 27 3. Don a clean pair of nitrile gloves.
- 28 4. Using a decontaminated spoon or trowel, remove soil from separate one square foot areas of
29 each mini-grid until the sampling depth of 0.5 feet is reached.
- 30 5. Collect the discrete soil for VOCs using the Terra Core® sampler from the center mini-grid.
31 Fill 40 milliliter VOAs with 5 gram plugs.
- 32 6. Collect a composite soil sample for all other parameters using a decontaminated stainless-
33 steel sampling spoon from all mini-grids into a decontaminated stainless steel bowl.

- 1 7. Composite the soil by thoroughly mixing the soil in the decontaminated stainless-steel bowl
- 2 with the sampling spoon. Fill the jar for the specified analyses.
- 3 8. Label, store, and document sample
- 4 9. Record applicable information on the Sample Collection Field Sheet.

5 *Sample Preservation and Storage*

6 In the field, each sample container shall be marked with the sample identification number,
7 sampling location, date, time of sample collection and the sampler's initials. Sample containers
8 for chemical analysis shall be placed in ice-filled coolers immediately following collection, and
9 stored at 4° Celsius prior to and during shipment. Sample containers shall be packaged to avoid
10 breakage during transportation. Chain-of-Custody (CoC) shall be followed in accordance with
11 USEPA SW-846.

12 For each sample to be submitted to the analytical laboratory for analysis, an entry shall be made
13 on a CoC form supplied by the laboratory. One CoC form shall be completed for each cooler for
14 each day of sampling. The information recorded on the CoC form includes the sampling date
15 and time, sample identification number, requested analyses and methods, and sampler's name.

16 CoC forms shall be placed in a sealed plastic bag and placed inside of the cooler with the
17 samples. Upon receipt of the sample cooler, the laboratory will verify custody and condition of
18 the samples. Non-conformances in sample receipt (e.g., broken sample containers, samples
19 received out of temperature) shall be documented on the sample receipt form and communicated
20 to the project team immediately.

21 *Quality Assurance/Quality Control*

22 Field QA/QC samples are designed to help identify potential sources of external sample
23 contamination and to evaluate potential error introduced by sample collection and handling. All
24 QA/QC samples are labeled with QA/QC identification numbers and sent to the laboratory with
25 the other samples for analyses.

26 *Duplicate Samples*

27 Duplicate samples are samples collected to assess precision of sampling and analysis. A
28 duplicate sample will be collected at the same time as the initial sample from ten percent of the
29 total sample locations. The initial sample containers for a particular parameter or set of
30 parameters will be filled first then the duplicate sample containers for the same parameter(s), and
31 so on until all necessary sample bottles for both the initial sample and the duplicate sample have
32 been filled. The duplicate soil containers will be handled in the same manner as the primary
33 sample. The duplicate sample will be assigned a QA/QC identification number, stored in an iced
34 cooler, and shipped to the laboratory on the day it is collected. Duplicate samples will be
35 collected for all parameters. The soil will be divided evenly and then homogenized separately.
36 Duplicate samples will be blind to the laboratory.

1 *Matrix Spike and Matrix Spike Duplicates*

2 MS/MSDs are used to assess the potential for matrix effects. Samples will be designated for
3 MS/MSD analysis on the chain of custody form and on the bottles. It may be necessary to
4 increase the sample volume for samples where this designation is to be made. MS/MSD samples
5 will be collected from five percent of the total sample locations.

6 **3.13 BACKFILLING EXCAVATIONS**

7 All excavations created from excavation of anomalies, detonations, and access will be backfilled
8 and restored to original grade.

9 **3.13.1 Munitions and Explosives of Concern Accountability/Daily Reporting**

10 All activities accomplished at the site will be documented, on a grid-by-grid basis. In addition,
11 operational data will be provided to the USACE OESS on a daily basis. Data to be provided
12 includes:

- 13 • Personnel on-site.
- 14 • Grids started and finished.
- 15 • MEC nomenclature located by grid.
- 16 • MD and RRD (by pound).
- 17 • Daily Safety Briefing.
- 18 • The Daily QC Report.

19 **3.13.2 Demobilization**

20 Upon completion of the tasks covered under this Performance Work Statement (PWS), field
21 personnel will demobilize from the site. The demobilization activities will consist of the
22 following steps:

- 23 • Remove temporary facilities.
- 24 • Recycle/dispose of all material in the ECMs under CE control before returning control to the
25 government.
- 26 • Perform final maintenance of the CAMU.
- 27 • A final walk through will be performed by the FWDA Caretakers, USACE, and the
28 contractor to correct any identified issues.
- 29 • Decontaminate equipment as needed. Demobilize equipment and personnel.

**TABLE 3-1
TYPE AND DEPTH OF MEC REMOVED
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO**

MRS	MEC Recovered	Maximum Depth of MEC Recovered During Previous Site Investigations (bgs)	Approximate Geophysical Detection Depth (bgs)
KOA Inner Fence Area	20mm, 37/40mm, 50mm, 57mm, 60mm, 75/76mm, 81mm, 90mm, 102mm, 105mm, 120mm, 155mm, 3.5", M83, Fuses, bomb live unit (BLU) 3 & 4, 5-inch rockets, 2.75-inch rockets and 3-inch rockets and AN-M66A2, 2000-lb HE Bombs	~ < 2 feet	~ < 4 feet

Notes:

bgs = below ground surface

KOA = Kickout Area

MEC = munitions and explosives of concern

mm = millimeter

MRS = munitions response site

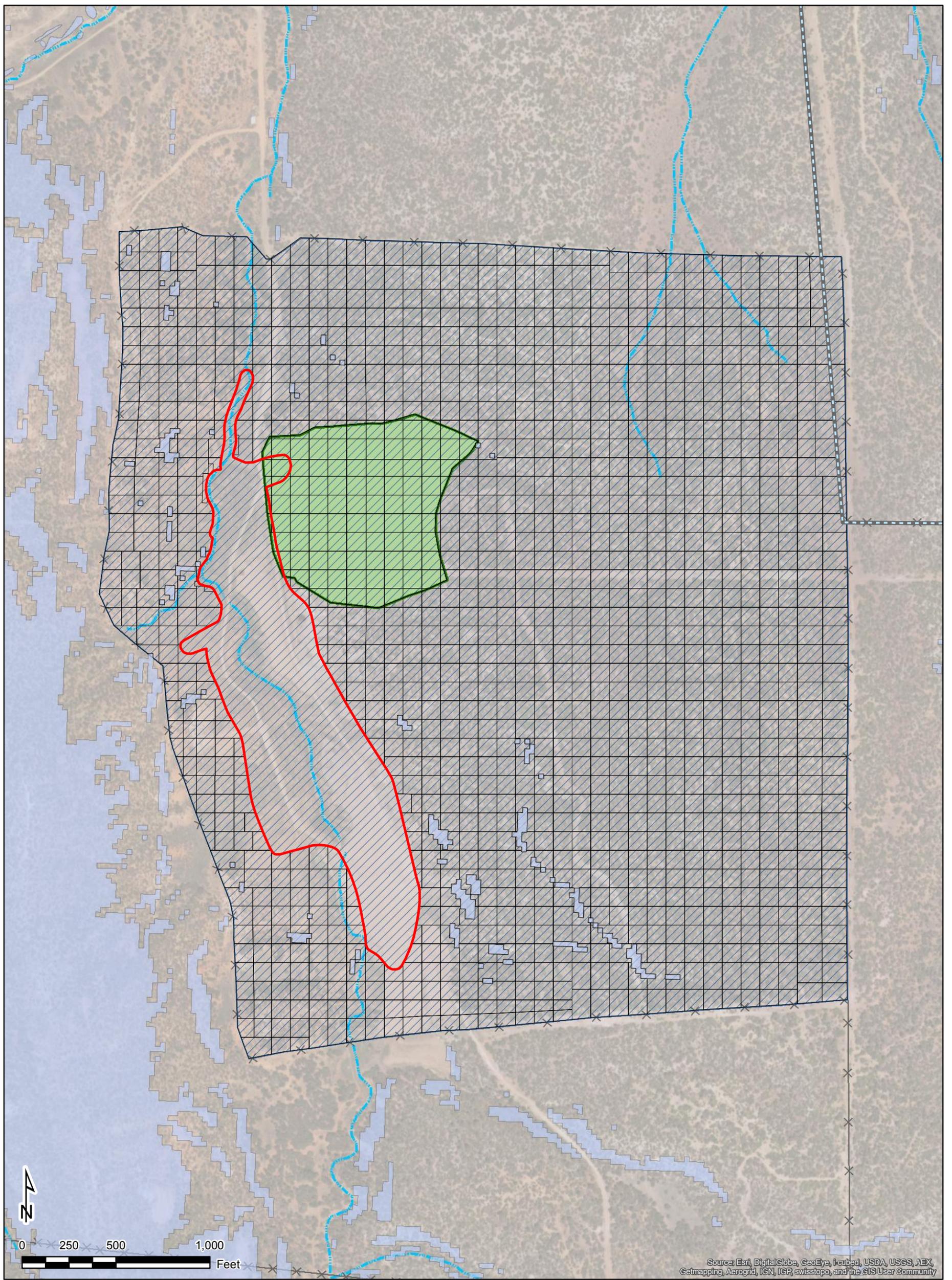
TABLE 3-2
EQUIVALENT ISO SIMULANT ITEMS
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO

Item	Nominal Pipe Size	Outside Diameter	Length
Small ISO	1 inch	1.315 inches (33mm)	4 inches (102mm)
Medium ISO	2 inch	3.375 inches (60mm)	8 inches (204mm)
Large ISO	3 inch	4.500 inches (115mm)	12 inches (306mm)

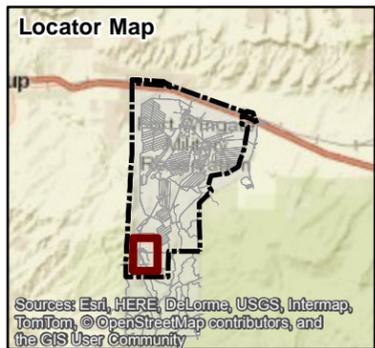
Notes:

ISO = Industry Standard Object

mm = millimeter



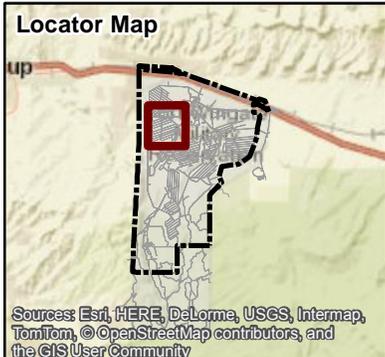
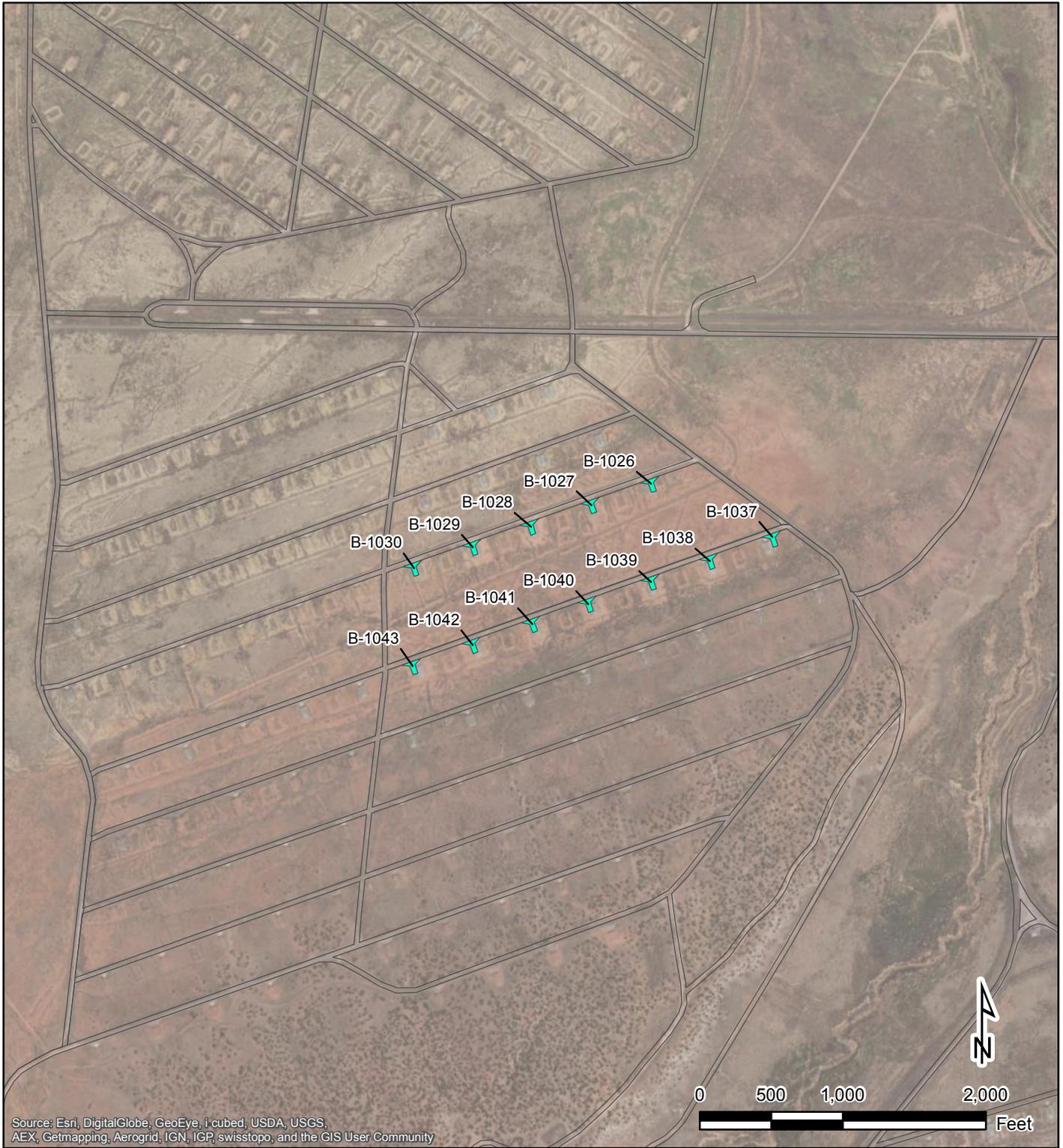
Source: Esri, DigitalGlobe, GeoEye, I cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Legend

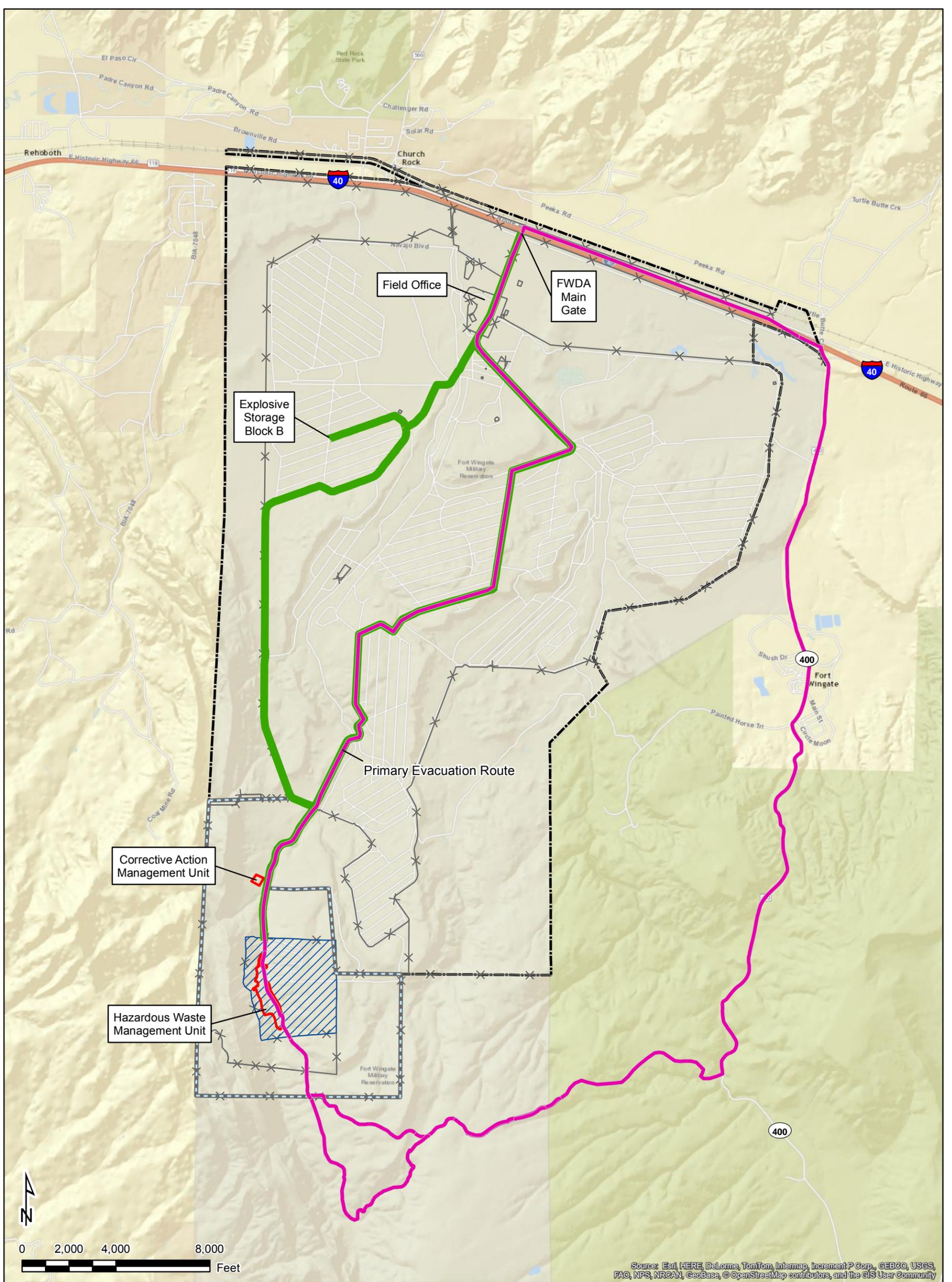
-  Installation Boundary
-  HWMU Boundary
-  Parcel 3 Boundary
-  Inner Fence Area
-  AOC 92 (Out of Scope)
-  Kickout Area
-  Inner Fence Area Grid
-  Inaccessible Area
-  Arroyo
-  Fence

Inner Fence Area Grid Map		Figure 3-1
Fort Wingate Depot Activity McKinley County, New Mexico		
Drawn By: JZ	Date: 10/5/2017	
Checked By: JC	Project No. 60517380	



- Legend**
-  Installation Boundary
 -  Earth Covered Magazine
 -  Road

ECMs at Block B Fort Wingate Depot Activity McKinley County, New Mexico		
Drawn By: JZ	Date: 10/5/2017	Figure 3-2
Checked By: JC	Project No. 60517380	



Source: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBasa, © OpenStreetMap contributors, and the GIS User Community



Legend

- Installation Boundary
- HWMU/CAMU Boundary
- Parcel 3 Boundary
- Inner Fence Area
- Evacuation Route
- Haul Route
- Fence

Anticipated Haul and Evacuation Routes	
Fort Wingate Depot Activity	
McKinley County, New Mexico	
Drawn By: JZ	Date: 10/5/2017
Checked By: JC	Project No. 60517380

Figure 3-3

Sources: Esri, HERE, DeLorme, USGS, Intermap, TomTom, © OpenStreetMap contributors, and the GIS User Community

1 4.1 CORPORATE COMMITMENT TO QUALITY

2 This QCP provides the procedures for controlling and measuring the quality of all work
3 performed during site activities. Work procedures and processes covered in this WP and QCP
4 will follow the requirements of the USACE and the RCRA Permit.

5 This QCP has been developed to ensure compliance with appropriate industry and regulatory
6 standards. It will be used to ensure activities related to this project are conducted in a planned
7 and controlled manner, tasks conform to contractual requirements, and appropriate
8 documentation is generated to support each activity. All QC activities will be performed and
9 documented IAW applicable professional and technical standards and contract requirements.

10 The procedures specified in the QCP will be considered the minimum acceptable standards.
11 Additional requirements exceeding the strict procedures reflected in this QCP may be specified
12 by the client or regulatory agencies and will be complied with. Procedures less stringent than
13 those specified will not be adopted without prior written approval from the client and the Quality
14 Program Management Team.

15 This QCP must be reviewed and formally approved before field operations commence. It is the
16 personal responsibility of all personnel associated with this project to understand and maintain
17 the quality issues applicable to their work assignments.

18 4.2 QUALITY ASSURANCE/QUALITY CONTROL

19 4.2.1 Quality Assurance

20 QA surveillance will be performed by the USACE in accordance with the government Quality
21 Assurance Surveillance Plan (QASP) and appropriate regulations, manuals, pamphlets, and other
22 compliance documents. USACE will evaluate field activities to verify the approved WP is being
23 followed and the project objectives are being met. QA audits and inspections will be performed
24 IAW established USACE guidelines and the project QASP.

25 4.2.2 Site-Specific Quality Control Plan

26 This QCP details the quality management procedures to be followed during the site activities.
27 Site-specific information includes, but is not limited to, project personnel, definable features of
28 work, required control operations, equipment tests, specific equipment calibration/response
29 check procedures, audit procedures, and client or regulatory agency requirements. This QCP
30 provides procedures for:

- 31 • Determining compliance with this plan and all other elements of the WP.
- 32 • Determining the effectiveness of work performed.
- 33 • Inspecting the maintenance and accuracy of site records.

- 1 • Testing or response checking equipment used to perform tasks.

2 4.2.3 Program Manager

3 The Program Manager is ultimately responsible for the effective implementation of the QCP for
4 all field operations. The Program Manager issues the Corporate Policy Statement and directs
5 management and workers to follow the requirements of the QCP.

6 The Program Manager has delegated QA authority as defined in the following paragraphs. Each
7 designee is held accountable for delegated authorities. The Program Manager will provide the
8 resources necessary to complete the project.

9 4.2.4 Program QA/QC Manager

10 The Program QA/QC Manager has the authority and overall responsibility for independently
11 verifying that quality is achieved. The Program QA/QC Manager will:

- 12 • Provide an independent assessment of QC procedures employed during site operations.
- 13 • Develop quality program for military munitions response/environmental restoration work,
14 oversee quality processes, evaluate recommendations to improve these processes, and
15 implement continuous improvement.
- 16 • Review and approve work plans, QC plans, training, deliverables, and processes to ensure
17 adherence to USACE quality requirements and delivery of high quality products and services
18 to USACE.
- 19 • Oversee the UXOQCS; review and evaluate daily job-site QC activities and reports.
- 20 • Stop, amend, or curtail work for major quality non-conforming conditions.
- 21 • Verify compliance with military munitions response-related DoD and Army publications,
22 USACE documents, as well as local, state, and federal statutes and codes.
- 23 • Conduct periodic job-site quality audits.
- 24 • POC for USACE counterparts on quality issues following notifications to USACE and PM.

25 4.2.5 Project Manager

26 The PM is responsible for ensuring the availability of the resources needed to implement the
27 project QCP, and will ensure the QC processes are incorporated into the project plans,
28 procedures, and training for the specific project. The PM is responsible for the quality and
29 timeliness of all project activities, including those performed by subcontractors and suppliers.
30 The PM's primary responsibilities are:

- 31 • Primary POC for developing and implementing plans to meet performance objectives and
32 other requirements.
- 33 • Manage the team during project execution, including integration of subcontractor services.

- 1 • Oversee schedule, status reporting, and invoices.
- 2 • Hold regular project review/status meetings with USACE, stakeholders, and relevant staff.
- 3 • Perform day-to-day coordination with USACE and stakeholders.
- 4 • Stop, amend, or curtail work for quality, health and safety (H&S), regulatory, or operational
- 5 deficiencies.
- 6 • Assign project staff, approve budgets and expenditures, and approve deliverables.
- 7 • Report to the USACE PM.

8 4.2.6 Senior Unexploded Ordnance Supervisor

9 The SUXOS supervises all UXO field teams performing activities and will directly supervise
10 field performance assisting personnel to achieve maximum operational safety and efficiency. He
11 reports directly to the PM. He will implement the approved plans in the field and must review
12 and approve any changes. He supervises all teams and personnel on a project including:

- 13 • Planning, coordinating, and supervising all on-site munitions activities.
- 14 • Supervise UXO field teams.
- 15 • Certify munitions, explosives, and dangerous articles and/or scrap as ready for turn-in or
- 16 disposal IAW current policies.
- 17 • Provide MEC response support for explosives safety, MEC destruction, and blast designs.
- 18 • Provide technical input to H&S Design Analyses and emergency response requirements.
- 19 • Stop work if performance is not in compliance with WP or SSHP.
- 20 • Direct and oversee UXO-related corrective actions following communications with Site
- 21 Manager and the PM.
- 22 • Coordinate with OESS on munitions field activities and schedules with notifications to the
- 23 PM and Site Manager.

24 4.2.7 Site Safety and Health Officer/Unexploded Ordnance Safety Officer

25 The Site Safety and Health Officer for this project is the UXOSO who reports directly to the
26 Program Munitions Response Safety Manager. The UXOSO will be responsible for:

- 27 • Analyzing operational risks, explosive hazards, and safety requirements.
- 28 • Developing and implementing approved explosives and UXO H&S program in compliance
- 29 with applicable DoD policy and federal, state, and local H&S statutes, regulations and codes.
- 30 • Establishing and ensuring compliance with all site-specific explosive operations safety
- 31 requirements.
- 32 • Enforce personnel limits and safety exclusion zones for explosives-related operations.

- 1 • Conduct, document, and report the results of safety inspections to ensure compliance with all
2 applicable explosives safety policies, standards, regulations and codes.
- 3 • Ensure all protective works and equipment used within the exclusion zone are operated in
4 compliance with applicable DoD policy, DDESB approvals, and federal, state, and local
5 statutes, regulations and codes.
- 6 • Stop, amend, or curtail work for H&S deficiencies.
- 7 • Reports to Program Munitions Response Safety Manager and communicates with SUXOS,
8 Site Manager, and field teams.

9 4.2.8 Unexploded Ordnance Quality Control Specialist

10 The UXOQCS has the responsibility and authority to enforce the site-specific QC plans and
11 procedures and reports directly to the Program QA/QC Manager coordinating site activities with
12 the SUXOS. The UXOQCS responsibilities include:

- 13 • Developing and implementing the MEC-specific sections of the work plan for all explosive
14 related operations.
- 15 • Conduct and document QC audits and inspection of all explosive operations for compliance.
- 16 • Identify, document, report and ensure completion of corrective actions to ensure all explosive
17 operations comply with requirements.
- 18 • Stop, amend, or curtail work for quality deficiencies.
- 19 • Reports to Program QA/QC Manager and communicates with SUXOS, Site Manager, and
20 field teams.

21 4.3 MILESTONES

22 Project updates shall be made to USACE at the completion of each milestone listed in the
23 baseline project schedule (**Figure 2-2**) or more often as appropriate.

24 4.4 EMPLOYEE QUALIFICATIONS

25 Prior to an employee's initial assignment or any change in duties/assignment, the employee's
26 certifications, medical release form, and training records will be reviewed to make sure the
27 employee is qualified and capable to perform the duties to which they are being assigned.

28 UXO qualified personnel will meet the standards required by DDESB TP 18 and DA PAM 385-
29 63 for personnel working in the designated ICM areas. A Personnel Qualifications Certification
30 Letter stating that the UXO personnel meet the qualifications of DDESB TP 18 will be
31 submitted.

- 1 The UXOSO will maintain personnel files on each employee, including copies of licenses,
2 training records, and certificates of qualifications that support the employee's placement and
3 position. At a minimum the files will include:
- 4 • Naval School, Explosive Ordnance Disposal certification or certification IAW DDESB TP 18
5 approved schools (UXO personnel only).
 - 6 • Current certificate of medical clearance/annual physical examination IAW 29 Code of
7 Federal Regulations (CFR) 1910.120.
 - 8 • 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) safety
9 training certification.
 - 10 • 8-hour HAZWOPER supervisor certification (required by position).
 - 11 • Current 8-hour annual HAZWOPER refresher certificate.
 - 12 • Current certificate for Cardiopulmonary Resuscitation training and First Aid (required by
13 position).
 - 14 • Current and Valid Driver's License (with restrictions identified) (if required).
 - 15 • Current QC training certificates (as required by position)
 - 16 • Documentation of previous experience and training in accordance with DDESB TP-18

17 4.5 PUBLICATIONS

18 A technical review of the PWS and all pertinent data has been completed, and a list of required
19 publications to be maintained at the site has been compiled. In addition to this list, any
20 additional manuals the project team may require will be provided. Prior to the start of operations
21 and periodically throughout the project, the SUXOS will check to ensure site publications are
22 present and in good repair. Results of this inspection will be recorded and reported to the PM.
23 The currently identified publications include:

- 24 • FWDA RCRA Permit No. NM6213820974.
- 25 • Corporate Environmental Safety and Health Program.
- 26 • OSHA, 29 CFR 1910, Occupational Safety and Health Standards for General Industry.
- 27 • OSHA, 29 CFR 1926, Occupational Safety and Health Standards for the Construction
28 Industry.
- 29 • EM 385-1-1, Safety and Health Requirements Manual.
- 30 • EM 385-1-97, Explosives Safety and Health Requirements Manual.
- 31 • DoD 4145.26-M, Contractor's Safety Manual for Ammunition and Explosives.
- 32 • DoD 6055.09-M, DoD Ammunition and Explosives Safety Standards.
- 33 • DA PAM 385-64, Ammunition and Explosives Safety Standards.

- 1 • Department of the Army Regulation (AR) 385-10, The Army Safety Program.
- 2 • DA PAM 385-63, Range Safety.
- 3 • AR 385-40 w/supplement, Accident Reporting and Records.
- 4 • Alcohol, Tobacco and Firearms (ATF) 27 CFR 555, Commerce in Explosives.
- 5 • ATF P 5400-7.
- 6 • Safety Data Sheets for hazardous substances used on-site.
- 7 • USACE “Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to
- 8 Intentional Detonation of Munitions”. HNC-ED-CS-S-98-7, HNC Safety Advisory and
- 9 DDESB Memo dated 22 May 2014.
- 10 • USACE Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance
- 11 and Explosives Sites.
- 12 • DDESB TP 16 and the Buried Explosion Module.
- 13 • DA PAM 385-30, Risk Management.
- 14 • HNC-ED-CS-S-00-3, Use Of Water For Mitigation Of Fragmentation And Blast Effects Due
- 15 To Intentional Detonation Of Munitions, Sept 2000.
- 16 • TM 60A-1-1-31, General Information on EOD Disposal Procedures.
- 17 • DDESB TP-18, Minimum Qualifications for Personnel Conducting Munitions and
- 18 Explosives of Concern-Related Activities.
- 19 • USACE ER 385-1-99, USACE Accident Investigation and Reporting.
- 20 • USACE EM 200-1-15, Technical Guidance For Military Munitions Response Actions (30
- 21 Oct 2015).

22 4.6 MONITORING EQUIPMENT TESTING

23 Detection and other support equipment utilized on-site (e.g., sampling pumps, real-time
24 monitors) will be checked for operational reliability IAW the manufacturer’s specifications.

25 4.6.1 Maintenance Program

26 All tools, instruments, and equipment used on-site will be properly maintained and tested (as
27 necessary) IAW the manufacturer’s specifications or standard industry practices. Analog
28 geophysical instruments will undergo daily function checks as described in **Table 4-1**. This
29 applies to communications equipment, vehicles/machinery, environmental monitoring
30 equipment, and PPE.

1 Equipment will be protected from dust and contamination and visually checked for damage prior
2 to use. Preventative maintenance will be performed on a regular basis. Critical spare parts will
3 be kept on-site to minimize downtime.

4 A maintenance program will be implemented as described below:

- 5 • Preventive Maintenance: The assigned operator of each piece of equipment will perform
6 scheduled, and when necessary, unscheduled, preventative maintenance to ensure the
7 equipment is maintained in a satisfactory operating condition. Preventive maintenance
8 consists of before, during and after operational checks, and documentation of these activities,
9 either in the operators log book or in the team leader's field log book.
- 10 • Routine Repair and Adjustment: Routine repair and adjustment is based on the
11 manufacturer's schedule for adjustment, calibration or replacement. All equipment used on-
12 site will be maintained and submitted for routine repair and adjustment IAW the
13 manufacturer's specifications.
- 14 • Emergency Repair: Emergency repair includes any unscheduled repair. This type of repair
15 will be conducted using manufacturer required replacement parts and procedures to ensure
16 the continued integrity of the equipment and viable performance.

17 4.6.2 Logs and Records

18 For all site work, bound log books with consecutively numbered pages will be used by field
19 personnel. The field log books will be used to record the daily activities of the field team,
20 provide sketch maps and other pertinent items, and to note any observations which might affect
21 the quality of data. UXO team leaders will maintain a field log book per UXO field team. The
22 field log books and site records will be utilized to record the data described below:

- 23 • The SUXOS logbook at a minimum will provide a summary of all operations conducted to
24 include information on weather conditions, problem areas, WP modifications, injuries,
25 start/stop times, tailgate safety briefs, equipment discrepancies, training conducted, visitors,
26 and any additional items deemed appropriate.
- 27 • The UXOSO will maintain a safety logbook. The log will be used to record all safety related
28 matters associated with the specific project such as: safety briefings/meetings, including
29 items covered and attendees; safety audits; near-misses/accidents/incidents. It will include
30 cause and corrective action taken; weather conditions; and any other matters encompassing
31 safety.
- 32 • Training Records: The UXOSO will maintain training records for all site personnel. These
33 records will contain training certificates, licenses, and other qualifying data for an
34 individual's duty position.
- 35 • The UXOQCS will maintain a logbook and will record the performance and results of QC
36 observations and inspections.

- 1 • Visitors Sign-in Sheet: The SUXOS and UXOSO will maintain this log for all personnel not
2 directly involved in the project site activities. This log will identify visitors by name,
3 company, date, time in/out, and a contact phone number.
- 4 • Photographic Record: The SUXOS will maintain a photographic record to log all
5 photographs taken to document work and/or site conditions. Photographs will be maintained
6 on file until the end of the project. Photographs will be forwarded to the corporate office for
7 safekeeping.
- 8 • Site Status Maps: The SUXOS and UXOQCS will maintain working status maps of the
9 operating areas provided by GIS. These maps will be used to document task progression and
10 other pertinent activities and locations.

11 Log books and records will be inspected by the UXOQCS on a weekly basis. These inspections
12 will focus on the completeness, accuracy, and legibility of the entries and records. Results of
13 these inspections will be forwarded to the SUXOS. The log books are utilized to formulate the
14 Final Report and serve as an “Official Document” in the event of any problem area identified
15 after the completion of the project. All log books will be maintained on file (at the AECOM
16 Office located at 12120 Shamrock Plaza, Suite 100, Omaha, NE 68154) for a period of seven
17 years after project completion. These logs may be digitally archived.

18 4.6.3 Quality Audits

19 An audit is an examination and evaluation performed to determine whether essential site-specific
20 elements have been identified, performed, documented, and effectively implemented IAW
21 specified requirements. Internal audits will be conducted to verify all procedures and protocols
22 are implemented IAW with approved WP. Field audits will concentrate on products, procedures,
23 proper documentation, and inspections of the database to verify performance metrics are being
24 attained.

25 4.6.4 Quality Control Surveillance

26 Daily, random, and scheduled surveillance will be performed of all work areas and definable
27 features of work identified in the WP.

28 4.6.5 Quality Control Inspections

29 Daily, random, scheduled, and final acceptance inspections will be performed of the definable
30 features of work to verify compliance with WP requirements. To verify that quality work is
31 conducted, QC inspections will be conducted according to the criteria specified in the following
32 paragraphs. All inspections will be conducted by the responsible personnel and documented
33 accordingly.

1 4.6.5.1 Geophysical Inspections

2 The performance requirements for removal action using analog methods is presented in
3 **Table 4-1** and are IAW EM 200-1-15, Table 11-6.

4 4.6.5.2 Quality Control Requirements Using Analog Methods

5 QC inspections and/or surveillance will be accomplished using QC surveillance and checklists
6 developed specifically for this process. Inspection, surveillance points, and sampling frequency
7 for each selected definable feature of work are shown in **Table 4-1**. Sampling frequencies will
8 be IAW EM 200-1-15, Table 6-6, Acceptance Sampling for Anomaly Resolution.

9 4.6.5.3 GPS Equipment Inspections

10 If GPS equipment is used for portions of the project, the functionality of the equipment relative
11 to a known control point will be established prior to the start of each day of use, documented in a
12 logbook and verified by the UXOQCS (vertical control or topography will not be confirmed).

13 4.6.6 Phase Inspection Process

14 The UXOQCS will ensure that the three-phase control process is implemented for each definable
15 feature of work, regardless of who performs the task. Each control phase is important for
16 obtaining a quality product. However, the preparatory and initial inspections will be particularly
17 invaluable in preventing problems. Production work will not be performed on a definable
18 feature of work until a successful preparatory phase inspection has been completed, and initial
19 phase inspection criteria have been identified and prepared.

20 4.6.7 Preparatory Phase Inspection

21 A preparatory phase inspection will be performed prior to beginning each definable feature of
22 work. The purpose of this inspection will be to review applicable specifications and to verify
23 that the necessary resources, conditions, and controls are in place and compliant before the start
24 of work activities. The UXOQCS will verify with the client that all prerequisite submittals have
25 been submitted and approved, and lessons learned during previous similar work have been
26 incorporated, as appropriate, into the project procedures to prevent recurrence of past problems.
27 The UXOQCS will meet the staff responsible for the performance of a given task, including
28 subcontractor personnel. The UXOQCS will document the Preparatory Phase Inspection in the
29 DQCR.

30 WPs and operating procedures will be reviewed by the UXOQCS to ensure they describe pre-
31 qualifying requirements or conditions, equipment and materials, appropriate sequence,
32 methodology, and QC provisions. The UXOQCS will verify the following:

- 33 • Required plans and procedures have been prepared and approved, and are available to the
34 field staff.

- 1 • Field equipment is appropriate for its intended use, available, and functional.
 - 2 • Responsibilities have been assigned and communicated; the field staff has the necessary
 - 3 knowledge, expertise, and information to perform their jobs.
 - 4 • The arrangements for support services have been made.
 - 5 • The prerequisite site work has been completed.
- 6 Discrepancies between existing conditions and approved plans/procedures will be resolved and
7 corrective actions taken for unsatisfactory and nonconforming conditions identified during a
8 preparatory phase inspection. This will be verified by the SUXOS, or their designee, prior to
9 granting approval for work to begin. The UXOSO will discuss job hazards with site personnel
10 and verify that the necessary safety measures are in place and ready for use. The UXOQCS will
11 verify the completion of this task.

12 4.6.8 Initial Phase Inspection

13 An initial phase inspection will be performed the first time a definable feature of work is
14 performed. The purpose of the inspection will be to:

- 15 • Check the preliminary work for compliance with procedures and contract specifications.
- 16 • Verify inspection, testing, and the established acceptable level of workmanship.
- 17 • Check safety compliance, review the minutes of the Preparatory Phase Inspection.

18 The UXOQCS will be responsible for ensuring all discrepancies between site practices and
19 approved specifications are identified and resolved. Discrepancies between site practices and the
20 approved plans/procedures will be resolved. Corrective actions for unsatisfactory conditions or
21 practices will be verified by the SUXOS, or their designee, prior to granting approval to proceed.
22 The results of the initial phase inspection results will be documented in the QC log book, on the
23 Initial Inspection Checklist, and summarized in the DQCR.

24 4.6.9 Follow-up Phase Inspection

25 A follow up phase inspection is performed each day a definable feature of work is performed.
26 The purpose of the inspection is to make sure a level of continuous compliance and
27 workmanship is maintained. The UXOQCS is responsible for on-site monitoring of the
28 operations taking place, and verifying continued compliance with the requirements of the
29 contract and approved project plans. If a work stoppage is required to correct some procedure, a
30 Stop Work Order will be completed. The UXOQCS is also responsible for verifying that a daily
31 health and safety inspection is performed and documented as prescribed in the SSHP.

32 The SUXOS will oversee and observe the same activities as under the initial inspection.
33 Discrepancies between site practices and the approved plans/procedures will be resolved, and
34 corrective actions for unsatisfactory and nonconforming conditions or practices will be verified
35 by the SUXOS or his designee, prior to granting approval to continue work. Follow-up phase

1 inspection results will be documented in the DQCR. Additional inspections performed on the
2 same task may be required. Additional preparatory and initial inspections may be warranted
3 under any of the following conditions:

- 4 • Unsatisfactory work.
- 5 • Changes in key personnel.
- 6 • Resumption of work after a substantial period of inactivity.
- 7 • Changes to the project PWS/specifications.

8 4.6.10 Lessons Learned

9 During the course of field activities, data or information may be discovered that could eliminate
10 or reduce challenges and/or offer opportunities for quality and productivity improvements
11 through value engineering. These lessons learned will be valuable tools in updating plans and
12 procedures for follow-on field operations. Lessons learned will be documented during the entire
13 project. In the event of safety-related events, the UXOSO will perform this function. If the
14 lesson learned will affect the task or project by improving safety, quality, performance or
15 economics, then the PM/SUXOS/UXOQCS will gather this information, and include it with the
16 weekly status report.

17 Topics for consideration for determining lessons learned include:

- 18 • Problems encountered.
- 19 • Solutions developed to solve the problems.
- 20 • Alternative procedures or processes that improved the operations.
- 21 • Quality/Productivity Improvements.
- 22 • Economic impacts.
- 23 • Resolving scheduling conflicts.

TABLE 4-1
PERFORMANCE REQUIREMENTS FOR REMOVAL ACTIONS USING ANALOG
METHODS
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO

Requirement	Limited Applicability (Specific to)	Performance Standard	Frequency	Consequence of Failure
Repeatability (instrument functionality) ¹	All	All items in test strip detected (trains ear daily to items of interest)	Min 1 daily	Remedial training and additional remedial measures as described in this WP if due to operator error, or replacement of faulty equipment.
Detection and Recovery ²	All	All blind detection seeds recovered	Per operator per lot: variable 1-2 large/deep and 1-3 small/shallow ⁵	If a seed item is missed, the lot will be reworked ⁶
Anomaly Resolution ^{3/4}	Verification inspections of grids completed using an analog instrument ¹	QC final acceptance inspections of completed grids to verify proper target anomaly identification and resolution. Accept on zero.	A minimum of 10% of each grid turned over to QC by Operations will be inspected ⁴	Redo affected work
GPS Equipment	All	Position offset of known/temporary control point within expected range as described in this WP.	Daily	Redo affected work

Notes:

¹ Function checks of analog geophysical instruments (e.g., Schonstedt 52Cx or equivalent) will be conducted daily at the ITS established for the project. If an instrument is found to be functioning improperly during the daily function test, it will be replaced and not used during field activities until it has been repaired and passes the function test.

² Blind seed items consisting of ISOs will be buried within a subset of the surveyed clearance grids along the Inner Fence areas as a QC check on the instruments functionality and the UXO technicians' ability to detect subsurface anomalies. Once buried, the locations of all seeded items will be recorded with a handheld GPS. The seed items will be photographed, and the depth and orientation recorded and documented. All of the seeded items will be painted the same color to clearly identify them as QC blind seeds. All seed items located by the UXO clearance teams will be recorded on the grid sheet

³ Resolved is defined as 1) there is no geophysical signal remaining at the flagged/selected location, or 2) a signal remains but it is too low or too small to be associated with the target of interest, or 3) a signal remains but is associated with surface material which when moved results in low, or no signal at the interpreted location, or 4) a signal remains and a complete rationale for its presence exists.

⁴ This performance metric includes the UXOQCS finding no MEC (regardless of size) or metallic debris 1.5 inches by 3 inches or larger in a grid turned over by Operations to QC for inspection. The UXOQCS will use the same instrument used by Operations to resolve target anomalies. The UXOQCS will notify the USACE OESS when grids have been QC accepted and are ready for Government OESS QA inspection. The UXOQCS will update the USACE OESS on a daily basis on the status of QC accepted grids awaiting OESS QA inspection.

⁵ A variant number of ISO(s) will be seeded in each lot.

⁶ Grids that have government acceptance within the lot will not require rework.

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5 Fe, New Mexico.
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- 8 DoDI. 2015. Department of Defense Instruction 4140.62 - Material Potentially Presenting an
9 Explosive Hazard. 20 August.
- 10 DDESB. 2012. Technical Paper (TP) 16 – Methodologies for Calculating Primary Fragment
11 Characteristics. Revision 4. August.
- 12 DDESB. 2016. TP 18. Minimum Qualifications for Personnel Conducting Munitions and
13 Explosives of Concern-Related Activities. 1 September 2016.
- 14 NMED. 2005. Resource Conservation and Recovery Act Permit, EPA ID No. NM 33
15 6213820974. New Mexico Environment Department Hazardous Waste Bureau,
16 December 2005 (Revised April 2014).
- 17 NWF. 2014. Burrowing Owl. Website visited October 23, 2014. Available at
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- 19 PIKA. 2009. Final Site Specific Final Report, Open Burn/Open Detonation (OB/OD) Unit
20 Kickout Investigation, Fort Wingate Depot Activity, New Mexico. PIKA International,
21 Inc., October 2009.
- 22 PIKA. 2015a. Final Work Plan, Munitions and Explosives of Concern, Removal and Surface
23 Clearance, Kickout Area, Fort Wingate Depot Activity, New Mexico. February.
- 24 PIKA. 2015b. Explosives Safety Submission, Munitions and Explosives of Concern, Non-Time
25 Critical Removal Action, Kickout Area, SWMU 1, SWMU 10, SWMU 14, SWMU 15,
26 SWMU 33, SMWU 74, AOC 79, AOC 89, AOC 90, AOC 91, and AOC 92 in Parcels 1,
27 2, 3, 11, 20, and 21, Fort Wingate Depot Activity. February.
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29 Interim Status Closure Plan, Phase IA – Characterization and Assessment of Site
30 Conditions for the Soils/Solid Matrix. Prepared for the US Army Corps of Engineers
31 (November 1999).
- 32 Robertson, A.J., Henry, D.W., and Langman, J.B. 2013. Geochemical evidence of groundwater
33 flow paths and the fate and transport of constituents of concern in the alluvial aquifer at

- 1 Fort Wingate Depot Activity, New Mexico, 2009: U.S. Geological Survey Scientific
2 Investigations Report 2013–5098, 89 p., 13 <http://pubs.usgs.gov/sir/2013/5098/>
- 3 Shaw Environmental, Inc. (Shaw). 2010. Soils Background Study and Data Evaluation Report.
4 Fort Wingate Depot Activity. October.
- 5 TM 60A-1-1-31, General Information on EOD Disposal Procedures.
- 6 URS Group, Inc. (URS). 2013. Approved Final Removal Work Plan. HWMU, Parcel 3.
7 February.
- 8 US Army. 1995. Final Environmental Assessment. Disposal of a Portion of Fort Wingate
9 Depot Activity, New Mexico. United States Department of the Army (August 1995).
- 10 USACE. 1998a. Procedures for Demolition of Multiple Rounds (Consolidated Shots) on
11 Ordnance and Explosives (OE) Sites. United States Army Engineering and Support
12 Center, Huntsville, August 1998. (Terminology Update March 2000).
- 13 USACE. 1998b. Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to
14 Intentional Detonation of Munitions, HNC-ED-CS-S-98-7. United States Army Corps of
15 Engineers, August 1998 (Including Amendment 1, February 2011, Amendment 2, May
16 2014, and HNC Safety Advisory and DDESB Memo dated 22 May 2014). .
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18 Effects due to Intentional Detonation of Munitions.
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24 Munitions and Explosives of Concern Operations. United States Army Corps of
25 Engineers, December 2014.
- 26 USACE. 2015. EM 200-1-15, Technical Guidance for Military Munitions Response Actions.
27 United States Army Corps of Engineers. 30 October.
- 28 USEPA. 2012. EPA Greenbook Nonattainment Area Map. Website visited March 8, 2013.
29 <http://www.epa.gov/oaqps001/greenbk/mapnpoll.html>. United States Environmental
30 Protection Agency (December 2012).

Sachin Saldanha

From: Paul Hanneman
Sent: Wednesday, January 14, 2015 12:36 PM
To: Myers, Dennis J SWF
Cc: Madl, Mike; Shahrukh Kanga; Sachin Saldanha
Subject: Re: FW: Kickout removal question (UNCLASSIFIED)

Thanks DJ;

Once we have USACE RTCs and red-line comments we will start finalize that WP and during that final process I'll make sure that criteria is included, however I'm confident we state the criteria of 1.5 inches x 3 inches, But I will look for text locations to insert, NMED approved criteria of metal 1.5 inches by 3 inches. If we amend the text of this document, I will talk with you before we go final and print to ensure you're ok with our un-reviewed changes.

In addition, we are currently conducting the review of the AOC/SWMU clearance and investigation WP; we will make sure that text and criteria is included in the second WP for the MEC clearance of the non-burial pit areas of the AOCs and SWMUs.

We currently have a WP Appendix A - Tribal Correspondences. I recommend we amend that title to: Appendix A - Correspondences

Please let me know if you're good with this verbiage and the change of the name of the Appendix and I will proceed to make it work.

Thanks

PWH

On Wed, Jan 14, 2015 at 11:15 AM, Myers, Dennis J SWF <Dennis.J.Myers@usace.army.mil> wrote:
Classification: UNCLASSIFIED
Caveats: NONE

Team,

In effort to keep things black and white, NMED agreement is below on the failure criteria of a grid. 1.5inches by 3inches. This email needs to be placed in the work plan. Not sure where you would like to place it, but as long it is there we should be good.

DJ

Dennis "DJ" Myers
Ordnance & Explosives Safety Specialist
FWDA Project Manager
U.S. Army Corp of Engineers
Fort Worth, TX 76102
[817-609-5014](tel:817-609-5014) (Cell)
[720-670-0493](tel:720-670-0493) (personal cell)

dennis.j.myers@usace.army.mil

-----Original Message-----

From: Smith, Steve W SWF
Sent: Wednesday, January 14, 2015 10:44 AM
To: Myers, Dennis J SWF; Christy Esler
Cc: Kirwan, Stephen E (Eric) SWF; Patterson, Mark C CIV (US)
Subject: FW: Kickout removal question (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

DJ,

Mark sure this email is in the KOA WP. It establishes the anomaly size in the Permit.

Christy,

Please file in the admin record.

-----Original Message-----

From: Kirwan, Stephen E (Eric) SWF
Sent: Monday, March 17, 2014 2:02 PM
To: Smith, Steve W SWF; Slavens, Michael SWF; Bohannon, Timothy P SWF; Smith, Jackie G SWF; Myers, Dennis J SWF
Subject: FW: Kickout removal question (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYI, see below.

Thank you,
Eric

-----Original Message-----

From: Wear, Benjamin, NMENV [mailto:Benjamin.Wear@state.nm.us]
Sent: Monday, March 17, 2014 1:00 PM
To: Kirwan, Stephen E (Eric) SWF; Cobrain, Dave, NMENV
Subject: [EXTERNAL] RE: Kickout removal question (UNCLASSIFIED)

Thanks, Eric,

Based on our discussion on Friday, we concur with your approach.

Thanks again,

Ben Wear
Environmental Scientist
Hazardous Waste Bureau

New Mexico Environment Department
2905 Rodeo Park Dr. East, Bldg. 1
Santa Fe, NM 87505
[\(505\) 476-6041](tel:5054766041)

-----Original Message-----

From: Kirwan, Stephen E (Eric) SWF [mailto:Stephen.E.Kirwan@usace.army.mil]
Sent: Monday, March 17, 2014 6:22 AM
To: Cobrain, Dave, NMENV; Wear, Benjamin, NMENV
Subject: Kickout removal question (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Gentlemen,
Per our call on Friday, I'm resending the email explaining our intent to use a specific size of metal for the cleanup requirement for the kickout area.

We are scoping the kickout removal project. We typically include in our scopes a failure criteria (usually the smallest expected item). We would like to set the failure criteria at any metal 1.5" x 3" in size. We know it is more conservative than the permit, which says remove all waste military munitions, but we don't want them digging up something and just leaving it because it isn't a munition. If you're agreeable please just respond to this email. If you would like to discuss further, let me know.

Thank you,

Eric Kirwan
SWD Regional Planning and Environmental Center U.S. Army Engineer District, Fort Worth
[\(817\) 366-2437](tel:8173662437)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE



State of New Mexico
ENVIRONMENT DEPARTMENT



Hazardous Waste Bureau

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6313
Phone (505) 476-6000 Fax (505) 476-6030
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary

J. C. BORREGO
Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

November 2, 2017

Mark Patterson
BRAC Environmental Coordinator
Fort Wingate Depot Activity
13497 Elton Road
North Lima, OH 44452

Steve Smith
USACE
CESWF-PER-DD
819 Taylor Street, Room 3B06
Fort Worth, TX 76102

**RE: CLARIFICATION REGARDING THE PARCEL 3 HAZARDOUS WASTE
MANAGEMENT UNIT CLEANUP OF SOIL CONTAMINATION OUTSIDE OF
THE UNIT BOUNDARY
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO
EPA ID# NM6213820974
HWB-FWDA-17-001**

Dear Messrs. Patterson and Smith:

The New Mexico Environment Department (NMED) discussed soil sampling and cleanup during a phone conversation that took place on September 22, 2017 between Mark Patterson (BRAC Coordinator), Steve Smith (USACE), and NMED regarding Parcel 3 remediation activity. NMED understands that the Permittee's contractor responsible for removal of contaminated soils at the Hazardous Waste Management Unit (HWMU) may encounter contaminated soils near or beyond the boundary of the HWMU. In lieu of discontinuing excavation activities, backfilling the excavation, and then returning to the site at a later date to re-excavate these contaminated soils, the contractor may elect, in coordination with the Permittee, to remove contaminated soils that extend beyond the HWMU boundary.

NMED agrees that the conditions, sampling protocols, and cleanup criteria stated in the Permittee's NMED-approved December 19, 2012 Final Removal Work Plan, HWMU, Parcel 3,

Messrs. Patterson and Smith
November 2, 2017
Page 2

Revision 1, including all modifications provided in NMED's January 24, 2013 Approval with Modifications letter, apply to the removal of contaminated soils within, below, and adjacent to the HWMU boundary within the inner fence area.

Should you have any questions, please contact Ben Wear of my staff at (505) 476-6041.

Sincerely,



John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
B. Wear, NMED HWB
C. Hendrickson, U.S. EPA Region 6
L. Rodgers, Navajo Nation
S. Begay-Platero, Navajo Nation
M. Harrington, Pueblo of Zuni
C. Seoutewa, Southwest Region BIA
G. Padilla, Navajo BIA
J. Wilson, BIA
B. Howerton, BIA
R. White, BIA
C. Esler, Sundance Consulting, Inc.

File: FWDA 2017 and Reading, Parcel 3, FWDA-17-001



DEPARTMENT OF THE ARMY
FORT WINGATE DEPOT ACTIVITY
P.O. BOX 268
FORT WINGATE, NM 87316

November 27, 2017

Mr. John Kieling
Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

RE: Army's Response to Comments, New Mexico Environmental Department
Disapproval Letter dated August 30, 2017, Parcel 3 Final Work Plan Inner Fence.

Dear Mr. Kieling:

This letter is in response to the New Mexico Environmental Department (NMED) Letter of Disapproval dated August 30, 2017, reference number HWB-FWDA-17-001, Final Work Plan Inner Fence, Parcel 3, dated August 30, 2017. The following are the Army's responses to NMED comments detailing where each comment was addressed and cross-referencing the numbered NMED comments.

Comments:

GENERAL COMMENTS

1. Work Plan Organization

NMED Comment: The Permittee has provided a document that is difficult to review. The organization of the document is inconsistent. For example Table 2-1 and Figure 2-1 are located at the end of Section 2, whereas Table 4-1 is embedded in the text of Section 4 and all site maps are located in an appendix. For all tables, either locate the tables at the end of their section or, preferably, in a "Tables" section at end of report, but before the appendices. For all figures, which includes site maps, either locate the figures at end of their respective sections or, preferably, in a "Figures" section at the end of the report, but before the appendices. The tables and figures located at the end of the sections either contain page numbers that are out of sequence with the rest of the section or do not contain page numbers at all. Include appropriate page numbering on all tables and figures.

Also, the Work Plan includes sections and appendices that are not needed or required. Inclusion of these sections and appendices requires NMED to review and provide comments on each of them, thereby significantly slowing the review process. Removal of these types of sections and appendices will allow NMED to provide more rapid review of documents. The extraneous sections and appendices include:

Section	Suggestion
Section 5: Explosives Management Plan	NMED does not review or approve explosive management plans. Remove from Plan. Specific procedures to be used at

	Parcel 3 must be summarized in the text of the Work Plan.
Section 6: Environmental Protection Plan	NMED does not review or approve environmental protection plans. Remove from Plan. Procedures to be used at Parcel 3, such as those for Investigation Derived Waste management, must be described in the document text.
Section 7: Property Management Plan	If not required for site, remove from Plan.
Section 8: Interim Holding Facility Siting Plan for Chemical Warfare Materiel	If not required for site, remove from Plan.
Section 9: Physical Security Plan for Recovered Chemical Warfare Materiel	If not required for site, remove from Plan.
Appendix D: Accident Prevention Plan	If submitted under separate cover, remove from Plan.
Appendix F: Uniform Federal Policy - Quality Assurance Project Plan	QAPPs are not typically project specific and NMED does not review QAPPs. Detailed methods and procedures to be used at Parcel 3 must be provided in the "Field Investigation Plan" or "Quality Control Plan" sections of the text.
Appendix G: Explosives Safety Submission	If submitted under separate cover, remove from Plan.

Revise the Plan to remove unnecessary sections and appendices, as well as to include detailed descriptions within the text of all methods and procedures to be used during the investigation. Also, organize the tables and figures in the revised document in a consistent manner as detailed above.

Army Response: Table 4-1 was moved to the end of Section 4 to maintain consistency throughout the document. The maps in Appendix B were moved to the end of the section when first introduced. Appendix B was deleted. All tables/figures were moved to the end of the appropriate section and contain a unique table or figure number. Moving the tables/figures to end of sections has added consistency and alleviates possible confusion as to where tables/figures can be found. Based on the NMED suggestions regarding WP sections and appendices, the following sections/appendices were removed from the WP: Section 5: Explosives Management Plan, Section 6: Environmental Protection Plan, Section 7: Property Management Plan, Section 8: Interim Holding Facility Plan Siting Plan, Appendix D: APP, Appendix F: UFP-QAPP, and Appendix G: Explosives Safety Submission.

2. Nature and Extent of Contamination, Appendix F, UFP-QAPP, Attachment 1, Meeting Notes, p 2

Permittee Statement: "Mark Patterson noted that soil sampling should not be unnecessarily completed if receptor pathways are incomplete (i.e., the residential exposure horizon does not extend below 10 feet)."

NMED Comment: This direction is not appropriate. An integral part of all site investigations is the requirement to define the nature and extent of contamination at the

site. Section VII.H.I.b, RCRA Facility Investigation Work Plan Requirements, of the FWDA RCRA Permit states, “[t]he RFI Work Plan shall include schedules of implementation and completion of specific actions necessary to determine the nature and extent of contamination and the potential pathways of contaminant releases to the air, soil, surface water, and ground water.” Whether receptor pathways are complete or not, the nature and extent of contamination at the site must be defined and all potential exposure pathways must be addressed.

Army Response: Appendix F of the WP was removed as indicated in the response above.

SPECIFIC COMMENTS

3. Section 3.1, Overall Approach to Munitions Response Activities, p 3-2

Permittee Statement: “MEC (regardless of size) and metallic debris measuring 1.5 inches by 3 inches or larger will be removed from the surface and subsurface by manual digging of anomalies IAW EM 385-1-97 to depth of detection.”

NMED Comment: Depth of detection is not defined. Provide the effective depth of detection for various sized objects (e.g., 1.5"x3" objects, 40mm mortars, 75mm mortars, etc.) in the revised Plan.

Army Response: Section 3.1 was revised as follows: “...to depth of detection. *Depth of detection varies depending on the size and orientation of the subsurface anomaly. In general, the depth of detection utilizing handheld detectors is 11 times the diameter of that item. Expected MEC types and approximate geophysical detection depths are shown in Table 3-1.* UXO teams will survey...”

The following table was added to present the type of MEC expected, maximum depth of MEC recovered during investigations, and approximate geophysical detection depths.

MRS	MEC Recovered	Maximum Depth of MEC Recovered During Previous Site Investigations (bgs)	Approximate Geophysical Detection Depth (bgs)
KOA Inner Fence Area	20mm, 37/40mm, 50mm, 57mm, 60mm, 75/76mm, 81mm, 90mm, 102mm, 105mm, 120mm, 155mm, 3.5", M83, Fuses, bomb live unit (BLU) 3 & 4, 5-inch rockets, 2.75-inch rockets and 3-inch rockets and AN-	~ < 2 feet	~ < 4 feet

	M66A2, 2000-lb HE Bombs		
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Notes:
 bgs = below ground surface
 KOA = Kickout Area
 MEC = munitions and explosives of concern
 mm = millimeter
 MRS = munitions response site

4. Section 3.1, Overall Approach to Munitions Response Activities, p 3-2

Permittee Statement: “Based on previous activities and geophysical surveys, it is likely that some portions of the Inner Fence Area adjacent to the HWMU boundary will exhibit subsurface conditions that are “HWMU-like” (i.e., high concentration of WMM at depths exceeding the limit of detection for analog geophysical instruments). Such areas will require mechanized MEC procedures in accordance with EM 385-1-97 instead of the analog survey and removal procedures. Any “HWMU-like” areas will be identified in coordination with the Army, and subsurface clearance of these areas will proceed as directed in the Approved Final HWMU Work Plan, Revision 1 (AECOM 2017). Sampling and analysis requirements for any “HWMU-like” areas are presented in the Uniform Federal Policy - Quality Assurance Project Plan (UFP-QAPP) (Appendix F) for the HWMU Removal Work Plan Amendment.”

NMED Comment: The Plan provides no details on how “HWMU-like” areas will be identified if the WMM are at depths exceeding the limit of detection for analog geophysical instruments. The Plan also provides no details on clearance of “HWMU-like” areas. Reference to another work plan or a QAPP is not appropriate. Provide detailed descriptions of all work to be performed in the Inner Fence Area in the text of the Plan. Revise the Plan to include detailed descriptions of how “HWMU-like” areas within the Inner Fence Area will be cleared.

Army Response: Subsequent to the NMED review of the Inner Fence WP, the NMED and the Fort Wingate project team have had additional discussions regarding contaminated areas beyond the HWMU boundary within the Inner Fence Area (i.e., HWMU-like areas). As stated in a letter dated 2 November 2017 from NMED to BRAC/USACE outlining these additional discussions, NMED agreed that the conditions, sampling protocols, and cleanup criteria stated in the NMED-approved HWMU WP apply to the removal of contaminated soils beyond the HWMU boundary within the Inner Fence Area. Therefore, Section 3.12 of the Inner Fence WP has been revised to include details from the NMED-approved HWMU WP to describe how the clearance of “HWMU-like” areas will be conducted.

The WP was revised to remove text indicating that “HWMU-like” areas contain high concentrations of WMM at depths exceeding the limits of detection for analog geophysical instruments. The presence of “HWMU-like” material below depths of detection is not anticipated because these areas will likely exhibit strong subsurface signatures and/or be visibly identifiable. Section 3.1 was revised to clarify the description of “HWMU-like” as follows: “...it is likely that some portions of the Inner Fence Area adjacent to the HWMU boundary will exhibit subsurface conditions that are “HWMU-like” (i.e., contaminated areas that contain a sufficient number of anomalies such that excavation and processing the

material through a processing plant would be more efficient and safer than manual excavation). Such areas will require mechanized MEC procedures in accordance with EM 385-1-97 instead of analog survey and manual excavation removal procedures.”

Section 3.1 was also revised to introduce the NMED clarification letter as follows: “In a letter dated November 2, 2017, the NMED agreed that the conditions, sampling protocols, and cleanup criteria specified in NMED-approved Final HWMU Work Plan (URS 2013) apply to the removal of contaminated soils that extend beyond the HWMU boundary (i.e., HWMU-like areas) within the Inner Fence Area. Contaminated areas requiring mechanical excavation (e.g., HWMU-like areas) as described above will be cleared in accordance with the NMED letter addressing contaminated soils beyond the HWMU boundary within the Inner Fence Area (**Appendix A**). In accordance with the NMED-provided letter, subsurface clearance of these areas will proceed as directed in the Approved Final HWMU Work Plan (URS 2013). Details of how “HWMU-like” areas within the Inner Fence Area will be cleared and sampled are provided in **Section 3.12**.”

5. Section 3.10.1, Munitions and Explosives of Concern Disposal, p 3-16

Permittee Statement: “Detailed MEC disposal procedures are found in the MEC Disposal SOP.”

NMED Comment: Descriptions of all methods and procedures must be included in the Report text. References to an SOP is not acceptable. Provide detailed descriptions of all work to be performed in the Inner Fence Area in the text of the Plan. Revise the Plan to include detailed descriptions of MEC disposal procedures that will be used within the Inner Fence Area.

Army Response: Section 3.10.1 was revised as follows: “Detailed MEC demolition procedures are detailed in **Section 3.10.5**.”

A description of MEC demolition was added to Section 3.10.5.

6. Section 3.12, Soil Sampling for Munitions Constituents, p 3-18

Permittee Statement: “Munitions constituents (MC) sampling will not be conducted under the WP for this task. Therefore, no UFP-QAPP outlining MC sampling requirement is required for this work. However, if “HWMU-like” areas are identified and approved for removal by mechanized MEC procedures, then confirmation soil sampling will be completed IA W the HWMU Work Plan Amendment. A copy of the UFP-QAPP for the HWMU removal is included in Appendix F.”

NMED Comment: The Plan provides no details on clearance of “HWMU-like” areas. Reference to another work plan or a QAPP is not appropriate. The Permittee must provide detailed descriptions of all work to be performed in the Inner Fence Area in the text of the Plan. Revise the Plan to include detailed descriptions of how “HWMU-like” areas within the Inner Fence Area will be cleared, as well as how confirmation samples for munition-related contamination will be collected and analyzed.

Army Response: As discussed above, the clearance of contaminated soils that extend beyond the HWMU boundary within the Inner Fence Area (i.e., “HWMU-like” material) will proceed as described in the NMED clarification letter dated 2 November 2017. Therefore, the Inner Fence WP has been revised to include details from the NMED-approved HWMU WP to describe how the clearance of “HWMU-like” areas will be conducted, including how confirmation samples will be collected and analyzed. Details for the clearance of “HWMU-like” areas were included in Section 3.12.

7. Appendix C, Project Schedule.

NMED Comment: The provided schedule is overly complicated and difficult to interpret. In the revised Plan, provide a simplified project schedule indicating when the field work will begin and end, as well as when report documenting the field work and results will be provided to NMED.

Army Response: The schedule in Appendix C was revised to only include tasks related to the Inner Fence work. Also, the project schedule was moved into the main body of the work plan.

If you have questions or require further information, please call me at (505) 721-9770.

Sincerely,

PATTERSON.MAR
K.C.1229214493

Digitally signed by
PATTERSON.MAR.K.C.1229214493
DN: c=US, o=U.S. Government, ou=DoD,
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Mark Patterson
BRAC Environmental Coordinator

Enclosures

CF:

Media

D Cobrain, NMED HWB
B Wear, NMED HWB
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